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Punjab.**

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PUBLICATION No. 37.

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

ECONOMIC CONDITIONS

OF

SIMLA RICKSHAW MEN.

INQUIRY

CONDUCTED BY

L. R. DAWAR, M.A.

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

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PREFACE.

This report presents the results of an inquiry undertaken in the summer of 1933 by the Punjab Board of Economic Inquiry. The inquiry was entrusted to an Investigator who had undertaken several previous inquiries of various types and he has produced an interesting and valuable report on a somewhat singular example of human endeavour to earn a livelihood. His task was far from easy, for the rickshaw men are apt to be credulous and suspicious ; and the winning of their confidence was a necessary preliminary to the collection of reliable information regarding their mode of life.

2. Owing to various difficulties discussed in the report, the information is not always as complete statistically as some would perhaps like ; the samples are small in certain cases, and on the medical side especially there are gaps which further investigations may fill in. But there is sufficient material to indicate the general economic condition of those with whom the inquiry deals, and to give a reasonably adequate picture of the conditions of their life and livelihood.

3. It is not the aim of the Board, in conducting these inquiries, to stimulate the social conscience or to point the way to action. Their object is to present facts and to leave the deductions to those whom they concern. The author of the report has accordingly exercised a great measure of restraint in preparing his account which the facts that came to his notice rendered difficult at times, and has in only a few instances suggested fairly obvious steps that might be taken to alleviate the lot of the rickshaw men. The writer of this preface, who is not connected with the Board, but supervised the inquiry on their behalf, cannot but express the hope that the report will serve to bring to the notice of the public in Simla and of their representatives in positions of authority, the urgent need for an amelioration of the conditions of licensed rickshaw men.

4. A question which the facts suggest is that of the regulation of the number of rickshaw men licensed. This number has shown a tendency to rise while custom has decreased ; and the writer of this preface believes that an appreciable reduction in the number would be a wise step. Such a reduction could be

effected without adding unduly to the number of journeys made by each man, or creating any shortage except perhaps on one or two days in the season : it would increase the average earnings substantially and would effect some immediate improvement in the living conditions, where improvement is particularly needed. If admission to the profession for new entrants was restricted and those who are physically least fit were excluded, the result should be a general increase in the well-being of the men as a whole. But care would be necessary to ensure that the "surplus value" of selection remained with the men selected.

5. The report will raise in the minds of some readers the more fundamental issue of the continuance of the system. Few thoughtful persons can have travelled in a rickshaw without a regret that no other suitable means of transport is available, and a certain disquietude at the idea of employing men on such work. This is frequently heightened by the contrast between the circumstances of the passenger and of those conveying him, possibly, to an evening's diversion or hospitality. The truism that the men would not come if they did not secure a financial benefit by so doing is not a complete answer to such doubts. But the circumstances of Simla place serious obstacles in the way of introducing any alternative system ; and it would seem therefore that the aim at present should be to ensure conditions which will meet to the fullest extent possible the needs of human personality.

6. Acknowledgments are due to all who contributed to the results here presented -- to the municipal and health authorities and their employees, to the owners of private rickshaws, the manufacturers and the *chaudhris*, and to those rickshaw men who submitted to what must have been at times a perplexing inquisition.

NEW DELHI,
21st February, 1934.

A. G. CLOW.

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CHAPTER I. INTRODUCTORY.

1. The only wheeled vehicle which the general public are allowed in Simla is the rickshaw, introduced, it is said, in the late 'seventies, when the Simla roads were made negotiable. The "three great powers of Simla,"* as Sir Edward Buck calls them, are alone privileged to drive in cars or carriages drawn by horses. Whether one is a Maharaja, or a city father of Simla, or even a member of the Legislative Assembly, one has to be content with a rickshaw, private or hired.

2. Rickshaw is a Japanese word meaning a small two-wheeled vehicle.† Its use is still extensive in Japan and other places in the Far East, where it is plied by one man who runs between the shafts; in Rangoon and Calcutta also similar rickshaws are in use. In Simla the rickshaw is built on heavy lines and the usual number of men is four for each vehicle, this being the minimum number allowed by the Municipality.

3. Prior to the rickshaws, Simla used to have *jampans* and *dandis* and there is much evidence to show that they were quite popular, but they are not comparable with the modern rickshaw. Sir Edward Buck in his 'Simla Past and Present' describes them in the following words:—
" . . . the *jampan* with its curtains for protection against sun or rain, not altogether unlike a four-post bedstead, was carried by four men and was a jolting back-aching abomination. The *dandi*, a piece of loose footrest, was, if anything, even worse. If the getting into the *durry* was not carefully negotiated, a half somersault backward resulted, and even when the entrance was safely accomplished, the rider always appeared to be occupying an undignified position." Both these are now unknown in Simla, although similar contrivances are used in the surrounding hills.

4. The first rickshaw brought into Simla belonged to Rev. J. Fordyce, a chaplain of St. Marks Church.‡ It created much interest and many

* Their Excellencies, the Viceroy of India, the Commander-in-Chief, and the Governor of the Punjab.

† The Concise Universal Encyclopædia: Rickshaw. (Jinrickshaw = jin, a man; riki, strength; sha, a car) Japanese word meaning a small two-wheeled vehicle drawn by a man. It consists of a light chair mounted on two large wheels and generally provided with a movable hood.

‡ "Liddell's Simla Weekly" of 12th August, 1933.

"The hood of that first rickshaw
Was square, and trimmed with fringe,
Such as dangled from the mantelpiece
In many a Berlin tinge.
During the early Eighties,
When Mrs. Reverend J.
Invented our first rickshaw
For Simla during May." A.E.D.

more rickshaws soon followed, till within a decade the *jampans* and *dandis* had been more or less ousted. But even if the rickshaw of those days was an improvement on *jampans* and *dandis* it was hardly comparable with the present type. It was iron-tyred and, it is said, used to bump and shake fearfully. 'On the night of a big dance, or other *tamasha*, Simla used to be kept up by the continual rumbling roll of hundreds of rickshaws.*' The rubber tyre was introduced in 1898, and in 1904 the Municipality made it a condition of securing a license that a rickshaw should have rubber tyres. With this, and the improvements in wheels, cushions and upholstery it is now almost a pleasure (apart from the twinges of conscience mentioned in the preface by Mr. Clow) to be driven about in a rickshaw, and slumbering Simla, on occasions such as have been referred to above, lies serenely unconscious of the return of the revellers. A few private rickshaws are furnished with pneumatic tyres, and a further elaboration consists of specially constructed *purdah* rickshaws, with blue glass fronts.

5. The usual length of a Simla rickshaw is 9 feet including the shaft, and the breadth 4 feet ; the weight is normally between 260 and 360 lbs. The factors that count in the weight are the size of the vehicle, the kind of the wood used, the iron work and the material used for the hood. The weight of a rickshaw, however, is not considered so important as its balance when occupied. Similarly, much importance is attached by the men who have to run the vehicle to the position of the back bar, the mechanism of the wheels, and many other technical details which are considered to affect the strain in pulling. A rickshaw may have wooden wheels or wire wheels ; some of the latter (but never the former) are fitted with ball-bearing axles which are lighter and make the wheels look more attractive ; but unfortunately they require more frequent and more costly repairs than the ordinary wheels. Every rickshaw is required to carry a lamp at night, candles being used for the illuminant.

6. Rickshaws for hire are available at public sheds of which there are 38 in Simla. Particulars of their situation, ownership and the number of rickshaws at each are given in Appendix III. The number to be kept in any shed is specified by the Municipality and the tenants of the sheds, called *chaudhris*, are supposed to be the owners of the rickshaws of their respective sheds, but in a few cases they are merely agents for other people who control the enterprise. The rickshaw men in private employ are known (after the old *jampans* which were mostly privately owned), as *jampanis*. Those who work on the public sheds are usually called rickshaw coolies.

* " Simla in Ragtime " by Doz, page 68.

7. All rickshaws which are to be plied on hire have to be presented at the Municipal Office for a license and only vehicles that are in perfectly good order are passed. With every rickshaw the *chaudhri* has to get five rickshaw men licensed. Four out of each of these groups work with the rickshaw, while the others form a reserve and work when necessary, as substitutes, or for hire as job porters, or as pullers for private rickshaws whose owners do not maintain whole-time *jampanis*. The annual license fee paid by each rickshaw man was a rupee till the end of 1929, when it was reduced to four annas, which is intended to represent the price of the brass badge given to them and is refundable on the return of the latter.

8. Till 1930 a rickshaw could be plied by three men, though in actual practice the number of men employed was nearly always four, which was then fixed as the minimum number. Of the 84 owners of privately owned rickshaws who supplied details, 5 had one man each, 66 had four men, 11 five men and 2 six men to a rickshaw. Owners who had only one man depended on him to secure more men, whenever required, from the public sheds, and no private rickshaw is pulled by less than four men.

9. The Municipality does not license the *jampanis*, although proposals to this effect have received consideration at a number of its meetings, since it was first considered in 1901. At this time the idea of imposing criminal penalties on workmen breaking contracts (since eliminated from the Indian Statute-book) was generally accepted, and the impulse seems to have come from those who wanted to prevent desertion. The question, having been discussed by the Municipality was dropped for lack of powers to enable it to control private servants. In 1915 the Municipality issued a sort of a questionnaire on the subject, but there was not an enthusiastic response from the public. The question again arose in 1919 after the Punjab Legislative Council had passed an amendment to the Municipal Act, to enable the Simla Municipal Committee to license private *jampanis*; but it was decided at a meeting of the Committee that it was inexpedient to take action; it was felt that the *jampanis* would look on licensing as something connected with forced military service, and the effect would be to drive them from Simla.

10. One seldom hears of a rickshaw man receiving training for his job, and it may even appear that it requires none, but it is not altogether an unskilled occupation. It is an art which comes by continued employment as the man has to develop strong 'wind', has to learn to handle the rickshaw so as to keep it in balance, and has to develop that sense of judgment and sure-footedness which is so necessary at turnings and steep gradients.

If all four men with a rickshaw were amateurs, not only would they be unable to go up very steep hills but they would be liable at any time to lose control of the vehicle or otherwise cause accidents. As a rule, therefore, the rickshaw men take no more than one novice in the team; he copies the others in their movements and gradually acquires the necessary skill.

11. The following table shows the numbers of rickshaws and rickshaw men licensed by the Municipality in recent years:—

Year.	Number licensed—	
	Men.	Rickshaws.
1923	2,354	Record destroyed.
1924	2,383	..
1925	2,459	..
1926	2,579	450
1927	2,555	461
1928	2,424	463
1929	2,443	488
1930	2,692	504
1931	2,863	476
1932	2,885	517
1933	2,707	478

The following table gives the figures of the conveyances in use in Mussoorie and Naini Tal in 1933:—

Mussoorie	.. Rickshaws		<i>For</i>	<i>Privately</i>
	Single	.. ..	<i>hire.</i>	<i>owned.</i>
	Double	.. ..	30	14
	Dandis	.. ..	230	65
Naini Tal	.. Rickshaws		71	(Not known)
	Single	.. ..	2	(..)
	Double	.. ..	11	(..)
	Dandis	.. ..	94	(..)

They show that in Naini Tal, the *dandi* is still the main conveyance, while in Mussoorie also the number is considerable. What is more remarkable is the predominance of the double rickshaw. In Simla the Municipal bye-laws require that a rickshaw shall not exceed 4 feet 6 inches in width, and therefore the hire of double rickshaws is virtually prohibited*; the only four double rickshaws are privately owned. The main advantage claimed for the double rickshaw is that it is more sociable.

12. A majority of the rickshaws in use at Simla were purchased originally from Calcutta and a few are still ordered from there. The first rickshaw built in Simla was made by a Mr. R. Johnson, whose workshop was at the present site of Blessington's. Mr. Johnson sold the business in

* The width of a double rickshaw is five feet.

1900 to Mr. Felix Goldstein, and the latter within a couple of years to Mr. Rivett, who sold in 1916 to Mr. Blessington, who started originally in 1907 on a small scale, in the neighbourhood of Mr. Rivett's establishment. At present there are two workshops, Blessington's and the Imperial Rickshaw Works. Lala Beli Ram, the owner of the latter, was for over fifteen years working for Mr. Blessington.

13. It is said that in the old days nearly every one who could afford it kept his own rickshaw, but now this is the case only with about 200 people. The price of a new rickshaw of the ordinary type in public use is between Rs. 450 and Rs. 600 but several privately owned rickshaws are of an improved type and have cost from Rs. 700 to Rs. 1,200.

14. The *chaudhris* buy only second-hand rickshaws. Both manufacturers in Simla stated that they had never sold a new rickshaw to a *chaudhri*, and they estimated the *chaudhris'* average initial cost per rickshaw at Rs. 150. They were, however, of the opinion that, since there was a steady decline in the purchase of private rickshaws, a deficiency of second-hand rickshaws was inevitable and ultimately new rickshaws would have to be bought by the *chaudhris*. But for a long time they will probably use the frames of old ones, as they have already started to do, getting new bodies made and using the old axles, springs and wheels, or using old bodies and replacing other parts. The normal life of a rickshaw, provided repairs and renovations are attended to regularly, is estimated at thirty years. The average annual expenses for the upkeep and running of a rickshaw as deduced from the evidence of *chaudhris* and rickshaw manufacturers are as below. This estimate does not take account of the overhead charges such as rent of the shed, interest on debts incurred by the *chaudhri* in connection with his business, salary of clerks, if any, and irregular gratifications that may have to be paid.

	Rs.	a.	p.
Rubber tyres	13	0	0
Painting	5	0	0
Upholstery, leather work, and wages of <i>mochi</i> , etc. ..	12	0	0
Miscellaneous repairs and renovations ..	10	0	0
Municipal tax	8	0	0
License fee	3	0	0
Candles, axle grease, etc.	8	0	0
<i>Total</i>	<u>59</u>	<u>0</u>	<u>0</u>

Except for the taxes, the expenses on the items vary in the different sheds, primarily in proportion to the amount of work, and the figures given can be nothing more than a rough estimate of the average conditions,

CHAPTER II.

THE RICKSHAW MAN.

1. Simla has no local labour and the rickshaw men come each year for the season. They have a scattered origin and represent a wide diversity of castes, but they come mainly from the hill states on the north and north-west. Essentially they are village menials and agriculturists, forsaking their homes temporarily in order to add to their incomes.

2. The homes of origin of the 2,707 rickshaw men licensed during the season of 1933 were as follows :—

Home of origin.	Number of men.
<i>Simla States—</i>	
Bilaspur	1,007
Arki	114
Nalagarh	35
Mangal	15
<i>Total</i> ..	<i>1,171</i>
<i>Kangra District and States—</i>	
District Proper	894
Mandi State	159
Suket	81
<i>Total</i> ..	<i>1,134</i>
<i>Hoshiarpur District</i>	<i>306</i>
<i>Ambala</i>	<i>20</i>
<i>Jullundur</i>	<i>7</i>
<i>Garhwal</i>	<i>69</i>
<i>Grand Total</i> ..	<i>2,707</i>

3. It is stated in the report of the Royal Commission on Labour, page 14, that emigration has always arisen mainly from the difficulty of finding an adequate livelihood in one's own native place; and this is the factor leading to the rickshaw men's migration to Simla. Hoshiarpur District has the highest incidence per square mile of cultivated area in the Punjab, Simla District comes second, Kangra District third and Jullundur District

fourth; the average number of persons per square mile of cultivated area in these districts is as follows* :—

<i>District.</i>				<i>Number.</i>
Hoshiarpur	..	..	..	671
Simla	..	..	..	664
Kangra	..	..	..	659
Jullundur	..	..	..	622

The heavy pressure of population, their nearness to Simla and the adaptability of the people to the conditions of the work are the main factors leading to the preponderating share of these districts in the supply of labour.

4. Except for the Garhwal, Hoshiarpur, Ambala and Jullundur men who often come and go by rail, the journeys are, as a rule, performed on foot; a man usually walks from 20 to 25 miles a day.

5. 2,361 (87·2 per cent.) rickshaw men were Hindus and 346 (12·8 per cent.) Muslims, the former representing 14 and the latter 4 castes. The names of the castes and number of men in each were :—

<i>Caste.</i>				<i>Number of rickshaw men.</i>	<i>Percentage.</i>
<i>Hindus—</i>					
Rajputs	..	..	..	561	23·8
Julahas	..	..	..	538	22·8
Brahmins	..	..	..	400	16·9
Chamars	..	..	..	281	11·9
Kanaitis	..	..	..	277	11·7
Ghirths	..	..	..	141	6·0
Kolis	..	..	..	68	2·9
Lohars	..	..	..	27	1·1
Chhimbas	..	..	..	18	0·8
Gujars	..	..	..	15	0·6
Kumhars	..	..	..	14	0·6
Jats	..	..	..	8	0·3
Doomnas	..	..	..	7	0·3
Nais	..	..	..	6	0·3
<i>Total</i>				<i>2,361</i>	<i>100·0</i>
<i>Muslims—</i>					
Gujars	..	..	..	333	96·2
Pathans	..	..	..	8	2·3
Rajputs	..	..	..	3	0·9
Telis	..	..	..	2	0·6
<i>Total</i>				<i>346</i>	<i>100·0</i>

* Punjab Census Report, 1931, page 74.

It will be noticed that the Muslim rickshaw men are mainly *Gujars*, and the Hindu rickshaw men principally *Brahmins*, *Rajputs*, *Julahas*, *Kanaitis*, *Chamars* and *Ghirths*. The *Kanaitis* whose *Rajput* origin is doubtful and who are not recognized as such by the undoubted *Rajputs*, tended to declare themselves as *Rajputs*, so that the figures shown against *Kanaitis* and *Rajputs* are probably too small and too large, respectively.

The *Ghirths*, *Kolis* and *Doomnas* are considered untouchable depressed classes in the villages. In Simla the effects of the caste system are seen in separate kitchens (*messes*) and *huggas*, and the men preferably join others of their own caste in a rickshaw. The hiring public make no distinction and there is nothing to distinguish one caste from the other. Observation seemed to show, however, that the men of lower castes tended to be more slovenly in their habits than the others.

6. Appendix IV gives the number of men of each caste according to their homes of origin and shows that the Muslims come chiefly from Hoshiarpur, Ambala and Jullundur districts, and the Hindus from the hill states in the Simla neighbourhood, Kangra District of the Punjab, and Garhwal District in the United Provinces.

7. The men stay in Simla for only a part of the year. Immigration starts in March and the emigration towards home in October. The Simla season starts in April, but the men have to arrive earlier if they wish to join the sheds of their choice, and to secure the better rickshaws.* The Municipality starts to give licenses about the middle of March and in October, when the Government offices and business houses have moved down to the plains, there are few visitors left, and the demand for rickshaws is greatly reduced. The number of rickshaw men decreases even more quickly; by the end of November it is down to about 200 and remains so until February.

8. Information was secured from 880 rickshaw men (selected at random), of the details of their civil condition, their children, ages, occupations at home, the number of years they had come to Simla and number of years missed, etc. The youngest was 15 years old and the oldest 54. 196 (22·3 per cent.) were from 15 to 20 years old, 295 (33·5 per cent.) from 21 to 25 years, 202 (23·0 per cent.) from 26 to 30 years, 139 (15·8 per cent.) from 31 to 40 years, 46 (5·2 per cent.) from 41 to 50 years, and 2 (0·2 per cent.) over 50 years.

* Said one—" *Jaldi aen to achchi rickshaw mil jati hai.—halki aur dekhne men bhi khubsurat.*" (The early comer gets the best rickshaw, one which is light and also good to look at).

9. 126 (14·3 per cent.) of the men, from whom particulars were obtained, had come to Simla for the first time, while 28 (3·2 per cent.) had been there previously, but had never plied a rickshaw before. The details given by the others of the number of years they had worked at the job were :—

<i>Period worked.</i>	<i>Number of rickshaw men.</i>	<i>Percentage.</i>
2 to 5 years	334	38·0
6 ,, 9 ,,	187	21·3
10 ,, 13 ,,	99	11·3
14 ,, 17 ,,	45	5·1
18 ,, 21 ,,	31	3·5
22 ,, 25 ,,	18	2·0
26 ,, 29 ,,	9	1·0
30 ,, 33 ,,	3	0·3

The above figures are for years actually worked by them in this job. 193 of the number had been rickshaw men for longer periods but had missed some years since they started coming. The average number of years missed according to the length of the period actually spent by them in this occupation was as below :—

<i>Period worked.</i>	<i>Number of rickshaw men who missed coming.</i>	<i>Percentage of total.</i>	<i>Aggregate number of years missed.</i>	<i>Average number of years missed.</i>
2 to 5 years	48	14·3	81	1·7
6 ,, 9 ,,	52	27·8	106	2·0
10 ,, 13 ,,	35	35·3	74	2·1
14 ,, 17 ,,	23	51·1	87	3·8
18 ,, 21 ,,	18	58·1	82	4·5
22 ,, 25 ,,	9	50·0	31	3·4
26 ,, 29 ,,	6	66·6	28	4·7
30 ,, 33 ,,	2	66·6	9	4·5
<i>Total</i>	<i>193</i>	<i>26·6</i>	<i>498</i>	<i>2·6</i>

10. The causes which had led the men to miss visits could be ascertained for only 346 years out of 498 years missed altogether. In 60 cases it was due to the man's illness ; in 14 to one of his relatives being ill ; in 77 to unfavourable family circumstances, such as death of a relative who was looking after the family at home or doing the cultivation, and the consequent devolving of these responsibilities on the rickshaw man ;

in 85 cases to his taking to cultivation as an alternative ; in 18 to one of his brothers coming to Simla instead ; in 9 to the marriage of a relative ; in 8 to his own marriage ; in 28 to his taking service in the Army or some other Government department ; in 36 cases to his migrating to some other town for domestic service or casual labour ; in 7 to his going to Solon or Kasauli for rickshaw plying ; in 3 to his having been bound to serve a creditor at home ; and in one case to his love for wrestling.

11. Of the 880 men 285 were unmarried, 564 married and 31 widowed. The following statement classifies them according to their ages :—

Age groups.		Unmarried.	Married.	Widowed.
From 15 to 20 years	.. ..	116	80	..
„ 21 „ 25 „	.. ..	101	190	4
„ 26 „ 30 „	.. ..	46	154	2
„ 31 „ 40 „	.. ..	18	103	18
„ 41 „ 50 „	.. ..	3	37	6
Over 50 years	.. ..	1	..	1
<i>Total</i> ..		<i>285</i>	<i>564</i>	<i>31</i>

12. Only 212, or less than 40 per cent. of the married and widowed had children. 89 had one child, 60 had two children, 46 had three, 6 had four, 7 had five, 2 had six, and 2 had seven each. 260 out of the total number of 432 children were boys and 172 girls. The average number of children per male parent is 2.04 and for all married and widowed rickshaw men 0.7. The low birth-rate among them was attributed by the men themselves to their work which they said tended to make them sterile, and the Medical Officer of Health, Simla, was inclined to believe that this was possible. But a contributory and probably more effective cause is the fact that they remain away from their wives for a considerable part of the year. It would have been useful if it had been possible to obtain the birth-rate figure for their brothers at home who have not taken up this occupation. No case was noted where a rickshaw man had brought his wife or children to Simla.

13. Of the 880 men only 30 were literate ; 19 of these were *Brahmins*, five *Rajputs*, two *Julahas* and four Muslim *Gujars*. The four *Gujars* knew only Urdu and the 26 Hindu rickshaw men only Hindi. Seven *Brahmins*, three *Rajputs*, two *Julahas* and one *Gujar* had read up to the second and third primary classes ; another *Gujar* had read up to the fifth class, and a third up to the seventh class ; the other 15 men had read at home.

14. In Appendix V a summary is given of the information supplied by the above 880 men as to their home occupations. Land cultivation which was given by as many as 65.5 per cent. signifies their joining with relatives, who remain behind and carry on the cultivation ; presumably the rickshaw men form joint families with them. In 387 (67.2 per cent.) cases the land cultivated was owned entirely by the rickshaw men or their families, in 95 (16.5 per cent.) cases it was partly owned and partly rented, and in 94 (16.3 per cent.) cases it was all rented. The usual rent is *adh batai*, in which the tenant shares the produce of the land equally with his landlord. The average area owned was 3.8 acres and the average area cultivated 4.6 acres.

15. It was possible to collect particulars of indebtedness in only a small proportion of cases. Details of the amount of debt, the rates of interest and the manner in which the debts came to be incurred, are given in Appendix I. 85.2 per cent. of the men were in debt to persons in their home places, the average figure per indebted man being Rs. 351. One-third of the aggregate debt had its origin in loans incurred for marriages and another third was inherited debt. The large proportion for marriages is partly explained by the fact that money had to be paid to the parents of the girls before the marriage could take place.

16. The rickshaw man is simple and frugal in his habits, and, generally speaking, mentally inert but physically active. Chatting to his friends, smoking the *hugqa* and playing cards fill his vacant hours. He is hardy and seldom too tired to pick up another fare. His utter disregard of the principles of hygiene is due partly to ignorance and partly to poverty. He has, perhaps, more than the normal credulity of the illiterate and a full share of the cunning which poverty is apt to induce. But despite his poverty he retains the independence of the Punjab peasant and is no respecter of persons.

CHAPTER III.

HIRE RATES.

1. The first hire rates of which there is any record in the Municipal Office are those which were in existence until 1919, and these can be traced back to about 1900. They were :—

Rickshaw—

Up to 12 hours	..	..	.. 8 annas.
Over 12 and up to 24 hours	..	..	.. One rupee.

Men—

Up to 2 hours	..	..	.. 2 annas each
Over 2 and up to 12 hours	..	..	.. 4 „ „ :
Over 12 and up to 24 hours	..	..	.. 8 „ „ :

There is no evidence as to how long this tariff prevailed before 1900, or whether this was the first schedule that came in existence.

2. In 1919 the *chaudhris* presented a petition for an increase in rates, on which the Municipal Secretary made the following comments : “ Prices have risen enormously. The revision of rates in 1914 was opposed largely because it would give coolies Rs. 15 per month, which was considered excessive.* Any casual labourer can earn that now. There has been a serious shortage of coolies for the last two years. The present rates are not generally observed. Any one who is likely to insist on the legal fare finds it hard to get a rickshaw. The present rates operate unfairly. I can take a four-cooled rickshaw from 8 a.m. to 10 a.m. for Re. 1/- or keep it till 8 p. m. for Re. 1/- more.” The application received the approval of the members and the following revised tariff was adopted :—

Within Municipal Limits.—

Time.				Per rickshaw.	Per coolie.*
				Annas.	Annas.
Up to	1/2 hour	..	..	4	2
1/2 „	2 hours	..	..	8	3
2 „	4 „	..	..	9	4
4 „	6 „	..	..	10	5
6 „	8 „	..	..	11	6
8 „	10 „	..	..	12	7
10 „	12 „	..	..	13	8
12 „	24 „	..	..	16	12

*The question had been considered by the Municipality in 1914 also.

To places outside Municipal Limits.—

Place.	Per coolie for single journey.*	Per coolie for double journey in one day.*	Per rickshaw for single or double jour- ney.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Mashobra	0 7 0	0 9 0	1 2 0
Mahasu	0 7 0	0 10 0	1 2 0
Kufri	0 8 0	0 10 0	1 2 0
Fague	0 12 0	1 0 0	1 2 0
Jutogh	0 5 0	0 7 0	1 2 0
Tara Devi	0 5 0	0 7 0	1 2 0

3. In 1926 the question cropped up again on the *chaudhris'* submitting another application for an increase of rates. The Deputy Commissioner and the Municipal Secretary examined the *chaudhris* with the result that the half hour rate was abolished and a one hour rate introduced in the scale, at 6 annas for the rickshaw and 2½ annas for each man.

4. On 14th August 1929, Mr. Abdul Ghani, Labour member of the Punjab Legislative Council, convened a meeting of the rickshaw men and urged them to prepare for a strike with a view to bringing pressure on the Municipality to improve their wages and living conditions. While he was thus stimulating the men the Municipality itself had a proposal in hand for an inquiry into the alleged grievances. A sub-committee was appointed to go into the matter and their report is reproduced as Appendix II. It was adopted by the General Committee and the rates then passed (shown on the following page) are still in force.

* 3 pies per coolie in addition are payable to the *chaudhri* as commission when coolies are employed with private rickshaws.

5. The increase in wage-rates will be seen from the comparative statement below :—

Time.	WAGES PER MAN.		Increase.
	Previous rate.	Present rate.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.
One hour	0 2 6	0 3 0	0 0 6
Two hours	0 3 0	0 4 0	0 1 0
Three ,,	0 4 0	0 4 0	..
Four ,,	0 4 0	0 5 0	0 1 0
Five ,,	0 5 0	0 5 0	..
Six ,,	0 5 0	0 6 0	0 1 0
Seven ,,	0 6 0	0 6 0	..
Eight ,,	0 6 0	0 7 0	0 1 0
Nine ,,	0 7 0	0 7 0	..
Ten ,,	0 7 0	0 8 0	0 1 0
Eleven ,,	0 8 0	0 10 0	0 2 0
Twelve,,	0 8 0	0 12 0	0 4 0

Increase in rates to places outside Municipal limits.—

Place.	Per Man for single journey.	Per Man for double journey in one day.
	Rs. a. p.	Rs. a. p.
Mashobra (Gables Hotel)	0 1 0	0 3 0
Mashobra (Carignano)	0 2 0	0 4 0
Mahasu	0 1 0	0 2 0
Kufri	0 1 0	0 4 0
Fague .. ..	..	0 2 0
Jutogh	0 1 0	0 2 0
Tara Devi	0 1 0	0 2 0

The policy adopted by the Sub-Committee in the regulation of rates was explained by it in the following words. "It was agreed that the present hire rates called for a change with a view to increasing the earnings of the rickshaw coolies. The question thus to determine was what would be a fair charge on the public which without affecting custom, would ensure a return which could be fairly adjusted between the *chaudhri* and the rickshaw coolies, so that the former received a fair return on his investment and the latter a fair wage. According to the proposed schedule the rates of wages and hire up to the ninth hour are based on a fair calculation but the rates for the

tenth, eleventh and twelfth hour have been specially raised. The underlying basis for this differentiation is that the Sub-committee consider that no rickshaw should be normally engaged beyond nine hours, which is a full working day, and that anyone who engages it beyond that period must pay for the luxury. It may also be mentioned that the wage of 12 annas guaranteed to the rickshaw puller for 12 hours work is considered to be a minimum wage which he should be entitled to for that period."

6. Unfortunately, it has been found during the inquiry that the increase made by the Committee in the rate of the first hour is not benefiting the rickshaw men, as the *chaudhris*, although entitled according to the rates to six annas for the first hour are charging the rickshaw men eight annas for all such engagements. The *chaudhris* justify their action by saying that this is a mutual understanding between them and their men, and that on their side they charge only eight annas up to nine hours, instead of the authorised amounts of ten annas for five to seven hours and twelve annas for seven to nine hours. The concession given by the *chaudhris*, however, does not counter-balance the loss to the men. The following figures showing the periods of trips performed by the rickshaw men under budget inquiry are significant* :—

Period.	Number of trips performed.	Percentage.	Gain (+) or loss (—) to chaudhri.
Up to 1 hour	713	35.0	+2 as.
1 to 3 hours	839	41.1	..
3 .. 5	353	17.3	..
5 .. 7	114	5.5	—2 as.
7 .. 9	23	1.1	—4 as.
<i>Total</i>	<i>2,042</i>	<i>100.0</i>	

The figures show that the *chaudhris* gained Rs. 88/- on the short trips and lost Rs. 20/- on the long ones.

7. Of the changes, the most important is probably the introduction of the night rate. Note (b) in the schedule of rates says: "If a rickshaw is retained after 9 p.m., each coolie shall receive a night rate of two annas and after 1 a.m., a night rate of 3 annas in addition to the above rates." The extent to which the men benefit by this extra rate is shown by the

* Figures extracted from a fuller statement in Appendix VI.

following statement of trips extracted from the figures collected in connection with the budget inquiry :—

Shed.	Total* trips.	Night† trips.	Percentage.
Chaura Maidan	980	227	23.2
Chhota Simla	896	128	14.3
Cart Road	214	17	8.0
<i>Total</i>	<i>2,090</i>	<i>372</i>	<i>17.8</i>

8. Figures are given below showing a rickshaw man's wage rate per hour according to the number of hours he is engaged. The highest rate is three annas for the first hour, and the lowest nine pies for the ninth and tenth hours. The higher rates for the beginning hours are necessary because 72.9 per cent. of the engagements are of less than three hours duration and there are only from two to three engagements per day available to the men.

Period of engagement.	Wages per rickshaw man.	
	Total period.	One hour.
	Rs. a. p.	Rs. a. p.
One hour	0 3 0	0 3 0
Two hours	0 4 0	0 2 0
Three ,,	0 4 0	0 1 4
Four ,,	0 5 0	0 1 3
Five ,,	0 5 0	0 1 0
Six ,,	0 6 0	0 1 0
Seven ,,	0 6 0	0 0 10
Eight ,,	0 7 0	0 0 10
Nine ,,	0 7 0	0 0 9 $\frac{1}{2}$
Ten ,,	0 8 0	0 0 9 $\frac{1}{2}$
Eleven ,,	0 10 0	0 0 11 $\frac{1}{2}$
Twelve ,,	0 12 0	0 1 0

9. The schedule is much criticised both by the public and the rickshaw men. The former think (with some exceptions), that the rate for the first hours is too high and that it has on that account led the men to prefer shorter engagements, while the latter complain that the rates for longer engagements, especially the five to nine hours engagements, are too low. Observation showed that trouble arose from the rickshaw men in long engagements mainly when they were kept running most of the time, and that even in such cases they were generally content where they knew they would be rewarded at the end with a liberal *bakshish*. On the whole,

* Engagements for a continued period of days are not included in these figures.

† The term 'night trips' denotes trips in which the night rate came into operation.

The 1 a.m. rate came into operation only in seven cases in the Chaura Maidan shed. In Mussorie the rickshaw men get at night 1 $\frac{1}{2}$ times the wages that they get during the day, and the night rate there starts at 8 p.m.

CHAPTER IV.
INCOME AND EXPENDITURE.

PART I.—METHOD OF INQUIRY.

1. It was impracticable to take up all the rickshaw men of Simla for the budget inquiry and, therefore, what was considered to be a representative sample was selected for the purpose. Random sampling was not possible as this would have involved daily visits to more sheds than could conveniently be visited. Three rickshaw sheds were selected in different parts of Simla, *viz.*, Chaura Maidan, Cart Road and Chhota Simla. These lie roughly in a line, the Chaura Maidan and Chhota Simla sheds about three miles apart in residential areas and the Cart Road shed midway between them in the town. At each shed the enquiries related to one-third of the rickshaw men and the total number brought under inquiry was 84.

<i>Shed.</i>	..	..	<i>Rickshaws.</i>	<i>Rickshaw Men.</i>
Chaura Maidan	..	..	10	40
Cart Road	..	..	3	12
Chhota Simla	..	..	8	32
<i>Total</i>	..	..	<u>21</u>	<u>84</u>

The choice of rickshaws was based on the homes of origin and castes of the men.

2. The inquiry was conducted for the whole of June and for the last week each of July, August and September. For these three months, the monthly estimates of income and expenditure have been formed from the weekly budgets. The procedure adopted has its handicaps, but continuous collection of figures throughout the season was impossible in view of much other work which had to be done in connection with the inquiry. It was stated by the rickshaw men and the *chaudhris* that the demand for rickshaws was somewhat less in the last week of a month than in the earlier weeks, but this assertion was not substantiated by the figures collected for June. It is possible, however, as has been stated in a later note, that the income figures given by the rickshaw men for the first week or two were understated. The difference due to this factor is probably small in ordinary months, and as there was a tendency for the use of rickshaws to increase fairly steadily from June to September, it is more or less safe to take the figures during the last week of a month as not differing substantially from the level throughout the month. In September there was said to be a

considerable difference in the rickshaw men's income at the beginning and end of the month, but this was due primarily to weather conditions.

3. Figures were collected from day to day and where the pullers of a particular rickshaw could be met individually, income figures and mess expenses were first ascertained from one and then checked with the statements of one or two others. Mess expenses could often be checked further from the statements of different groups in the same mess, while the *chauthris'* rough records came in useful for an occasional check on the rickshaw men's statements as to the number of trips performed by them; individual expenses were ascertained from each man separately. At the beginning some difficulty was experienced in the collection of the figures and there was also a tendency on the part of some men to understate income and exaggerate expenditure. After about a fortnight, however, the confidence of the men was secured with a consequent improvement in the standard of information.

PART II.—INCOME.

4. The rickshaw men's income is drawn from rickshaw hire, tips and job porter's work. The statement below shows the contribution made by each of these factors to the income of the men under inquiry. The rickshaw hire has been divided in the statement into income from ordinary hire rate and night rate, to show the contribution made by each factor.

	AVERAGE INCOME PER GROUP OF 4 RICKSHAW MEN.					Total average monthly income per man.
	From ordinary hire-rates.	From night rate.	From tips.	From job work.	Total.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
<i>Chaura Maidan—</i>						
June ..	51 2 6	6 0 0	4 4 0	0 1 9	61 8 3	15 6 1
July ..	44 0 10	5 14 6	2 12 3	0 3 6	52 15 1	13 3 9
August ..	77 11 0	7 12 0	7 1 0	..	92 8 0	23 2 0
September ..	79 4 6	10 11 6	8 9 0	..	98 9 0	24 10 3
<i>Average</i> ..	63 0 8	7 9 6	5 10 7	0 1 4	76 6 1	19 1 6
<i>Cart Road—</i>						
June ..	40 3 9	1 8 0	2 13 3	0 4 0	44 13 0	11 3 3
July ..	54 15 9	0 11 9	2 15 3	0 11 6	59 6 3	14 13 6
August ..	62 12 3	..	4 5 0	..	67 1 3	16 12 4
September ..	71 1 0	5 0 0	2 13 9	..	78 14 9	19 11 8
<i>Average</i> ..	57 4 3	1 13 0	3 3 9	0 3 11	62 8 11	15 10 3
<i>Chhota Simla—</i>						
June ..	64 9 6	4 1 0	4 10 9	0 4 6	73 9 9	18 6 5
July ..	68 8 3	2 12 3	4 13 0	0 6 6	76 8 0	19 2 0
August ..	86 12 6	8 9 6	6 5 0	..	101 11 0	25 6 9
September ..	72 1 0	6 7 0	7 12 0	..	86 4 0	21 9 0
<i>Average</i> ..	73 0 0	5 7 6	5 14 9	0 2 9	84 9 0	21 2 3
<i>General average</i> ..	64 7 0	4 15 4	4 15 0	0 2 8	74 8 0	18 10 0

5. The figures show that the average income varies from shed to shed and from month to month. June and September are considered to be the best months of the season, but in 1933 June proved very bad. It was much worse than August, and on the Cart Road and Chhota Simla sheds even July showed a better income. The *chaudhris* and rickshaw men said that it was the worst June they had ever had and that July was also comparatively bad. In September, as stated above, there took place a considerable variation in the income of the rickshaw men in the first two and the last two weeks of the month. In the beginning of the month visitors came into Simla in large numbers and there was a general bustle in all quarters. The rickshaw men's work then reached, at least so far as this year is concerned, a record level; there was hardly a rickshaw to be seen in the sheds. The rickshaw men of the Cart Road shed said they were making on an average about a rupee a day, while those of Chaura Maidan and Chhota Simla estimated the average at between Rs. 1/4/0 to Rs. 1/8/0. Unfortunately, in the middle of the month there was a very bad turn in the weather and the visitors rushed down as suddenly as they had come up to Simla. The income figure shown above for September, being based on the daily figures collected during the last week of the month, is almost certainly lower than the amounts actually earned during the month.

6. The income from the night rate is significant. This rate was paid in 23·2, 8·0 and 14·3 per cent. of the total tips on the Chaura Maidan, Cart Road and Chhota Simla sheds, respectively. The comparatively high figure for Chaura Maidan is probably due to the large number of Europeans and some high Indian officials living in the vicinity of the shed. Rickshaws are taken out at night mainly for dinners, dances, and theatre or cinema entertainments.

7. The income from tips, though it has contributed to the total monthly wages the same amount as the night rate, is much smaller than what it was thought to be by the *chaudhris* and the hiring public. The rickshaw men stated that the income from this source used to be considerable until some years back, but that now it had fallen off. At the same time it is possible that the income from this source was understated.

8. The income from job work is trifling; such work is done mainly by the spare men in the sheds.

9. Details of the periods of trips performed by the rickshaw men under budget inquiry are given in Appendix VI. From this it will be seen

that most engagements were either for a period of up to one hour (33·3%), or for over one but under three hours (39·2%). Only a few trips were taken to places outside municipal limits (1·7%), or for a continued period of a number of days on a salary basis (2·4%).

10. The main factors affecting the work are the number of visitors, the number of entertainments and the extent of hospitality. The number of visitors, which is the most important factor, varies according to weather conditions and the nature of activities in Simla, such as the sessions of the Legislative Assembly, the Punjab Legislative Council, and various other official conferences. The busiest single occasion during the season was the garden party held at Viceregal Lodge on 26th May. Of the days of the week Saturday was the most active.

11. From the beginning of April to the end of September the number of rickshaws as also of the men available for hire is more or less uniform and it may be presumed that during these months the income of the *chaudhris* and of the rickshaw men rises and falls correspondingly as both are dependent directly on the extent of the public demand. Hence a rough idea of the income during April and May could be obtained from the *chaudhris'* account books, and an examination of the figures for the last five years in the books of two of them showed that the income during these months was 35 and 82 per cent., respectively, of the average monthly income during the period, June to September. In October the public demand for rickshaws decreases but the rickshaw men decrease in number even more quickly and therefore their income does not fall to the same extent as that of the *chaudhris*; for this reason the *chaudhris'* income figures for that month are not useful. General inquiries made during the first two weeks of October showed that the Chhota Simla and Chaura Maidan men were making from ten to twelve annas a day, and those of Cart Road from six to eight annas, but incomes were expected to decline considerably by the end of the month.* From November onwards the rickshaw men who stay earn mere subsistence and most of the sheds, where even that is not obtainable, are left without men. The low earnings from 15th March, when the men begin to arrive in Simla, to the end of April, are accepted because that is a sort of period of preparation for the season's job.

12. The work of individual rickshaw sheds depended mainly on their situation. At certain times there was created, however, a special demand for rickshaws of particular sheds. Such an occasion arose, for example, for the Kaithu sheds when there were tournaments at Annandale; the

*The inquiry terminated on the 15th of October.

rickshaws there were then busily occupied, especially in the evening. Sheds situated near offices were helped by a downpour of rain when the offices were closing. Rain in the evening had the same effect on sheds situated on the Mall and the Ridge.

13. The salaries of the 336 private *jampanis*, for whom details were received in reply to the questionnaire circulated to the owners of private rickshaws, were found to vary from Rs. 10/- to Rs. 26/- per mensem. It is possible that some of those getting the lower salaries may have left service, or succeeded in getting an increment in their salaries when work increased on the public sheds. Four men who were getting Rs. 10/- per mensem, it is known, left in August; most of the replies were received towards the end of July. But in any case, the wide extent of the variation is remarkable. Between the two extreme limits the salaries varied as follows:—

Rate of salary per mensem.	Number of <i>jampanis</i> .	Percentage of total.
Rs. 10/- to Rs. 13/-.	7	2·1
„ 14/- „ „ 17/-.	167	49·6
„ 18/- „ „ 21/-.	143	42·6
„ 22/- „ „ 25/-.	18	5·3
„ 26/-	1	0·4
<i>Total</i>	336	100·0

In addition to their salaries the *jampanis* received Re. 1/- to Rs. 3/- per mensem as tips.* They had not moreover to pay anything as house rent, or for the livery and its washing. Their housing was better, they received blankets or waterproofs for protection against rain, generally had less work to do, and stood higher in social status than the rickshaw men in the public sheds.

PART III.—EXPENDITURE.

14. There were two separate forms used for the collection of the day to day data of expenses, one for the mess expenses in which the rickshaw man shared equally with the other members of the mess, and the second for expenses incurred by him independently of others. For articles of clothing and other articles which are not bought every month an estimate of the monthly expense has been formed by dividing the cost of each

*In most cases tips were in the form of an allowance. There was generally a previous understanding that the *jampanis* would not usually be taken out more than twice a day and that when they are required to perform an extra trip they would be paid four annas each, as *bakshish*.

article by the number of months of its estimated duration. Similarly the expenses of journey to and from Simla have been apportioned, the total cost of the double journey being spread over the total period spent in Simla.

15. At the end of each period of inquiry the mess expenses were apportioned to each man and combined with his independent expenses. The summary tables of total expenses on different items thus formed showed that an increase or decrease in the expenditure during any month mainly reflects variations in the purchases of items like *ghi*, *gur*, *shakkar* and other things obtained in the bazar. On the whole the rickshaw men from each shed had a more or less uniform distribution of expense during the different months. A slight increase in the expenditure on firewood during August and September was due to a rise in the price of wood from twelve to fourteen annas a maund.

16. In the following statement a comparison is made of the income and expenditure of the rickshaw men during the four months in which the inquiry was conducted :—

	TOTAL AVERAGE PER RICKSHAW MAN.					
	Income.		Expenses.		Savings.	
	Rs.	a.	p.	Rs.	a.	p.
<i>Chaura Maidan.</i>						
June	15	6	1	11	2	9
July	13	3	9	10	15	8
August	23	2	0	11	7	0
September ..	24	10	0	11	10	9
<i>Cart Road.</i>						
June	11	3	3	H.* 9 5 7	1	13 8
				M.† 10 10 5	0	8 10
July	14	13	6	H.* 9 3 3	5	10 3
				M.† 10 0 1	4	13 5
August	16	12	4	10	15	2
September ..	19	11	8	10	12	3
<i>Chhota Simla.</i>						
June	18	6	5	11	5	8½
July	19	2	0	11	2	11
August	25	6	9	11	13	8
September ..	21	9	0	12	2	4

*H.—Hindus.

†M.—Muslims.

The Hindu rickshaw men left the shed in August. Those of the other two sheds were all Hindus.

On the Cart Road shed income was lower than it was on the other two sheds and the expense was also lower, but not to the same extent. Similarly in the month to month figures of the three sheds there is a tendency for an appreciable increase in income to be accompanied by some increased expenditure, but the effect of a rise in income on the rate of expenditure is remarkably small. This shows that the rickshaw man wants as far as possible, to save from his income and exercises considerable restraint on himself for this purpose. The difference in the expenditure of the Hindus and Muslims in the Cart Road shed was due to the latter's heavier expenditure on food, particularly wheat flour, of which they took a larger quantity.

17. In the statement below the details of expenditure are further summarised to give a general view of the relative expenditures on the main items. The figures are averages of the total monthly expenditure and the percentage spent on the different items is given with each.

Items.	Chaura Maidan.	Chhota Simla.	CART ROAD.	
			Hindus.	Muslims.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Food ..	7 7 6 (67%)	7 9 4 (66%)	5 4 0 (56%)	6 8 7 (61%)
Fuel and lighting ..	0 11 6 (6%)	0 11 5 (6%)	0 14 9 (10%)	0 14 9 (9%)
Clothing ..	1 6 2 (12%)	1 8 6 (13%)	1 5 9 (15%)	1 5 9 (12%)
House-rent ..	0 8 0 (4%)	0 8 0 (4%)	0 8 0 (5%)	0 8 0 (5%)
Expenses on journey to Simla and back ..	0 6 0 (3%)	0 8 0 (4%)	0 10 0 (7%)	0 10 0 (6%)
Miscellaneous ..	0 13 10½ (8%)	0 12 11 (7%)	0 9 11 (7%)	0 9 11 (7%)
<i>Total</i> ..	<i>11 5 ½</i>	<i>11 10 2</i>	<i>9 4 5</i>	<i>10 9 0</i>

By far the most important portion of a rickshaw man's expenditure is on food, which accounts for about two-thirds of his total monthly expenses. Almost equal amounts are spent on this item on the Chaura Maidan and Chhota Simla sheds while the lower expense on the Cart Road shed is in conformity with its lower income. Next to food the most important item is clothing, which absorbs from 12 to 15 per cent. of the total expenditure. Third in importance is fuel and lighting, which for the three sheds averages roughly thirteen annas a month. The higher expenses of this item in

the Cart Road shed were due to the smaller size of its messes; there were only four men to a mess as against from ten to twenty in the Chaura Maidan and Chhota Simla sheds. The expenses on the journey to Simla and back vary according to the distances of the men's homes, while the house-rent is the same in all sheds.

18. What are termed above as 'Miscellaneous Expenses' cover a variety of minor charges. The details of these are as below :—

Items.	Chaura Maidan.	Chhota Simla.	Cart Road.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Cigarettes and tobacco	0 6 10	0 6 3	0 4 7
Medicines	0 0 4½	0 0 6	0 0 4
Soap	0 1 6	0 1 1	0 0 9
Barber	0 2 5	0 2 4	0 2 0
Sweeper	0 1 0	0 1 0	0 1 0
Utensils and furniture	0 0 9	0 0 6	0 0 3
Water charge	0 1 0	0 1 3	0 1 0
<i>Total</i>	<i>0 13 10½</i>	<i>0 12 11</i>	<i>0 9 11</i>

It is significant that the average expense on soap is only about one anna and on utensils and furniture only two pice per month.

19. The men's utensils generally included a bowl or brass plate each, a *hugga*, usually owned jointly by two to four men, and in a trifling number of cases of *charpais* each of which was shared by two rickshaw men. Utensils for cooking purposes are supplied to each mess by the shopkeepers from whom the daily food requirements are bought, but this does not necessarily mean a saving in expense. The utensils are worth, from seven to eight rupees, consisting of—

Two cooking pots Rs. 6/- to Rs. 7/-.

One large spoon „ -/6/-

One large brass plate for kneading flour .. „ /12/- to Re. 1/-.

The men although ostensibly paying nothing for these, probably pay more than the price of the utensils in the form of higher prices for their purchases. Until the utensils are returned, the men are under a liability to make their purchases from the particular shopkeeper. The difference revealed below in the rates given by a shopkeeper of Chhota Simla to an

ordinary buyer and those actually charged by him to the rickshaw men is illuminating.

Commodity.	WEIGHT PER RUPEE FROM—	
	Rickshaw men.	Ordinary buyers.
	Seers.	Seers.
Wheat flour	8½	9¾
Rice	8	9
Suji	6¼	7
Gur	6	8
Pulse	5½	6½
Ghi	¾	1⅓

The men buy from day to day and pay in cash, except at the beginning of the season when income is low. Appendix VII. gives the average monthly expenditure in the three sheds on different articles of food; the average weights consumed of the main articles among these are given in Appendix VIII.

20. The earnings during May are said to be just enough to meet the month's expenditure and the deficits for the two preceding months. Savings start in June; the average savings per rickshaw man in the sheds under inquiry during the months June to September are worked out in para. 16, and are reproduced below :—

	June.	July.	August.	September.	Total.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Chaura Maidan ..	4 3 4	2 4 1	11 11 0	12 15 3	31 1 8
Cart Road { Hindus ..	1 13 8	5 10 0	(Left the shed).		
{ Muslims..	0 8 10	4 13 5	5 13 2	8 15 5	20 2 10
Chhota Simla ..	7 0 8	7 15 1	13 9 1	9 6 8	37 15 6

The low savings this year were mainly attributed to the low income during June and July. As stated earlier it was alleged by the rickshaw men and the *chaudhris* that the work during these two months had never been so low as this year. The men's savings before the depression years are said to have been between Rs. 50/- and Rs. 80/- per season on the different sheds.

CHAPTER V.

CLOTHING.

1. Clothing accounts, on an average, for 12 to 15 per cent. of the total expenditure of a rickshaw man and, as stated earlier, stands second in importance among the main heads of expenditure. The average, and the maximum and minimum, figures of monthly expenditure for the three sheds separately, are as below :—

Shed.	EXPENSES.		
	Maximum.	Minimum.	Average.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Chaura Maidan	1 14 11	1 2 1	1 6 2
Chhota Simla	1 14 8	1 3 2	1 8 6
Cart Road	1 10 0	1 2 10	1 5 9

2. The following statement shows the details of clothing possessed by the 84 men of the above three sheds, who came within this inquiry :—

Articles of clothing.	Total number of articles possessed.	Number of men possessing them.	Average number per man possessing them.	Average number for all men.
<i>Wearing Apparel—</i>				
Coats	122	84	1.45	1.45
Trousers	122	84	1.45	1.45
Turbans	116	84	1.38	1.38
Shirts	119	84	1.41	1.41
<i>Dhotis</i>	29	29	1.00	0.34
Loin cloths	81	79	1.02	0.96
Waist coats	30	30	1.00	0.35
<i>Kullas</i>	10	10	1.00	0.11
Belts	19	19	1.00	0.22
<i>Pattis</i>	10	10	1.00	0.11
<i>Parnas</i>	23	23	1.00	0.27
Shoes	80	75	1.06	0.95
<i>Bedding—</i>				
Blankets	123	76	1.61	1.46
Quilts	8	8	1.00	0.09
<i>Chaddars</i>	49	49	1.00	0.58
<i>Khes</i>	51	46	1.10	0.60
<i>Darris</i>	5	5	1.00	0.05
<i>Boris</i>	70	70	1.00	0.83

3. The men sleep, as a rule, in pairs, combining their bedding. This affords a much needed degree of comfort especially to those who sleep on

the ground. The reason given for sleeping on the ground was want of accommodation for *charpais*. Of the 84 men the only ones with beds were eight men at the Chaura Maidan shed who had four *charpais* among them; of these three were suspended, legs upward, from the roof of the shed.

4. The license given by the Municipality to a rickshaw man demands that 'when standing or plying for hire the holder shall appear in a clean *khaki* uniform'. The latter is understood to comprise a coat, trousers and turban. The regulation of dress started about 1914, and this is stated in one of the municipal files to have been done as a result of 'numberless appeals made to it from the public and press'. In the old days no attention was given by the Municipality to the clothing of rickshaw men and only at the beginning of the season did they look at all smart.

5. Of the three items in the uniform the turban is in most cases purchased by the man from the *bazar* and costs from Rs. 1/8/0 to Rs. 2/-. Trousers and coats are supplied by the *chaudhri*, who charges for them later when the men have saved enough money from their earnings. Particulars of the charges made by the *chaudhris* were collected from 19 sheds. In one of them the charge was Rs. 3/12/0, in two Rs. 4/-, in ten Rs. 4/2/0, in one Rs. 4/6/0, in one Rs. 4/8/0, in three Rs. 4/10/0, in one Rs. 4/14/0, in seven Rs. 5/-, and in one Rs. 5/8/0. These wide divergencies do not correspond to any differences in the uniforms. The actual cost to a *chaudhri* for a uniform is—

	Rs.	a.	p.
<i>Khaki</i> (Drill), 5½ yards, for both coat and trousers at eight annas a yard	2	12	0
Sewing charges	0	10	0
Buttons and thread	0	2	0
<i>Total</i> ..	3	8	0

Chaudhris might further be allowed interest at one per cent. per month for two months and another five per cent. against risk of men running away without payment (which happens very seldom), or the likely risk in some cases of the fifth uniform having to be sold at a loss; the total estimated cost then comes to—

	Rs.	a.	p.
Cloth, sewing, buttons and thread	3	8	0
Interest at 1 % per mensem on Rs. 3/8/0, for two months ..	0	1	3
Allowance for risks in realization of payment, at 5 % ..	0	2	9
<i>Total</i> ..	3	12	0

This estimate of Rs. 3/12/0 errs, if at all, on the side of liberality, but even according to this most of the *chaudhris* seem to be making a substantial profit on the uniforms.

The Municipal Sub-committee of 1929 examined the question of some protection for the men against rain 'when plying during the wet season', and having come to the conclusion that this was necessary gave as their 'convinced opinion' that the provision of two blankets per man should be made obligatory. Since then a bye-law has been passed to this effect and will probably come into force from next year. It is likely that the men will protest against the extra expenditure they will have to incur on this account. They are, at least, certain to request that the blankets they bring from home should be eligible for the purpose of this bye-law. This demand, although seemingly reasonable, would result in the basic object of the bye-law being frustrated. The blankets they bring are hardly enough for their night use and they would therefore, as far as possible, avoid using them during rain; on the other hand if the regulation is stringently enforced they would rather be prepared, it seems, to sleep in wet blankets than undergo any extra expenditure. If the Municipality had decided in favour of a rain-coat each instead of blankets the provisions for the two purposes would have remained distinct.

7. Expression may be given here to a genuine grievance of both rickshaw men and *chaudhris* that the Municipality refuses to pass a previous year's stamped uniform even though this be absolutely unused. The licensing officer when asked explained that this had to be done as a precaution against men borrowing uniforms of others for getting the number, but if this is the reason the Municipality could change its stamp or the position of the stamp on the uniform every year; this would be preferable to subjecting a poor class of people to such unnecessary expenditure.

8. The conditions with regard to *jampanis'* clothing are very different. Liveries have always been supplied to them by their employers free of cost and are generally of good material. All hues and patterns are to be seen from green and scarlet to pale blue and salmon pink and it seems to have been just the same when *dandis* and *jampanis* were in vogue.* These liveries

*"I remember a very amusing incident about Dandiwalas' liveries when I first came up here in 1882. There were two ladies who used to vie with each other in almost everything. Lady No. 1 dressed her men up in a livery with black and gold facings. Lady No. 2 followed suit. Lady No. 1 in anger then had scarlet facings. Lady No. 2 did likewise. Lady No. 1 then obtained peacock plumes from Agra which she had stitched on to the caps of her men. Lady No. 2 not being able to obtain them went to the fowl market here and purchased a cock, with a showy tail, the feathers of which she had stitched on to the caps of her men."—Extract from an article on 'Simla Past and Present' by Mr. W. Norton Hofstadt (Liddell's Weekly, dated October 4th, 1924.)

are nearly always clean, being washed at the owners' expense, and include almost invariably a waterproof and hood and often a blanket; some owners provide two liveries and others one. The following are the figures of clothing supplied by 61 owners from whom such details were collected; the number of *jampanis* concerned is 318—

Articles of livery.	Number of men supplied.	Total number of articles.	Average number of articles per man.
Coats	304	503	1·6
Trousers	316	520	1·6
Turbans	316	475	1·5
<i>Kullas</i>	71	104	1·5
<i>Pattis</i>	174	220	1·3
Belts	311	382	1·2
Blankets	73	73	1·0
Shirts	46	66	1·4
Water-proofs	294	315	1·1

CHAPTER VI.

HOUSING.

1. The housing in 36 of the 38 rickshaw sheds was examined. The sheds proper have been distinguished from the rooms attached to them, which are used by the rickshaw men. The total number of rooms is 133; 93 are provided with the sheds and 40 are hired separately by the *chaudhris*. Their aggregate capacities are 107,045 and 37,906 cubic feet respectively, and the total capacity of all rooms available to the men for their use is therefore 144,951 cubic feet. Taking 200 cubic feet* as the minimum requirement per head the rooms would allow, if they were used for no other purpose, for the accommodation of 725 men or 32·1 per cent. of the total number living at the sheds that came under this inquiry.

2. Details of housing accommodation of rickshaw men at individual sheds are given in Appendix IX. Conditions vary considerably from one shed to another, but in none of them does the average accommodation per head come up to 200 cubic feet. The maximum figure is that of the shed in Bryanstone Estate, 193·2, while the Cecil Hotel shed comes second with 184·2. Third, fourth and fifth positions are held by Clarke's Hotel, U. S. Club and Nabha Estate, which have an accommodation per head of 159·9, 123·4 and 116·1 cubic feet, respectively. The five worst sheds in respect of housing are, Lower Bazar (fire station), Lakkar Bazar (police station), Kennedy House, Station Library and Ridge (band stand),

*This standard of 200 cubic feet per head has been adopted with the advice of Major S. N. Makand, the local Medical Officer of Health. He said that when he came to Simla he started with a minimum standard of 250 cubic feet per head but taking into consideration the local conditions he had lowered it. The space allotted in England under various statutes, bye-laws, and regulations is given below :—

	Minimum space per head in cubic feet.	Authority.
Common lodging houses (sleeping rooms) ..	300	Local Government Board (Model Bye-Laws).
Registered lodging houses—		
Rooms occupied by day and night ..	400	Ditto.
Rooms occupied by night only ..	300	Ditto.
Non-textile work rooms ..	250	Factory Act, 1901.
Non-textile work rooms during overtime ..	400	Ditto.
Army barracks ..	600	British Army Regulations.
Seamen's cabins ..	120	Merchant Shipping Act, 1906.

(“ Hygiene and Public Health ” by Parkes and Kenwood).

the accommodation per head in these being, 18·9, 25·1, 28·1, 28·8 and 31·0 cubic feet, respectively. The average accommodation per head for all sheds is 64·1 cubic feet and out of the 133 rooms there are only seven (with a total capacity of 12,963 cubic feet) which are used exclusively for this purpose. All other rooms serve also as kitchens with an average of 1·6 hearths per room.

3. As regards the accommodation available in sheds proper, Appendix X. shows the surplus or deficient area in each of them after calculating the area required for rickshaws. In all the sheds a number of men sleep under the vehicles but as this is against the municipal bye-laws it cannot be treated as accommodation available for that purpose. There is spare space available for the rickshaw men only in eight sheds, the aggregate area being 1,154 square feet. However, as the quantity of air available in each case, is much larger than the cubic air capacity of the surplus floor space, the right procedure to be adopted in working out the available accommodation for men seems to lie in the direction of fixing only on the maximum floor space required by one man. The latter may be taken as 12 square feet and with this as the basis the accommodation available in the eight sheds is as follows :—

Lower Bazar (Fire Station)	..	For	9 men.
Sanjauli	..	..	1 man.
Ridge, Band Stand	..	..	12 men.
Bryanstone Estate	..	..	3 "
Craigdhu Hotel	..	..	26 "
Sandy's Hotel	..	..	5 "
U. S. Club	..	..	25 "
Abergeldie	..	..	15 "

Excluding the above from the total number of men who require accommodation, the space available per head for the remaining men in those five sheds is altered as follows :—

Lower Bazar (Fire Station)	..	52·8 cubic feet.
Sanjauli	..	35·4 "
Ridge, Band Stand	..	36·4 "
Bryanstone Estate	..	207·0 "
Craigdhu Hotel	..	71·4 "
Sandy's Hotel	..	46·4 "
U. S. Club	..	191·9 "
Abergeldie	..	142·9 "

Bryanstone Estate shed now exceeds the standard of 200 cubic feet per head while the U. S. Club shed very nearly reaches it; on the whole, however, the situation is not materially altered.

4. Mention may be made here of nine rickshaw men's rooms, of 11,775 cubic feet space, which, being completely open in front, become

unfit for occupation during the rains, when there is most need of indoor accommodation. The following is a list of these:—

Shed.	Capacity of rooms.	Area of open front.
	C. Ft.	S. Ft.
Summer Hill	306	100
Boileaugunj	1,330	160
Belvedere	2,838	160
Longwood	1,080	90
Lakkar Bazar	2,072	86
Above Rly. Station	2,058	77
Chhota Simla (Gannu)	341	130
Chaura Maidan	748	62
Secretariat Post Office	1,024	133
<i>Total</i>	<i>11,775</i>	<i>993</i>

5. Unfortunately, hearths are unnecessarily spread over the different rooms. If they could be concentrated in a small area, utilizing thereby only the smallest number of rooms possible, there would be separate rooms available for sleeping, which would have none of the present disadvantages of rooms used for both cooking and sleeping. Such rooms are extremely unsuitable for sleeping, on account of the effect of fire and smoke on their atmosphere. Often the floor becomes wet, and the occupants endeavouring to sleep are frequently disturbed by the return of others at a late hour to cook their meals.

6. The responsibility of providing housing for the rickshaw men rests at present on the *chaudhris*, who charge them a house-rent of eight annas each, per month. Before a shed is passed, the Medical Officer of Health is supposed to examine the housing facilities and the license is not granted till his approval has been obtained; but the fact that the present conditions exist seems to show that the control is not sufficiently stringent. The standard and extent of accommodation demanded may not be quite up to the mark to begin with, but (a) there should be separate rooms for cooking and sleeping purposes, and (b) however lenient the standard adopted, it should be rigidly enforced. The Municipality has elaborate bye-laws for the control and regulation of lodging houses, under which the rickshaw sheds seem to fall, and it should have no difficulty in enforcing these recommendations.

7. The following figures illustrate the extent of the ventilation in rickshaw men's rooms :—

	Privately hired rooms.	Rooms with sheds.	Total.
Cubic capacity of rooms	37,906 c.ft.	107,045 c.ft.	144,951 c.ft.
Area of doors, windows and ventilators ..	1,025 s.ft.	3,317 s.ft.	4,342 s.ft.
Area of doors, windows and ventilators per 100 cubic feet of room space ..	2·7	3·1	3·0

If the rooms with open fronts are excluded as unsuitable, in the remaining 124 rooms of 133,176 cubic feet capacity, doors, windows and ventilators form an area in the aggregate of 3,344 square feet, or 2·51 square feet per every hundred cubic feet of room space. Not only is this ventilation quite inadequate, but there were certain rooms inspected which left such impressions as can hardly be forgotten. There are rickshaw men's quarters in the Lakkar Bazar, within a stone's throw of the Health Office, where, in order to be able to reach the rooms, which are three in a row, one has to pass through a passage about 2½ feet wide and 5½ feet high. The body has to be bent considerably in order to avoid touching the dirty roof; the legs have to be kept astride a drain running in the centre; steps must be cautious lest the feet go into the drain, for the floor is slippery; it is desirable to cover the nose with a handkerchief on account of the obnoxious smell; and unless one is familiar with the passage it requires some courage to venture inside at all. Fortunately the rooms themselves are no worse than several of the others occupied by rickshaw men in other parts of Simla; they are fairly spacious and the windows opening into the bazar provide fairly good ventilation. A notable defect in several other rooms was their bad ventilation, some being so dark that a torch was required to be able to see anything at all; in a few cases the floor was very bad; some were much in need of repair; and others needed better drainage.

8. However, when all is said, one cannot overlook the fundamental necessity of men first understanding the value of a thing, before they can benefit from it. The rickshaw men are unacquainted with even elementary ideas of hygiene and sanitation. Instances have been noted, day after day, of men cooking their meals with the windows all closed, and in many cases rooms have been made unhealthy by nailing up windows or closing apertures with rags or gunny-cloths, etc. It is not surprising that

the walls and ceilings are blackened owing to there being little or no escape for smoke.

9. It is a common practice for the rickshaw men, often forced on them by necessity, to sleep out in the open when they can. With the present conditions of housing, this is the best thing they could do, but, unfortunately, rain does not often permit their doing this. On rainy nights their lot is hard and they then complain that they cannot get enough sleep.

10. Conditions being what they are, the public mind has for some years past been exercised over this question, and, when a special Sub-committee was appointed by the Municipal Committee, Simla, in 1929, to enquire into the grievances of the rickshaw men, strong representations were made to it, to do something to improve their living conditions. A well considered statement came from the Simla Trades' Association which said: "Housing presents the most difficult problem. There are numerous rickshaw coolies who sleep in front of shops and hundreds of them in the open, which shows that they have no proper shelter. Rickshaw-stands are insufficient and the houses engaged by the *chaudhris* are very insanitary. We think that the housing problem must be solved even if the Municipality has to take special measures."

The report submitted by the Sub-committee recommended among other things that "the Committee definitely undertake the obligation of providing decent sleeping accommodation for at least 75 per cent. of the rickshaw coolies engaged in the municipal sheds, the remaining 25 per cent. to be on duty in the sheds."* This recommendation did not appear to take account of the fact that between the hours of 1 a.m. and 7 a.m., there is ordinarily no need for men to remain on duty; but if even the standard suggested by the Sub-committee were enforced, there would be a great improvement in conditions.

11. Connected with this is the question of latrine and urinal requirements. This is by no means satisfactory, but on account of the good work of the municipal sanitary staff the men's plight is better than it would be otherwise. In several cases the lavatory accommodation is a long distance from the sheds, and the people living in the vicinity complain that for want of the necessary provision in the neighbourhood of the sheds the men defile the hill side, thus making it very unpleasant to live there; at three sheds flush urinals have been put up and these are much appreciated by the men.

*See Appendix II,

12. An allied requirement of the rickshaw men is shelter against weather when on duty. Rickshaws collect in large numbers at cinemas, theatres and ballrooms, and while inside there is entertainment the rickshaw men have to remain out with no means of protection from rain. The Municipality has done practically nothing so far to meet this need ; two shelter stands have been built by it opposite the Chalet and Cecil Hotel but these were financed by Lady Reading ; the other shelter stands which exist in Simla benefit only the general public. Nor does there seem any likelihood of the Municipality being in a position to meet the rickshaw men's need in the near future. The housing problem is more pressing and large funds are required for that alone. It seems therefore that it would have been a good thing if the provision of such shelters could be made a condition of the license of places like cinemas, theatres and ballrooms. Even this year a new cinema has been opened while two more cinema halls are under construction. The Municipality might find it possible in some cases to allow suitable land free of charge for this purpose. The shelters will need to be in the close proximity to the hotels, cinemas or theatres, otherwise they are likely to be unpopular. The men are responsible for their fares' belongings, rugs, etc., left in each rickshaw and therefore they cannot leave the vehicles to go any distance to take shelter ; if they do they would also not be within easy call when the "fare" is ready to return.

13. Reference has been made above to two shelter stands built out of a donation of Rs. 10,000/- given for the purpose by Lady Reading. Unfortunately, however, the generous intentions of the donor do not appear to have been fulfilled, for the shelter opposite the Chalet is usually locked and the one in Chaura Maidan, though often open during the day, is closed at night. The rickshaw men living in the sheds adjacent to these shelters are thus deprived of their use. The idea is not that they should be given over to the men as residential quarters but that there should be no objection to their sleeping there when they so desire.

14. In Appendix XI, details are given of the cost of construction and rents of different municipal sheds for which figures were available. Account has not been taken of the value of the site on which they are built nor of the annual wear and tear and repairs, but the high income that the Municipality is making on them is obvious. On costs of construction one shed yields 6·5 per cent., five sheds from 10 to 15 per cent., five from 16 to 20 per cent., two from 21 to 25 per cent., and one 31·79 per cent. In spite of these high rents, housing accommodation is most inadequate even at the municipal sheds.

CHAPTER VII.

HEALTH.

1. Soon after the initiation of the inquiry into the economic condition of the rickshaw men in Simla, suggestions were received from various quarters to incorporate in it a medical test. These were welcomed, and the late Major Malhotra, I.M.S., Director of Public Health, Punjab, kindly undertook to supervise this part of the inquiry. The scheme of the inquiry was drawn up by Major Makand, Medical Officer of Health, Simla, and the actual medical examination was conducted by Sardar Bahadur Subedar-Major Jit Singh of the Civil and Military Dispensary, Simla.

2. Medical examinations are, however, associated in the mind of the Punjab peasant with recruiting operations, and unfortunately the initiation of the medical investigations in Simla coincided with certain military activities on the North-West Frontier. The result was a widespread belief that the medical examination was intended for the selection of suitable recruits for the army, with a view to their enlistment under pressure and their despatch to the scene of operations. A feeling not unlike panic was thus generated among considerable sections of rickshaw men and in spite of endeavours to reassure them, a large number, possibly about a quarter of the total, left Simla temporarily. In order to prevent a bigger exodus, the examination was discontinued twenty days after its inception; up to then 734 men had been examined. These do not necessarily constitute a thoroughly representative sample, but the statistics obtained give some indication of the general position.

3. The following is Major Makand's report:—

“The examination was started on 2nd August 1933, and had to be suspended on 21st August 1933 owing to agitation amongst the coolies who were persuaded by some mischievous persons to believe that the medical examination was being performed with a view to conscripting them for military service. About 140 coolies ran away from Simla partly through this fear. Probably other factors also operated and in a number of instances the medical examination was merely made an excuse for breaking away from the Rickshaw *chaudhris* by those who desired to leave.

The taking of height and chest measurements was stopped on 10th August as these were alleged to be the chief causes of creating suspicion of conscription. The agitation against the examination, however, increased so much that at the request of the Chairman, Board of Economic Inquiry,

the investigation was discontinued on the forenoon of 21st August 1933. During the period, 2nd—20th August, 1933, altogether 734 coolies were medically examined. Their particulars and results of examination are detailed below :—

(1). Total number examined	..	..	734
(2). Districts and States from which these men were derived :—			
Bilaspur	..	..	199
Kangra	..	..	306
Hoshiarpur	..	..	152
Mandi	..	..	35
Suket	..	..	10
Garhwal	..	..	9
Simla	..	..	9
Bhagal	..	..	8
Nalagarh	..	..	3
Arki	..	..	2
Kumhar	..	..	1
		<i>Total</i>	<u>734</u>
(3). Religion :—			
Hindus	..	..	582
Muslims	..	..	152 (All from Hoshiarpur district.)
(4). Ages :—			
Between 15 to 20 years	..	..	80
" 21 " 25 "	..	..	257
" 26 " 30 "	..	..	209
" 31 " 35 "	..	..	80
" 36 " 40 "	..	..	50
" 41 " 45 "	..	..	29
" 46 " 50 "	..	..	21
" 51 " 60 "	..	..	8
		<i>Total</i>	<u>734</u>
(5). Weights :—			
Between 80 to 90 lbs.	..	..	5
" 91 " 100 "	..	..	84
" 101 " 110 "	..	..	188
" 111 " 120 "	..	..	287
" 121 " 130 "	..	..	131
" 131 " 140 "	..	..	23
" 141 " 150 "	..	..	9
" 151 " 155 "	..	..	7
		<i>Total</i>	<u>734</u>

The majority of them are on the light side. Only 16 out of 734 are over 10 stones and 23 between 9 and 10 stones.

(6). Chest measurements :—

The measurements of 426 coolies were recorded. The average range of size was as follows :—

Between 28 and 29 inches	..	5
Over 29 but under 30 inches	..	22
" 30 " " 31 " "	..	60
" 31 " " 32 " "	..	118
" 32 " " 33 " "	..	130
" 33 " " 34 " "	..	55
" 34 " " 35 " "	..	26
" 35 " " 36 " "	..	9
" 36 " " 37 " "	..	1
<i>Total</i>	..	<u>426</u>

(7). Height :—

The height of 499 men was recorded. It varied as follows :—

4'-11"—5'-0"	..	2
5'- 0"—5'-1"	..	15
5'- 1"—5'-2"	..	38
5'- 2"—5'-3"	..	59
5'- 3"—5'-4"	..	73
5'- 4"—5'-5"	..	84
5'- 5"—5'-6"	..	85
5'- 6"—5'-7"	..	52
5'- 7"—5'-8"	..	38
5'- 8"—5'-9"	..	29
5'- 9"—5'-10"	..	16
5'-10"—5'-11"	..	5
5'-11"—6'-0"	..	3
<i>Total</i>	..	<u>499</u>

(8). Pediculosis :—

99 per cent. of the coolies examined were found to be infested with body vermin.

(9). Physical abnormalities and ailments :—

(a). Anaemia	..	50
(b). Tachycardia	..	88
(c). Organic Heart Disease	..	4
(d). Signs of Bronchitis	..	21

(e). Chronic Malaria with enlarged spleen	53	(Chiefly from Kangra and Hoshiarpur.)
(f). Goitre	35	
(g). Eye diseases (chiefly Trachoma)	61	
(h). Varicosity of leg veins ..	21	
(i). Skin diseases (chiefly Ringworm)	20	
(j). Flat feet	6	
(k). Chronic Otitis Media ..	1	
(l). Diabetes	1	
(m). Pyorrhoea Alveolaris ..	148	
(n). Dental caries	221	

A regular examination for venereal diseases was not made, neither was it possible. Two men were, however, noted to have been suffering from gonorrhoea and one had signs of hereditary syphilis.

The number of men suffering from teeth and gum troubles is very large. A considerable proportion of these suffered from spongy gums which probably indicates deficiency of vegetables and fruits in diet. The feeding arrangements for the coolies are very defective. The necessity of a well balanced diet and regular meals is indicated. This can only be provided by properly organised kitchens attached to coolie sheds.

The danger to the public and to the coolies themselves through infestation of the latter with pediculi is obvious. It cannot be effectively dealt with till *pucca*, well built quarters and facilities for bathing and delousing, and residence under sanitary conditions are provided for the coolies. The attention of the Municipal Committee has been repeatedly drawn to this.

12.5 per cent. of the coolies examined were found to be suffering from Disordered action of the Heart; 56.8 per cent. of these heart cases were markedly anaemic. It is considered that such persons should not be allowed to do rickshaw coolies' work.

Prolonged observation has shown that ailing coolies seldom seek medical treatment at the local hospitals and dispensaries. When ill, they usually lie in the sheds till they recover or, when the trouble becomes more serious, leave for their homes. When visiting coolie sheds one often comes across one or two men lying covered up suffering from fever or cold. During the season two coolies in Sanjauli rickshaw shed (just outside the municipal limits) were found to be suffering from Enteric Fever. One was removed to the hospital where he died and the other left for his home.

The ordinary living accommodation for the coolies in Simla is as bad as can be, so it can readily be seen that the introduction of the factor of illness in their mode and conditions of life in Simla makes things immeasurably worse. It is strongly felt that suitable arrangements for quick evacuation and treatment of coolies are very necessary.

If it is proposed to institute a medical investigation of the coolies next year the following suggestions are offered :—

(1). The first examination be made in April at the time of licensing when they will be available for the purpose in a central locality. This is not likely to be evaded or objected to by them when they are on the threshold of their wage earning career in Simla.

(2). A whole-time doctor of the Sub-assistant surgeon class be appointed who would devote all his time and attention to the work and might at the same time administer medical relief when required.

(3). The second examination to be made in August and September.

(4). The Municipal Committee be moved to refuse license in those cases which are considered medically unfit to undertake this very strenuous work of rickshaw coolies.

12th October, 1933.

(Sd.) S. N. MAKAND,

MAJOR, I. M. S.,

Medical Officer of Health, Simla.

4. In Naini Tal job porters and rickshaw men are vaccinated compulsorily before they are licensed ; moreover, no person who, in the opinion of the licensing officer is too weak, and no person under 16 years of age is allowed to propel a rickshaw. Reliable evidence of unfitness can be given, however, only by a medical examination, and the figures suggest the need of attention to the question of excluding the unfit from employment.

5. A considerable number of men suffer from spongy gums, and the disease is attributed to the deficiency of fruits and vegetables in the diet ; the details of food consumption given in Appendix VII. show that the rickshaw men's consumption of these items of food is very little. Conditions could improve if they had the necessary knowledge, even though an elaborate diet might not be possible owing to lack of means.

6. 99 per cent. of the rickshaw men examined were found to be infested with body vermin and the report hints at the danger therefrom to the public. Instances were noted during the inquiry where rickshaw men had not taken a bath for over a month. Simla is a cool place but the nature

of the work involves constant perspiration and it is very necessary that the men should bathe at least, once a day. Some time back a resolution was moved in the Municipality by one of the members for the provision of public baths for the labouring classes. The resolution was referred to the Medical Officer of Health and he pointed out the greater importance of suitable housing accommodation and of arrangements for the delousing of clothes and persons of coolies. One public bath, however, was opened as an experimental measure a short time before the inquiry terminated and next year will show how far it is used by the people for whom it is primarily meant.

7. The men remain barefooted when with the rickshaws because, as they say, shoes hamper easy running ; it is not surprising therefore that they have many cuts on their feet. In September and October, when the roads were particularly bad as a result of the erosion by the heavy rains during the preceding months, several instances were noted where the cuts from stones developed into nasty wounds. Some years back hired labour used to be employed by the Municipality to pick up loose stones from roads but the practice has been discontinued.

8. Major Makand's observation that ailing coolies ' seldom seek medical treatment at the local hospitals and dispensaries ' will find support from all those who have been in close contact with rickshaw sheds. One result of this is that even ordinary ailments are aggravated and prolonged. If medical aid were afforded to them at the sheds, prejudice against the Western system of medicine would gradually disappear and if the ailments were attended to in the early stages, their extent and duration would be greatly lessened.

9. Much sickness was due to the rickshaw men getting drenched by rain and particularly to sleeping at night in wet clothes. Unfortunately the moderate recommendations of the Municipal Sub-committee of 1929 have not yet been carried out ; the few shelter stands which have been built seem to be designed and located mainly with an eye to the convenience of the general public.

APPENDIX I.

Indebtedness of Rickshaw Men.

1. *Extent of Indebtedness.*—115 men belonging to the three sheds under budget inquiry were asked if they owed any debts. 98 of these replied in the affirmative and 17 in the negative. Details of the debts could, however, be given by only 53 men ; in the other 45 cases the details were known only to the men's fathers or elder brothers. The total debt of the 53 men who supplied information was Rs. 18,628/- and the average debt per man Rs. 351/-.

2. *Rates of interest.*—Details of the rates of interest of the debts are given below :—

Rates per annum.	Amount of debt.	Percentage of total debt.
	Rs.	
37½ per cent.	200	1·1
24 to 25 per cent.	4,238	22·7
18 to 18½ per cent.	6,080	32·6
15 per cent.	1,450	7·8
12 to 12½ per cent.	6,403	34·4
Without interest	257	1·4
<i>Total</i> ..	<i>18,628</i>	<i>100·0</i>

3. *Purposes of debts.*—Rs. 6,145/- (33·0 %) of the total debt was inherited, and Rs. 975/- (5·2 %) could not be classified ; the balance was borrowed originally for the following purposes :—

<i>Purpose.</i>	<i>Amount.</i>
	Rs.
Marriage expenses	6,320
General household expenses	2,241
Purchase of milch cattle	394
Purchase of draught cattle	1,373
Expenses on death of relatives	320
Litigation expenses	590
House construction	270
<i>Total</i> ..	<u><u>11,508</u></u>

APPENDIX II.

Report of the Municipal Sub-committee of 1929 on the Grievances of the Simla Coolies.

“ SIR,

We beg to report as follows on the terms of reference which were submitted to us for report by the Committee at its meeting held on 14th August, 1929. The terms of reference were to inquire into and report on the grievances of the licensed coolie population of Simla by 15th September.* The Sub-committee held its first meeting on the 17th of August 1929 when it drew up a comprehensive questionnaire. Mr. Abdul Ghani, Labour member of the Punjab Legislative Council, was allowed to address the Sub-committee to emphasise any special points which he wished the Sub-committee to cover in the course of its inquiry.

The Sub-committee held its second meeting on 19th August when the evidence of four coolies was recorded. This was followed by another meeting on the 21st when the statements of three rickshaw *chaudhris* were recorded. The Sub-committee thereafter decided to call public evidence and hear the views of those who had considerable experience in this line and could make useful suggestions for a fair and equitable settlement, acceptable to all interests concerned. Accordingly on 23rd August the Sub-committee received valuable evidence from Major Wilkinson, Secretary, U. S. Club, Mr. Langhurst of Craigdhu and Mr. C. H. F. Pereira, President of the Imperial Secretariat Association, Sardar Bahadur Sital Singh, President of Nabha Estate Tenants Association and Lala Jiwan Das and Lala Jai Kishen Das on behalf of the Simla Trades Association. The Sub-committee met again on 26th August and recorded evidence of two more rickshaw *chaudhris*. The last meeting of the Sub-committee to record evidence was held on 29th August when Mr. Blessington of the Blessington Rickshaw Works and Lala Beli Ram of the Imperial Rickshaw Works were examined.

*Resolution No. XIV. of ordinary meeting No. 17 of the Municipal Committee held on the 14th August, 1929:—

“ After discussion of the coolie question in Simla, it was resolved that a committee consisting of the President, both Vice-Presidents and Lala Durga Das inquire into the grievances of all coolies licensed by the Municipal Committee and report by the 15th of September at latest.”

Thus it will be seen that the Sub-committee collected very representative evidence on behalf of the three interests affected by the inquiry, namely, the coolies, the rickshaw *chaudhris* and the general public. The Sub-committee met again on 7th September to consider its recommendations on the points specifically detailed in its questionnaire.

It was agreed that the present hire rates called for a change with a view to increasing the earnings of the rickshaw coolie. The question thus to determine was, what would be a fair charge on the public which, without affecting custom, would ensure a return which could be fairly adjusted between the *chaudhri* and the rickshaw coolies, so that the former received a fair return on his investment and the latter a fair wage. The Sub-committee after a very full consideration of the issues involved decided on the following rates for the hire of rickshaws which it recommends the Committee to adopt:—

(Schedule of rates—now in force ; see page 14.)

It may be explained that according to the proposed schedule the rates of hire and wages up to the 9th hour are based on a fair calculation but that the rates for the 10th, 11th and 12th hours have been specially raised. The underlying basis for this differentiation is that the Sub-committee consider that no rickshaw should be normally engaged beyond nine hours, which is a full working day, and that any one who engaged it beyond that period must pay for the luxury. It may also be mentioned that the wage of twelve annas guaranteed to the rickshaw coolie for 12 hours' work is considered to be a minimum wage which he should be entitled to for that period.

The Sub-committee next considered the question of night rates. The entire evidence it has collected has supported the imposition of special night rates and the Sub-committee agreed that some special rates for night are called for, but for the sake of simplicity the Sub-committee preferred the fixation of a consolidated sum for night work. Thus it recommends that for trips from 9 p.m. to 1 a.m. each coolie should receive two annas extra and from 1 a.m. to 6 p.m. three annas per coolie extra. It may be made clear that the night rates come into operation immediately after the period specified is overstepped.

The Sub-committee next took up the question of journeys outside municipal limits. While it recognised that according to the rates in force at present, the charge for rickshaw per day was reasonable, it felt that the rates for rickshaw coolies were low and adopted as a guide, the rates prevalent for coolies in 1923. Indeed in some cases, it went further and even

improved upon the 1923 rates. The Sub-committee accordingly recommends the following new rates for journeys outside municipal limits which it trusts the Superintendent, Hill States, will sanction.

(Schedule of rates for journeys to places outside municipal limits—now in force ; see page 14.)

The question of the present monthly earnings and profits of coolies was specially gone into by the Sub-committee and from the evidence on record, the majority of the Sub-committee drew the conclusion that the average income of a coolie is between Rs. 20/- and Rs. 25/- per mensem. In the opinion of Lala Durga Das, however, the average earning is not more than Rs. 20/- per mensem. But while the Sub-committee could form a rough estimate of the average income of a coolie, it found that evidence regarding the profits of a *chaudhri* was inadequate and no definite conclusion could be formed. It was, however, clear that the earning capacity of a rickshaw itself is about Rs. 200/- during the season. There is no doubt that some *chaudhri*s make a decent profit while others make a very small one. It depends where the rickshaw stands are situated. The evidence showed that in some cases *chaudhri*s own their own rickshaws but in other cases the *chaudhri* is an agent.

The Sub-committee made an attempt to ascertain the pay of a private *jampani* with a view to comparing it with the average earnings of a rickshaw coolie. It found that the income of a private *jampani* varies from Rs. 18/- to Rs. 23/- per mensem, so that the coolie in various sheds is not worse off than a private *jampani*.

Connected with the inquiry though not entirely germane to its terms of reference was the question of the present arrangement of leasing rickshaw sheds. The Sub-committee learnt that at present all Municipal properties are leased out by tender system and preference is given to the old tenant if he gives no cause of serious complaint. The Sub-committee did not think that it could go into this question at length and recommends no change in the present system.

But the Sub-committee was of opinion that the rents charged at present for the various municipal rickshaw sheds should not be lowered. Lala Durga Dass is of opinion that scheme should be worked which may give an incentive to the coolies themselves to become capitalists and run their own rickshaws.

The Sub-committee went specially into the question as to whether the present practice of employing three coolies was desirable from a humanita-

rian point of view. The evidence collected was chiefly in favour of the discontinuance of this practice and the Sub-committee gladly recommends that it should be abolished.

Along with this matter, the Sub-committee went into the question whether certain steep roads should be barred to rickshaw traffic and whether five men should be required in certain cases. Evidence that the Sub-committee collected was somewhat conflicting but it is of opinion that no case has been made for barring certain roads to rickshaw traffic, or for enforcing the use of five men to negotiate certain roads. The Sub-committee was of the opinion that the real remedy lay in taking extra precaution in keeping steep roads in a proper state of repair.

The Sub-committee next tackled the question of housing which constitutes one of the main grievances of the rickshaw coolies. The evidence the Sub-committee collected and the personal visit paid by the President and Lala Durga Dass proved conclusively the need of an urgent remedy. In four of the municipal rickshaw sheds where the Municipality has provided sleeping accommodation, such accommodation in the opinion of the Sub-committee is not sufficient. In other cases a large number of coolies have to sleep either under the rickshaws or in the godowns rented by the *chaudhris* or in the open. The godowns rented by the *chaudhris* are airless, dark and insanitary and even then provide inadequate accommodation. It is strongly recommended that the Committee definitely undertake the obligation of providing decent sleeping accommodation for at least 75 per cent. of the coolies employed in the municipal sheds, the remaining 25 per cent. to be on duty in the sheds. The proposal, will, of course, apply to municipal sheds and the Sub-committee feels that the decision will not be entirely satisfactory until uniform conditions of housing are provided for all the rickshaw coolies and for this purpose the Committee should adopt the policy of gradually closing all private rickshaw sheds and replacing them by municipal sheds.

The present practice of charging eight annas from each coolie per mensem on account of house rent by the *chaudhri* should continue. The *chaudhris* are justified in charging this rent but in no case should this exceed eight annas per head per month. Any enhancement of the above rent should be done only with the approval and the sanction of the Committee.

The Sub-committee is not in favour of providing free accommodation for job porters but Lala Durga Dass thinks that some sheds should be put up so that they may serve as playing places for children in the daytime

and be used for sleeping by the job porters at night and also that these sheds should be provided at the expense of the tax-payers.

Connected with this question of housing is the problem of adequate sanitary facilities. The Sub-committee was struck by the fact that the present facilities are very inadequate. In most cases the latrines are situated at too great a distance from the rickshaw sheds and there is not sufficient accommodation in the latrines. The whole question of increasing the number of latrines and of providing urinals near the sheds and on all the principal roads should be taken up immediately. In this connection, the Sub-committee suggest that every latrine should have a sweeper and be fitted with electric light and where possible flush system should be introduced.

We come now to the question of clothing. The present practice is that uniforms are provided compulsorily by the *chaudhri* who recovers their cost from the coolies. The Sub-committee was convinced that some provision should be made to provide protection against rain when coolies are plying during the wet season and the question was whether rain coats or blankets should be provided. The coolies, who gave evidence, unanimously preferred the provision of two blankets as these could serve them both during the rain and against the cold. The Sub-committee accordingly recommends that the provision of two blankets per coolie should be made obligatory. The question of financing the scheme, however, presented considerable difficulty. The point at issue was whether in a matter of private enterprise, municipal finances should undertake any obligation of this character. It also seemed clear that the only person on whom the responsibility should be fixed was the *chaudhri* himself. There is against this view the evidence of the *chaudhris* that they would find it difficult to finance the scheme. The Sub-committee thought that the Committee could assist them by securing low rates from big firms dealing with blankets. The general opinion was that if it could be possible, the Committee might purchase these blankets and realise the price from the *chaudhris* concerned by instalments but that if this was not possible then the responsibility must be fixed entirely on the *chaudhris*.

Another question that required examination was the provision of shelter from weather. The Sub-committee was informed that the *jampani* sheds which were donated by Lady Reading for the Cecil Hotel, and the Chalet have proved to be very useful and have been very much appreciated by the coolies. It was apparent that similar facilities were necessary at least in such places where there were big gatherings. In this

connection, the Sub-committee considered the question of providing shelter for coolies who brought people to the Gaiety Theatre and the two cinemas. It is accordingly recommended that the present shed near the band stand be enlarged and the band stand may also be open at night to the coolies to enable them to take shelter. The provision of *kanats* in the band stand would be necessary as a protection against the wet and cold nights.

It is also recommended that the Committee should address the authorities concerned at Viceregal Lodge, Barnes Court and Snowdon to kindly take up the question of providing similar shelters for the *jampanis* and coolies who gather there on big nights.

While the above proposals will meet the requirements of rickshaw coolies, it was felt that the ordinary job porters and the general public would be benefitted if road side shelters were put up on the roads to Boileaugunj and Summer Hill. The Sub-committee recommends that this matter be also taken up along with the provision of shelters for the rickshaw coolies.

Before dealing with the questions affecting the licensed coolies in general, the Sub-committee records its opinion that the present charge of three pies per coolie payable to the *chaudhri* as his commission for employment with private rickshaws requires no change.

The main question which affects the entire licensed coolie population of Simla is the present license fee of Re. 1/- per coolie and the charge of Rs. -/8/- per coolie for the brass token. The latter charge is refundable in case the badge is returned but in the majority of cases the badge is never returned. The Sub-committee was of opinion that the existing charge of Re. 1/- should be done away with and the charge which is meant to cover the cost of badge should be reduced from eight annas to four annas. It is further recommended that this four annas be refunded if the badge is returned. Thus it will be seen that the Sub-committee recommends entire abolition of the present fee from the coolie population as it considers it is open to objection on principle.

The Sub-committee trusts that the suggestions made will be acceptable to the Committee and that they will go a long way to meet all the legitimate grievances of the licensed coolie population of Simla. The evidence tendered before us along with the terms of our reference and questionnaire and other relative documents are appended herewith.

SIGNATURES OF THE MEMBERS OF THE SUB-COMMITTEE,"

APPENDIX III.

Rickshaw Sheds in Simla.

Serial No.	Situation.	Owner.	Number of rickshaws.
1	Opposite Station Library	Municipality	23
2	Mall, below Ridge	"	16
3	Near Cotton and Morris	"	13
4	Chalet	"	21
5	Lower Bazar, near Fire Station	"	3
6	Chhota Simla (Gur Dial)	"	19
7	Chhota Simla (Gannu)	"	24
8	Sanjauli	"	9
9	Lakkar Bazar	"	17
10	Belvedere	"	10
11	Longwood	"	10
12	Lakkar Bazar, Police Station	"	11
13	Ridge, Band Stand	"	16
14	Kennedy House	"	14
15	Kaithu Bazar	"	9
16	Boileaugunj	"	11
17	Summer Hill	"	14
18	Summer Hill, quarters	"	2
19	Phagli	"	5
20	Chaura Maidan	"	15
21	Chaura Maidan	Cecil Hotel	17
22	Cecil Hotel	Hotel	16
23	Sandy's Hotel	"	6
24	Clarke's Hotel	"	6
25	Craigdhu Hotel	P. W. D.	18
26	Secretariat Post Office	"	13
27	U. S. Club	Club	8
28	Darbhangha House	Darbhangha State	8
29	Nabha Estate	Nabha State	6
30	Chor Bazar	Bashehr State	6
31	Chor Bazar	Nalagarh State	8
32	New Lands	Kapurthala State	6
33	Railway Station	N. W. R.	17
34	Above Railway Station	Private property owner	6
35	Cart Road, Veterinary Hospital	"	9
36	Cart Road, Motor Stand	"	11
37	Tuti Kandi	"	9
38	Abergeldie	"	8
39	Eden House	"	2
40	Priory Lodge	"	4
41	Bryanstone Estate	"	9
42	Blessington Rickshaw Works	Mr. Blessington	20
43	Beli Ram Rickshaw Works	Lala Beli Ram	3

APPENDIX IV.
Homes of Origin and Castes of Rickshaw Men.

Castes.	SIMLA HILL STATES.				Mandi State.	Suket State.	Kangra District.	Hoshiarpur District.	Ambala District.	Jullundur District.	Garhwal District.	Total.
	Bilaspur.	Mangal.	Nalagarh.	Arki.								
<i>Hindus—</i>												
Rajputs ..	248	8	10	10	57	32	131	..	..	..	65	561
Julahas ..	190	2	4	14	3	7	317	..	..	..	1	538
Brahmins ..	281	4	2	15	17	16	62	..	..	..	3	400
Chamars ..	60	..	..	6	..	..	215	..	..	..	..	281
Kanaitis ..	197	1	8	62	2	7	..	..	..	..	..	277
Ghirths ..	..	..	..	..	..	5	136	..	..	..	..	141
Kolis ..	1	..	2	..	50	..	15	..	..	..	..	68
Lohars ..	9	..	..	1	12	..	5	..	..	..	..	27
Chhimbas ..	3	..	..	5	9	..	..	..	..	1	..	18
Gujars ..	..	..	..	..	..	8	..	7	..	..	..	15
Kumhars ..	9	..	..	..	..	..	5	..	..	..	..	14
Jats ..	2	..	3	1	..	..	2	..	..	..	..	8
Doomnas ..	1	..	..	..	..	..	6	..	..	..	..	7
Nais ..	6	..	..	..	..	..	..	..	..	..	..	6
<i>Total</i> ..	1,007	15	29	114	150	75	894	7	..	1	69	2,361
<i>Muslims—</i>												
Gujars ..	..	..	6	..	6	1	..	296	18	6	..	333
Pathans ..	..	..	..	..	2	5	..	1	..	..	..	8
Rajputs ..	..	..	..	..	..	..	..	1	2	..	..	3
Telis ..	..	..	..	..	1	..	..	1	..	..	..	2
<i>Total</i> ..	..	..	6	..	9	6	..	299	20	6	..	346
<i>Grand Total..</i>	1,007	15	35	114	159	81	894	306	20	7	69	2,707

APPENDIX V.
Rickshaw Men's Occupations at Home.

Occupation.	Brahmins.	Rajputs and Kanais.	Julahas.	Chamars.	Kolis.	Gujars.	Ghirths.	Others.	Total.	Percentage.
Land cultivation ..	152	238	51	18	2	102	2	11	576	65.5
Casual labour ..	7	24	69	54	9	3	12	2	180	20.5
Cattle keeping ..	24	24	..	..	..	5	..	2	55	6.2
Weaving ..	..	..	42	..	..	2	..	..	44	5.0
Miscellaneous ..	7	..	..	9	..	1	..	8	25	2.8
<i>Total</i> ..	<i>190</i>	<i>286</i>	<i>162</i>	<i>81</i>	<i>11</i>	<i>113</i>	<i>14</i>	<i>23</i>	<i>880</i>	<i>100.0</i>

APPENDIX VI.
Periods of Trips Performed by Rickshaw Men under Budget Inquiry—June to September 1933.

Period of trips.	June (Whole month).	July (Last week.)	August (Last week.)	September (Last week.)	Total trips.	Percentage.
Not exceeding 1 hour ..	414	74	117	108	713	33.3
From 1 to 3 hours ..	466	96	134	143	839	39.2
" 3 " 5 " ..	174	33	77	69	353	16.5
" 5 " 7 " ..	60	28	10	16	114	5.3
" 7 " 9 " ..	7	6	6	4	23	1.1
" 9 " 10 " ..	1	2	1	..	4	0.2
" 10 " 11 " ..	..	..	1	2	3	0.1
" 11 " 12 " ..	4	1	..	..	5	0.2
Trips to places outside municipal limits ..	27	2	3	4	36	1.7
Service engagements—(Number of days) ..	23	14	14	1	52	2.4
<i>Total</i> ..	<i>1,176</i>	<i>256</i>	<i>363</i>	<i>347</i>	<i>2,142</i>	<i>100.0</i>

APPENDIX VII.

Rickshaw Men's Average Monthly Expenditure on Food.

	Chaura Maidan.	Chhota Simla.	CART ROAD.	
			Hindus.	Muslims.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Wheat flour ..	1 9 4	1 11 7	2 8 9	3 6 9
Rice ..	1 11 9	1 7 10	0 7 0	0 6 6
<i>Suji</i> ..	0 0 3	0 0 4	..	..
Pulse ..	0 13 11	0 14 3	0 15 3	0 15 0
Vegetables ..	0 0 2	0 0 2	..	0 0 1½
Meat ..	0 1 8	0 2 0	..	0 0 3
<i>Ghi</i> ..	1 15 2½	2 0 6	0 14 0	0 14 4
Oil (mustard) ..	0 0 3½	0 0 2½	..	..
Salt, condiments, etc. ..	0 1 7½	0 1 7	0 1 6	0 2 0
Curd ..	0 0 1½	0 0 3	..	0 0 2
Milk ..	0 1 8	0 2 1½	0 0 6	0 5 2
<i>Shakkar and gur</i> ..	0 5 9½	0 4 2	0 2 4	0 4 1
Sugar ..	0 0 1½	0 0 5	0 1 0	0 0 9½
Fruits ..	0 0 10½	0 2 5	0 0 2	0 0 1
Sweetmeats ..	0 8 3	0 7 8	0 0 8	0 0 9
Gram (parched) ..	0 0 7	0 0 10	0 0 10	0 0 4
Maize ..	0 0 10½	0 1 1	..	0 0 3
<i>Total</i> ..	7 8 6	7 9 5	5 4 0	6 8 7

APPENDIX VIII.

Average Weight of Specified Articles of Food per Capita per Month.

Articles.	Chaura Maidan Shed.	Chhota Simla Shed.	CART ROAD SHED.	
			Hindus.	Muslims.
	Srs. Ch.	Srs. Ch.	Srs. Ch.	Srs. Ch.
Wheat flour ..	14 4	14 10	21 14	28 9
Rice ..	13 14	10 9	3 2	2 15
Pulse ..	4 10	4 12	5 1	5 0
<i>Ghi</i> ..	1 7	1 10	0 11	0 12
<i>Shakkar and gur</i> ..	1 14	1 11	0 15	1 10
Gram (parched) ..	0 2	0 3	0 3	0 1
Maize ..	0 3½	0 5	..	0 1
Milk ..	0 7	0 9	0 3	1 9

APPENDIX IX.

Housing Accommodation of Rickshaw Men.

Serial No.	Name of Shed.	Total number of rickshaw men's rooms.	Total capacity of rooms.		Total number of men.	Average number of men per room.	Average space available per man.
			C. Ft.	C. Ft.			
1	Opposite Station Library ..	3	4,232	1,411	147	49·0	28·8
2	Mall, below Ridge ..	3	5,057	1,686	95	31·7	53·2
3	Near Cotton Morris ..	1	3,900	3,900	65	65·0	60·0
4	Lower Bazar, Fire Station..	1	264	264	14	14·0	18·9
5	Chalet ..	3	5,634	1,878	105	35·0	53·6
6	Chhota Simla, (Gur Dial)..	6	5,762	960	100	16·6	57·6
7	Chhota Simla (Gannu) ..	4	3,832	958	120	30·0	31·9
8	Sanjauli ..	3	1,560	520	45	15·0	34·7
9	Lakkar Bazar ..	5	6,132	1,226	85	17·0	72·1
10	„ (Police Station) ..	2	1,755	877	70	35·0	25·1
11	Belvedere ..	3	3,542	1,181	50	16·7	70·8
12	Longwood ..	3	1,872	624	45	15·0	48·6
13	Ridge, Band Stand ..	1	2,475	2,475	80	80·0	31·0
14	Kennedy House ..	2	2,110	1,055	75	37·5	28·1
15	Kaithu Bazar ..	3	4,113	1,371	46	15·3	89·4
16	Chaura Maidan ..	7	6,711	959	160	22·8	41·8
17	Boileaugunj ..	4	2,980	745	52	13·0	57·3
18	Summer Hill ..	5	6,496	1,299	62	12·4	104·8
19	Cecil Hotel ..	15	11,787	786	64	4·3	184·2
20	Secretariat Post Office ..	4	2,768	692	62	15·5	44·6
21	Railway Station ..	3	4,357	1,452	95	31·7	45·9
22	Above Railway Station ..	1	2,068	2,068	26	26·0	79·5
23	Nabha Estate ..	2	4,180	2,090	36	18·0	116·1
24	Cart Road, Motor Stand ..	4	4,272	1,068	60	15·0	71·2
25	„ „ Vety. Hospital ..	2	1,873	936	40	20·0	46·8
26	Chor Bazar, Bashehr ..	3	2,904	968	30	10·0	96·8
27	„ „ Nalagarh ..	5	2,814	563	40	8·0	70·3
28	New Lands ..	2	3,272	1,636	30	15·0	109·1
29	Bryanstone Estate ..	3	8,694	2,898	45	15·0	193·2
30	Eden House ..	5	3,784	757	35	7·0	108·1
31	Darbhanga House ..	5	3,595	719	49	9·8	73·4
32	Craigdhu Hotel ..	5	3,641	728	77	15·4	47·3
33	Sandy's Hotel ..	2	882	441	24	12·0	36·8
34	Clarke's Hotel ..	1	4,158	4,158	26	26·0	159·9
35	U. S. Club ..	9	8,637	960	70	7·8	123·4
36	Abergeldie ..	3	2,858	953	35	11·7	81·7
	<i>Total</i> ..	<i>133</i>	<i>144,951</i>	<i>1,090</i>	<i>2,260</i>	<i>17·0</i>	<i>64·1</i>

APPENDIX X.

Sleeping Accommodation in Sheds.

Serial No.	Shed.	Area.	Number of rickshaws.	Area required for rickshaws.*	Surplus (+) or deficiency (-) of shed area over area required for rickshaws.
		S. Ft.		S. Ft.	
1	Opposite Station Library	.. 370	23	782	-412
2	Mall, below Ridge	.. 512	16	544	-32
3	Near Cotton Morris	.. 255	13	442	-187
4	Lower Bazar, Fire Station	.. 207	3	102	+105
5	Chalet	.. 448	21	714	-266
6	Chhota Simla, (Gur Dial)	.. 585	19	646	-61
7	" (Gannu)	.. 314	24	816	-502
8	Sanjauli	.. 319	9	306	+13
9	Lakkar Bazar	.. 532	17	578	-46
10	" Police Station	.. 312	11	374	-62
11	Belvedere	.. 260	10	340	-80
12	Longwood	.. 208	10	340	-132
13	Ridge, Band Stand	.. 690	16	544	+146
14	Kennedy House	.. 264	14	476	-212
15	Kaithu Bazar	.. 289	9	306	-17
16	Chaura Maidan	.. 480	15	510	-30
17	Boileaugunj	.. 374	11	374	..
18	Summer Hill	.. 250	14	476	-226
19	Secretariat Post Office	.. 292	13	442	-150
20	Railway Station	.. 578	17	578	..
21	Cart Road, Motor Stand	.. 333	11	374	-41
22	" Veterinary Hospital	.. 290	9	306	-16
23	Chor Bazar, Bashehr	.. 137	6	204	-67
24	" Nalagarh	.. 110	8	272	-162
25	New Lands	.. 198	6	204	-6
26	Bryanstone Estate	.. 337	9	306	+31
27	Craigdhu Hotel	.. 924	18	612	+312
28	Sandy's Hotel	.. 270	6	204	+66
29	U. S. Club	.. 575	8	272	+303
30	Abergeldie	.. 450	8	272	+178

*Floor areas occupied by eight different rickshaws were measured and it was found that, on an average, each takes 34 square feet.

Notes.—1. Nabha Estate, Darbhanga House and Eden House have no known sheds.

2. In Clarke's Hotel rickshaws stand under a porch which is just sufficient for them.

3. The shed above the Railway Station is being used as a rickshaw men's room and rickshaws are never kept there.

4. The Cecil Hotel has by far the biggest shed in Simla with a floor area of 3,538 square feet. There are 2,416 square feet spare from rickshaws—33 in number—but as no men are allowed to sleep there it cannot be included in the statement above.

APPENDIX XI.

Cost of Construction and Rents of Municipal Sheds.

Serial No.	Shed.	Cost of construction.	Rent (1933-34).	Rent expressed as a percentage of cost of construction.
		Rs.	Rs.	
1	Opposite Station Library	.. 3,793	1,206	31.79
2	Mall, below Ridge	.. 5,882	1,050	17.85
3	Near Cotton Morris	.. 5,619	885	15.75
4	Chalet	.. 4,877	975	20.00
5	Chhota Simla (Gur Dial)	.. 4,617	914	19.79
6	Chhota Simla (Gannu)	.. 4,140	483	11.67
7	Sanjauli	.. 1,800	..	..
8	Lakkar Bazar (2 sheds)	.. 3,298	{ 422 308 }	22.13
9	Belvedere	.. 2,052	234	11.40
10	Longwood	.. 1,855	234	12.61
11	Ridge, Band Stand	.. 4,269	280	6.55
12	Kennedy House	.. 3,425	443	12.93
13	Chaura Maidan	.. 4,800	918	19.13
14	Boileaugunj	.. 4,415	445	10.08
15	Summer Hill	.. 2,971	488	16.42

The Board of Economic Inquiry, Punjab

PAMPHLET No. 2

SUPPLEMENT 1 TO PUBLICATION No. 52

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

AGRICULTURAL STATISTICS

OF THE

(BRITISH) PUNJAB,

1936-37

Being the FIRST Supplement to "Agricultural Statistics of the Punjab, 1901-2 to 1935-6," with four new tables (Nos. 57 to 60) dealing with Population Statistics and an Appendix giving estimates of the Value of Crops grown in 1936-7.

BY

GULSHAN RAI, B.Com.,
ECONOMIC INVESTIGATOR,
BOARD OF ECONOMIC INQUIRY, PUNJAB

1938

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PREFACE

This is the first supplement to the Board's "Agricultural Statistics of the Punjab, 1901-2 to 1935-6" issued as Publication No. 52 last year. As there appears to be a demand for this book—and obviously it makes a handy volume for ready reference—it is the intention to increase its usefulness by printing annual supplements bringing the information up to date until a second edition becomes desirable.

The information contained in this supplement relates to the year 1936-7 and is the latest for which figures are available. It is suggested that the supplement be attached permanently to the main volume or the figures entered by hand in the respective tables on the pages indicated in italics under each table in this issue; alternatively some of the tables may be cut out and pasted opposite the relevant pages and for this reason only one side of the paper has been printed.

In some of the tables "corrected" figures are shown. These are different from those found in the original reports owing to corrections made subsequent to their publication. No attempt has been made to bring up to date the tables given in Part I of the main volume as most of these are derived from the data in Part II and the figures can be easily worked out.

Four new tables (Nos. 57 to 60) dealing with Population statistics have been introduced this year as they are of great significance in the rapidly changing conditions of the Province. Table No. 57 gives the "Population of the Present British Punjab at Various Censuses." In this table the rates of increase (a) since 1881, (b) since the previous census, and (c) the annual rate, are all shown. Table 58 shows the "Rural and Urban Populations at the Various Censuses," and Table 59 the "Population in 1931 classified according to Age, Sex and Civil Condition." These three tables are based on the Punjab census reports. The fourth table (No. 60) shows the "Natural Increase of Population since the 1931 Census" and is based on the annual reports of the Public Health Department which give the vital statistics for each calendar year.

An Appendix has been added giving two tables on the Value of the Punjab Crops. The first table shows for each Punjab canal the area assessed to water-rates and the estimated value of the crops grown; the source is the Irrigation Department's report. The next

table is based on the Season and Crops report and shows the total acreages sown under the major crops in the Punjab, the estimated outturns and the prices. From this information the total value of the crops has been worked out, but it should be added that owing to the varying fertility of soil and differences in prices in the various parts of the Province, such figures at best can only be approximate.

The data presented in this supplement was collected by Bh. Gulshan Rai, B. Com., Investigator of the Board and the compiler of the main volume.

E. D. L.

[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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2	Classification of Area.
3	Rainfall.
4	Area under Irrigation.
5	Crop Acreage Irrigated.
6	Number of Wells in Use.
7	Acreage Irrigated by Canals—
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	B. Minor Works.
	C. Total under Government Canals.
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52	Sales of Land.
53	Mortgages of Land.
54	Redemption of Mortgages.
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56	Area and Value of Canal-irrigated Crops.
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57	Population at Various Censuses.
58	Rural and Urban Populations.
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	A. Value of Crops and Area assessed to Water Rates on each Punjab Canal.
	B. Sown Acreage, Outturn and Value of Principal Crops.

TABLE 1.
Area (in acres) of the Punjab.

(Source : Agricultural Statistics of the Punjab).

Year.	The Punjab area according to Professional Survey.	Indian States.	Area for which no returns exist.	Net area of British Punjab by Professional Survey.	Corresponding area in Village Papers.
1936-7 ..	64,388,480	3,386,880	..	61,001,600	60,174,560

(Page 43).

TABLE 2.
Classification of Area (in acres) of the British Punjab.

See pages 8-9 below.

TABLE 3.
Rainfall.

(Source : Season and Crops Report).

Year.	DISTRICTS.							Punjab.
	Hissar.	Kangra.	Lahore.	Shahpur.	Multan.	Lyallpur.	Rawalpindi.	
1936-7	8·70	133·75	22·47	18·17	12·98	13·68	40·35	30·16

(Page 46).

TABLE 4.
Area (in acres) under Irrigation in the Punjab.

(Source : Season and Crops Report).

Year.	Area irrigated from—					Total.
	Government canals.	Private canals.	Tanks.	Wells.	Other sources.	
1936-7	10,885,910†	466,288	33,760	4,086,756	131,993	15,604,707

(Page 47).

†Sown area only.

TABLE 5.
Crop Acreage Irrigated in the Punjab.
 (Source: Season and Crops Report).

Year.	Wheat.	Other cereals and pulses.	Miscellaneous food crops.	Non-food crops.	Total.
1936-7 ..	5,150,898*	3,522,848	767,618	6,419,926*	15,861,290

(Page 48).

*Corrected figures.

TABLE 6.
Number of Wells in Use in the Punjab.
 (Source: Season and Crops Report).

Year.	Masonry.	Non-masonry.	Total.
1936-7 ..	304,740	17,084	321,824‡

(Page 49).

‡In addition there were 63,899 wells in working order but not used for irrigation, and 3,143 abandoned wells.

TABLE 7-A.
Acreage Irrigated by the Punjab Canals.
 A.—*Major Works.*
 (Source: Irrigation Administration Report).

Year.	Kharif.	Rabi.	Total.	Remarks.
1936-7 ..	5,745,451	6,087,570	11,833,021	..

(Page 51).

TABLE 7-B.
Acreage Irrigated by the Punjab Canals.
 B.—*Minor Works.*
 (Source: Irrigation Administration Report).

Year.	Kharif.	Rabi.	Total.	Remarks.
1936-7 ..	410,400	404,368	814,768	Includes 33,348 acres irrigated on the Sarusti Canal for which no capital and revenue accounts are kept.

(Page 53).

TABLE 7-C.

Acreege Irrigated by the Punjab Canals.
C.—Total Acreege under Government Canals.
 (Source: Irrigation Administration Report).

Year.	Major works.	Minor works.	Total.
1936-7	11,833,021	814,768*	12,647,789*

(Page 55).

*Figures in columns 3 and 4 include irrigation from Sarusti Canal for which no capital and revenue accounts are kept.

TABLE 8.

Punjab Canals: Productive Major Works.

See pages 8-9 below.

TABLES 9 to 19.

AREAS AND OUTTURNS OF CROPS IN 1936-7.

(Source: Season and Crops Report).

Crop.	Table No.	Acreege.			Outturn (in thousand tons).		
		Irrigated.	Unirrigated.	Total.	Irrigated	Unirrigated.	Total.
Rice ..	9	798,723	240,775	1,039,498	473·1	67·9	541·0
Wheat ..	10	5,150,898*	4,247,655*	9,398,553*	2,345·5	1,049·2*	3,394·7*
Barley ..	11	238,495	501,063*	739,558*	101·6	104·6	206·2
Jowar ..	12	185,320	743,109	928,429	36·9	85·7	122·6
Bajra ..	13	336,098	2,515,110	2,851,208	75·3	285·2	360·5
Maize ..	14	486,880	590,711	1,077,591	233·6	158·6	392·2
Gram ..	15	1,205,243	3,703,675*	4,908,918*	306·8	645·9	952·7
Sugarcane	16	463,575	90,773	554,348	414·6	50·9	465·5
<i>Cotton—</i>							
Desi ..	17	1,346,011	202,099	1,548,110	653·3†	53·6†	706·9†
American	18	1,332,152	28,890	1,361,042	741·6†	7·6†	749·2†
Tobacco ..	19	60,320	1,379	61,699	27·9	0·6	28·5

(Pages 60 to 70).

*Corrected figure.

†Outturn in '000 bales (of 400 lbs.) of cleaned cotton.

TABLES 20 to 49.
AREAS OF CROPS IN 1936-7.

(Source : Season and Crops Report).

Crop.	Table No.	Acreage.		
		Irrigated.	Unirrigated.	Total.
Ragi ..	20	8,201	10,403	18,604
Other cereals ..	21	80,053	74,676	154,729
Mung and Mash ..	22	56,586	420,489	477,075
Other pulses ..	23	127,249	662,265*	789,512*
TOTAL CEREALS AND PULSES ..	24	8,673,746*	13,709,929*	22,283,675*
Linseed ..	25	18,687	12,737*	31,424*
Til ..	26	22,355	77,633	99,988
Castor ..	27	32	12	44
Rapeseed ..	28	80,770	482,920*	563,690*
Toria ..	29	379,080	39,176	418,256
Other oilseeds ..	30	1,247	24,066	25,313
Condiments and spices	31	31,746	3,122*	34,868*
Hemp ..	32	19,086	28,736	47,822
Other fibres ..	33	929	2,100	3,029
Indigo ..	34	9,131	16	9,147
Other dyes ..	35	3,370	8,740	12,110
Poppy ..	36	2,246	54	2,300
Tea ..	37	4,108	5,472	9,580
Indian Hemp ..	38	8	4	12
Other drugs and narcotics ..	39	497	493	990

(Pages 71 to 90.)

*Corrected figure.

(Continued).

TABLES 20 to 49.

AREAS OF CROPS IN 1936-7.

(Source: Irrigation Administration Report).

(Concluded).

Crop.	Table No.	Acreage.		
		Irrigated.	Unirrigated.	Total.
Fodder crops ..	40	3,133,663*	1,855,786*	4,989,449*
Orchard and garden produce ..	41	186,702	67,312*	254,014*
Miscellaneous Food Crops	42	85,595	149,303*	234,898*
Miscellaneous Non-food crops ..	43	6,234	8,926	15,160
KHARIF CROPS, 1936 ..	44	6,478,680	7,208,730	13,687,410
RABI CROPS, 1937 ..	45	9,382,610*	9,590,948*	18,973,558*
TOTAL CROPS SOWN, 1936-7 ..	46	15,861,290*	16,799,678*	32,660,968*
TOTAL CROPS, MATURED	47	14,998,556*	13,022,561*	28,021,117*
TOTAL CROPS, FAILED ..	48	862,734*	3,777,117*	4,639,851*
AREA SOWN MORE THAN ONCE IN A SINGLE HARVEST ..	49	256,583	25,075	281,658

(Pages 91 to 100).

*Corrected figure.

TABLE 50.

Livestock, Ploughs, Carts and Boats in the Punjab.

This table is based on the quinquennial Livestock Censuses, last held in 1935 and the next to be held in 1940. See page 101 of the main volume.

TABLE 51.

Incidence of Land Revenue on Area and Population.

See pages 8-9 below.

TABLE 52.

Sales of Land.

(Source : Statement XXVI of Land Revenue Administration Report).

Year.	Number of transfers.	Area sold—		Price.	Price per acre.		Land revenue assessed on area sold.	Price per rupee of land revenue.
		Total.	Cultivated.		Total.	Cultivated.		
		Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.
1935-6	81,366	228,780	143,100	5,78,30,810	253	404	2,32,786	248
<i>Average, 1931-2 to 1935-6</i>	<i>74,407</i>	<i>202,978</i>	<i>129,470</i>	<i>5,29,08,993</i>	<i>261</i>	<i>411</i>	<i>2,02,213</i>	<i>263</i>
1936-7	88,990	236,092	148,274	6,05,95,619	257	409	2,38,220	254

(Page 105).

TABLE 53.

Mortgages of Land.

(Source : Land Revenue Administration Report).

Year.	Number of mortgages.	AREA MORTGAGED.		Mortgage debt.	MORTGAGE VALUE PER ACRE.		Land revenue assessed on area mortgaged.	Mortgage debt as a multiple of land revenue.
		Total.	Cultivated.		Total.	Cultivated.		
		Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	
1935-6	128,629	333,448	276,845	3,41,01,433	102	123	4,79,411	71
<i>Average, 1931-2 to 1935-6.</i>	<i>139,334</i>	<i>354,843</i>	<i>295,999</i>	<i>4,42,45,037</i>	<i>125</i>	<i>150</i>	<i>5,22,157</i>	<i>85</i>
1936-7	128,218	327,573	269,501	3,66,76,707	113	136	4,57,967	80

(Page 106).

NOTE.—The total cultivated area under mortgage in 1935-6 was 3,915,902 acres or 12·6 per cent. of the total cultivated area of the British Punjab ; in 1936-7 the area was 4,046,080 acres and the percentage 13·0. (See page 35 of the main volume).

TABLE 54.

Redemption of Mortgages.

(Source : Land Revenue Administration Report).

Year.	Number of releases.	AREA REDEEMED.		Consideration money paid.	Land revenue assessed on area redeemed.
		Total.	Cultivated.		
		Acres.	Acres.	Rs.	Rs.
1935-6 ..	66,501	189,579	152,701	1,60,63,302	2,73,247
<i>Average, 1931-2 to 1935-6</i>	<i>56,168</i>	<i>166,522</i>	<i>129,699</i>	<i>1,58,32,580</i>	<i>2,28,843</i>
1936-7 ..	75,209	216,798	178,194	2,28,74,845	3,02,148

(Page 107).

TABLE 55.

Harvest Prices Per Maund of Principal Crops.

See pages 8-9 below.

TABLE 56.

Area and Value of Crops grown on Canal-Irrigated Land in 1936-7.

(Source : Statement III-E. of Irrigation Report).

Crop.	Area assessed to water-rates.		Total value estimated.
		Acres.	Rs.
Wheat ..	3,194,386	13,74,81,363	
Rice ..	530,423	1,73,17,603	
Mixed Grain ..	322,785	1,24,54,943	
Gram ..	613,351	1,07,49,018	
<i>Cotton—</i>			
Desi ..	1,357,097	6,03,71,511	
American ..	1,261,205	7,85,68,933	
Sugarcane ..	256,111	1,94,29,898	
ALL CROPS* ..	11,628,784	47,41,21,012	

(Pages 109 to 110).

*See Table A of Appendix, page 13 below.

TABLE
Classification of Area (in
 (Source: Agricultural

Year.	UNCULTIVATED AREA.			
	Forests.	Not available for cultivation.	Culturable waste.	Total.
1936-7 ..	1,969,098	12,958,234	14,120,422	29,047,754

(Pages 44-45.)

TABLE
Punjab Canals, Productive Major
 (Source: Irrigation Adminis-

Year.	Capital outlay, direct and indirect, at the end of year.	Interest charges at the end of year.	Net revenue at the end of year.	Accumulated profits at the end of year.
	Rs.	Rs.	Rs.	Rs.
1936-7 ..	33,58,75,452	35,10,08,928	1,20,42,55,357	85,32,46,429

(Pages 58-59.)

TABLE
Incidence of Land Revenue
 (Source: Land Revenue

Year.	Total area by survey less feudatories	Area fully assessed.		Total land revenue.
		Total.	Cultivated.	
	Acres.	Acres.	Acres.	Rs.
1935-6 ..	60,174,599	32,905,057	26,383,983	5,35,58,168
1936-7 ..	60,174,560	33,951,373	26,750,190	5,34,38,017

(Pages 102-103.)

TABLE
Harvest Prices Per Maund
 (Source: Season and

Year.	Rice (unhusked).	Wheat.	Barley.	Jowar.	Bajra.
	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
1936-7 ..	2 2	3 0	2 0	2 4	2 6

(Page 108.)

2.
acres) of the British Punjab.
Statistics of the Punjab).

CULTIVATED AREA.			GRAND TOTAL.	Year.
Current fallow.	Net area actually sown.	Total.		
3,220,828	27,905,978	31,126,806	60,174,560	1936-7

8.
Works (Revenue Account).
tration Report).

<i>For the year.</i>			Net revenue as a percentage of capital outlay.	Year.
Gross revenue.	Working expenditure.	Net revenue.		
Rs. 6,56,43,299	Rs. 1,67,82,405	Rs. 4,88,60,894	14.55	1936-7

51.
on Area and Population.
Administration Report).

Population (1931).	Land revenue per head.	Land revenue on fully assessed area.	<i>Incidence of land revenue per acre.</i>		Year.
			Total.	Cultivated.	
	Rs. a. p.	Rs.	Rs. a. p.	Rs. a. p.	
23,551,210	2 4 4	5,05,47,372	1 8 6	1 14 7	1935-6
23,551,210	2 4 6	4,78,43,045	1 6 7	1 12 7	1936-7

55.
of Principal Crops.
Crops Report).

Maize.	Gram.	Rape-seed.	Sugar (raw).	COTTON.	
				Desi.	American.
Rs. a. 2 5	Rs. a. 2 6	Rs. a. 4 12	Rs. a. 3 5	Rs. a. 5 14	Rs. a. 7 6

NEW TABLES

TABLE 57.
Population of the Present British Punjab at Various Censuses.
(Source: 1931 Punjab Census Report, Vol. I.)

Census year.	POPULATION.			RATE OF INCREASE PER CENT—		
	Males.	Females.	Total.	Since 1881.	Since previous census.	Annual rate of increase.
1855 ..	..	..	13,844,180	..	..	..
1868 ..	..	..	15,798,699	14·12	..	1·09
1881 ..	9,167,186	7,772,126	16,939,312	7·22	..	0·56
1891 ..	10,056,695	8,595,919	18,652,614	+10·11	+10·11	1·01
1901 ..	10,734,532	9,208,183	19,942,715	+17·73	+6·92	0·69
1911 ..	10,770,985	8,808,062	19,579,047	+15·58	-1·83	-0·18
1921 ..	11,306,507	9,378,971	20,685,478	+22·11	+5·65	0·57
1931 ..	12,880,510	10,700,342	23,580,852	+39·21	+14·00	1·40

TABLE 58.
Rural and Urban Populations of the British Punjab at Various Censuses.
(Source: Punjab Census Reports.)

Census year.	Area in square miles.	URBAN.			RURAL.		
		No. of towns.	Population.	Per cent of total.	No. of villages.	Population.	Per cent of total.
1881	..	..	2,042,833	12·6	..	14,596,479	87·4
1891	..	..	1,998,357	10·7	..	16,654,257	89·3
1901	..	..	2,116,892	10·6	..	17,825,823	89·4
1911	99,779	139	1,979,127	10·1	33,421	17,599,920	89·9
1921	99,866	146	2,212,191	10·7	34,119	18,473,287	89·3
1931	99,200	177	3,067,464	13·0	34,630	20,513,388	87·0

TABLE 59.
Population of the British Punjab, by Age, Sex and Civil Condition, in 1931.
 (Source: 1931 Punjab Census Report, Vol. 2.)

Age-groups in years.	POPULATION.			UNMARRIED.			MARRIED.			WIDOWED.		
	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.
0—5*	3,740,549	1,909,178	1,831,371	3,728,645	1,905,285	1,823,360	11,326	3,631	7,695	578	262	316
5—10	3,143,832	1,691,328	1,452,504	2,965,952	1,648,441	1,337,511	154,743	41,369	113,374	3,137	1,518	1,619
10—15	2,851,094	1,571,550	1,279,544	2,448,603	1,460,509	988,094	394,701	107,179	287,522	7,790	3,862	3,928
15—20	2,190,257	1,203,432	986,825	1,036,054	798,242	237,812	1,121,133	387,440	733,693	33,070	17,750	15,320
20—30	4,094,513	2,233,334	1,861,179	915,024	796,282	118,742	3,004,096	1,341,439	1,662,657	175,393	95,613	79,780
30—40	2,982,008	1,677,452	1,304,556	257,130	228,656	28,474	2,388,153	1,289,378	1,098,775	336,725	159,418	177,307
40—50	2,065,331	1,156,766	908,565	110,047	95,845	14,202	1,469,130	861,086	608,044	486,154	199,835	286,319
50—60	1,337,026	761,208	575,818	56,290	49,207	7,083	779,484	507,682	271,802	501,252	204,319	296,933
60 and over	1,176,242	676,262	499,980	41,880	36,754	5,126	485,040	358,072	126,968	649,322	281,436	367,886
<i>Total ..</i>	<i>23,580,852</i>	<i>12,880,510</i>	<i>10,700,342</i>	<i>11,579,625</i>	<i>7,019,221</i>	<i>4,560,404</i>	<i>9,807,806</i>	<i>4,897,276</i>	<i>4,910,530</i>	<i>2,193,421</i>	<i>964,013</i>	<i>1,229,408</i>
<i>Infants —</i>												
0—1	877,522	443,644	433,878	877,289	443,551	433,738	208	82	126	25	11	14
1—2	661,227	333,732	327,495	660,744	333,579	327,165	445	133	312	38	20	18
* 2—3	737,801	374,302	363,499	736,440	373,815	362,625	1,299	448	851	62	39	23
3—4	745,547	382,577	362,970	741,783	381,351	360,432	3,644	1,171	2,473	120	55	65
4—5	718,452	374,923	343,529	712,389	372,989	339,400	5,730	1,797	3,933	333	137	196

TABLE 60.

"Natural" Increase in Population since the 1931 Census.

(Source: Public Health Administration Reports).

Year.	Births.	Deaths.	"Natural" increase.	Population on 31st December	BIRTHS.		DEATHS.	
					Males.	Females.	Males.	Females.
1931 ..	1,002,251	609,216	..	{ 23,460,267(a) 23,798,649(b) }	528,336	473,915	323,234	285,982
1932 ..	970,236	579,382	390,854	24,189,503	512,408	457,828	308,259	271,123
1933 ..	1,042,624	660,542	382,082	24,571,585	549,975	492,649	343,398	317,144
1934 ..	938,630	649,775	288,855	24,860,440	495,767	442,863	346,156	303,619
1935 ..	1,069,138	583,839	485,299	25,345,739	564,858	504,280	310,665	273,174
1936 ..	1,099,146	562,292	536,854	25,882,593	579,953	519,193	302,644	259,648
1937 ..	1,090,727	556,268	534,459	26,417,052	573,977	516,750	297,676	258,592
1938 ..								

(a) 1931 census figure held on 26th February.

(b) Natural increase since the census, i.e., excluding births (164,567) and deaths (109,914) in January and February, 1931.
Note.—The figures exclude Europeans, Anglo-Indians and the British Army in India.

APPENDIX TO SUPPLEMENT 1.
VALUE OF THE PUNJAB CROPS
TABLE A.

Value of Crops grown on the Punjab Canals and Area assessed to Water-rates under Each in 1936-7.

Canal.	Area assessed to water-rates.	Estimated value of crops grown.
	Acres.	Rs.
Western Jumna	977,010	3,88,18,001
Sirhind	1,216,348	4,69,62,673
Upper Bari Doab	1,235,870	5,05,06,578
Lower Bari Doab	1,058,998	4,51,72,606
Upper Chenab	533,641	2,01,49,720
Lower Chenab	2,356,058	11,15,14,777
Upper Jhelum	275,025	1,17,60,769
Lower Jhelum	819,682	3,28,17,239
Pakpattan	566,438	2,45,15,651
Dipalpur	452,362	1,98,35,569
Eastern	125,773	44,19,640
Sidhnai	270,795	1,01,38,733
Indus Inundation Canals	194,863	45,73,295
Shahpur Inundation	58,123	23,55,834
Ghaggar Canals	21,809	5,70,730
Mailsi	313,378	1,00,17,830
Chenab Inundation Canals	190,931	58,35,527
Muzaffargarh Inundation Canals	317,470	86,75,149
Sarusti	32,158	7,94,261
<i>Total</i>	11,016,732	44,94,34,582
Sirhind (in Indian States)	593,333	2,41,76,803
Ghaggar (in Bikaner State)	18,719	5,09,627
GRAND TOTAL	11,628,784*	47,41,21,012*

*See Table 56, page 7.

TABLE B.

Sown Acreage, Outturn and Value of Principal Crops in 1926-7.

Principal crops.	Sown acreage ('000 acres)	Outturn ('000 tons)	Price per ton.	Total value ('000 rupees)
1. Rice ..	1,040	541·0	57·8	3,12,69·80
2. Wheat ..	9,399	3,394·7	81·7	27,73,46·99
3. Barley ..	740	206·2	54·4	1,12,17·28
4. Jowar ..	928	122·6	61·3	75,15·38
5. Bajra ..	2,851	360·5	64·7	2,33,24·35
6. Maize ..	1,078	392·2	63·0	2,47,08·60
7. Gram ..	4,909	952·7	64·7	6,16,49·69
8. Sugarcane ..	554	465·5	90·2	4,19,88·10
9. Cotton (unginned)— Desi ..	1,548	420·8	159·9	6,72,85·92
American ..	1,361	447·1	200·8	8,97,77·68
10. Tobacco ..	62	285	175·2	49,93·20
11. Fodder crops ..	4,989	..	32·0 (Per acre)	15,96,48·00
<i>Total</i> ..	<i>29,459</i>	..	..	80,07,24·99

NOTE.—The eleven major crops thus covered 29,459,000 acres of land, or 90·2 per cent. of the total sown area. If it be assumed that the average income per acre on the remaining 9·8 per cent. of the sown area under the minor crops was the same as that for the major crops, the total value for all crops would be about Rs. 88,77·21 lakhs of rupees.

The Board of Economic Inquiry, Punjab.

PUBLICATION No. 55.

[GENERAL EDITOR: J. W. THOMAS, B.Sc., B.Com.]

COST

OF

MILK PRODUCTION

(1931-32 to 1934-35)

AT

LYALLPUR, PUNJAB,

Being an examination of the milk accounts of
The Punjab Agricultural College Dairy (1931-32 to 1934-35) and three Gujars
in Gujar Mandi (1932-33 to 1934-35)

BY

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[The Board of Economic Inquiry, Punjab, does not hold itself responsible
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1938

Some Reports of the Board of Economic Inquiry, Punjab.

MILK PROBLEMS.

1. The Milk Supply of Lahore in 1931.
(Publication No. 28.)
2. Report on a Preliminary Survey of the Milk Supply
of Lyallpur in 1927. (Publication No. 22.)
3. Cost of Milk Production at Lyallpur, Punjab
(1930-31). (Publication No. 25.)
4. Cost of Milk Production (1931-32 to 1934-35)
at Lyallpur, Punjab. (Publication No. 55.)

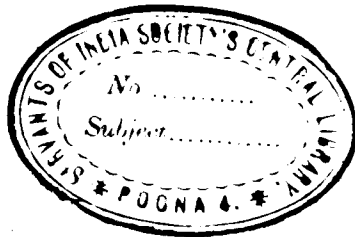
MISCELLANEOUS REPORTS.

5. Cattle Survey of Rohtak District in the Punjab.
(Publication No. 41.)
6. Family Budgets, 1934-35, of Six Tenant-Cultivators
in the Lyallpur District. (Publication No. 50.)
7. Punjab Village Surveys No. 11.—Durrana Langana
in the Multan District: (Publication No. 54.)
8. Note on Sales of Gold and Ornaments in 120
Punjab Villages. (Pamphlet No. 1.)

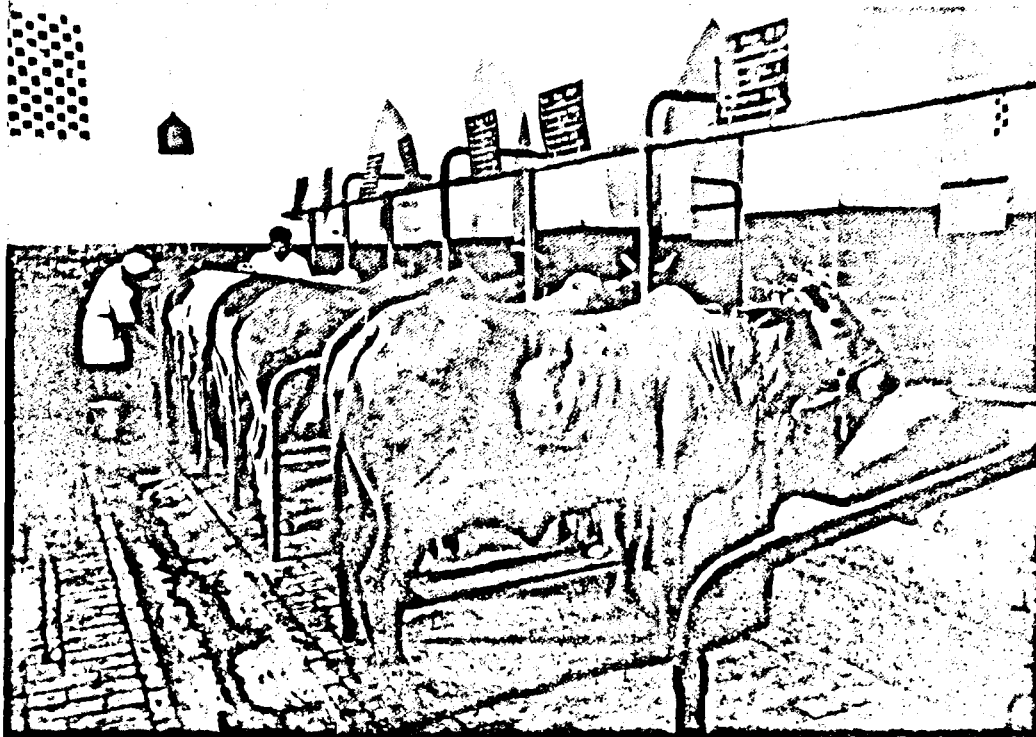
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end of the book.

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G8



PUNJAB AGRICULTURAL COLLEGE DAIRY



THE WINTER MILKING SHED

Cows are being cleaned, groomed and washed before milking.

PREFACE

This report is in continuation of the Board's Publication No. 25, which dealt with the cost of Milk production at the Lyallpur College Dairy in 1930-1. The genesis of the inquiry, as mentioned in the preface of that report, was "the unsatisfactory state of the milk supply in certain Punjab towns where the supply had been subjected to a systematic study." These investigations, held in Lahore and Lyallpur (the Board's Publications Nos. 22 and 28), had revealed that the supply was generally unequal to the demand and the production and marketing of milk left much to be desired. Owing to the difficulty of getting records from private producers the inquiry was confined to the dairy of the Punjab Agricultural College at Lyallpur. In the present report the results for the three years, 1931-2 to 1934-5, are given, and at the same time records for three Gujars (milkmen) living in the Lyallpur town have been included.

The value of milk as a food requires no stressing and the Punjabi is a large consumer of milk directly, or in forms such as butter-milk, ghi and butter. With a rapidly increasing population—it is estimated to be increasing at the rate of 300,000 per annum—and the consequent pressure on cultivation, grazing grounds are diminishing fast and the nomad cattle-herder, once a feature of the area now under the Canal Colonies, has practically vanished. To sustain this growing population and at the same time avoid the immense wastage of human life, particularly in its earlier years (owing in a large measure to milk-borne diseases), is a formidable problem facing the province. The cry for milk, pure, wholesome and at the same time cheap enough to be available to all, cannot be ignored; and this report is an attempt to place before the public some useful relevant data for a study of this important problem. It shows a method of working out the cost of production of milk and the accounts have been prepared in a scientific manner so as to get the perspective correctly. Allowance has been made in the cost for interest charges on the capital invested and depreciation on the stock, while returns from the calves born and the dung dropped have been included in the credits.

The Report is in two Parts, the first dealing with the College Dairy and the second with the Gujars. The former has two sections, the first dealing with the accounts for the years,

1931-2 and 1932-3 and the second section with those for the years 1933-4 and 1934-5. This has been done because in the later period the management methods were slightly different. The second part deals with the Gujars generally and then takes up the accounts of three Gujars for the years 1932-3 to 1934-5.

Acknowledgment is made to Sardar Kartar Singh, B.Sc., N.D.D., L.Ag., and Chaudhri Lal Chand Sikka, B.Sc., for this useful piece of work.

J. W. THOMAS

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INTRODUCTION

Inquiries conducted from time to time in respect of the milk supply of some towns in the Punjab* have shown that the supply was inadequate, that a large portion of the milk sold was adulterated and that it was produced and handled under most insanitary conditions. This shows a very unsatisfactory state of affairs, particularly when it is remembered that the indisputable value of milk for nursing mothers and children has lately been recognised all over the world†

In the "Milk Supply of Lahore" (1930) it is shown, however, that rising income is associated with increased consumption of milk. The statement on page 43 of that report gives an average daily consumption of 2.8 ounces for the income group "up to Rs. 25 per mensem" as against 31.2 ounces for the income group "Rs. 1,000 and over."

It will thus be realised that it is not so much the lack of knowledge about the value of milk as food, but the inadequate family means, which are largely responsible for its low consumption, and, in order to bring it within the purchasing power of such people, genuine milk must be made available at a low rate. This, however, raises the question of a fair return to the producer, who it is generally believed, cannot at present afford to sell milk at a lower rate.

The problem of an adequate supply of wholesome milk to the towns and at a reasonably low rate is, therefore, very complicated and requires a careful study of the cost of milk production, and such an inquiry was begun in 1930 at the Lyallpur Agricultural College Dairy, where it was possible to collect reliable data. As the inquiry was the first of its kind in India, its main object was to devise a method which could be applied generally in subsequent investigations. The study was continued for another four years, 1931-2 to 1934-5; in 1932-3 it was extended to include three Gujars in Lyallpur city. The milk produced in towns from animals kept there by Gujars and

-
- * 1. "Notes on Dairying," by Kartar Singh (1916).
 2. "Milk Supply of Lahore," by Shiv Dutt (1921).
 3. "Milk Supply of Lyallpur," by Labh Singh (1927).
 4. "Milk Supply of Lahore," by R. L. Anand (1930).

Note.—Nos. 2 to 4 are publications of the Board of Economic Inquiry, Punjab.

† In this connection the quotation from "Nature," dated 21st August, 1937, on "Milk Supply and National Health" is pertinent:

"Expert Government Committees have now unanimously declared that the desirable daily amount of milk for children is from one to two pints (1½ to 2½ lbs.), for expectant and nursing mothers about two pints and for other adult members of the community half a pint."

Ahatawalas (milkmen) forms an important part of the total milk supply of the Indian urban areas. In 1927 such milk formed 19.0 per cent. of the total supply in Lyallpur town, while in Lahore in 1930 it was 38.4 per cent. As no authentic data have so far been published giving detailed and accurate information regarding the cost of milk production in the case of professional milk producers it was considered essential to include them in the inquiry.

A perusal of the two previous reports on milk production in the College Dairy shows that the only way to lower the cost of producing wholesome milk is to increase the milk yields of the animals. The net cost of milk production was 98.67 annas per 100 lbs. of milk (0.98 annas per lb.) in 1930-1 when the average annual milk yield per cow was 4,176 lbs.; in 1933-4 when the annual yield had risen to 5,493 lbs. per cow the cost had fallen to 75.81 annas, while in 1934-5 with an yield of 6,037 lbs. it had fallen further to 69.52 annas, i.e., about two-thirds of what it was four years earlier. (Figures of yields for the next two years are also now available—6,256 lbs. in 1935-6 and 6,917 lbs. in 1936-7—and it will be seen that the quantity has continued to increase; although the cost has not yet been worked out the indications are that per 100 lbs. of milk produced, the cost has gone down still lower than what it was in 1934-5). In the case of the Gujars, however, the cost did not vary much because the annual milk yield per cow was more or less constant. The increase in milk yield of the cows in the College Dairy was made possible by selective breeding, judicious culling and better feeding.

Further, an analysis of the feeds given to these cows indicates that the increased amount of green fodder consumed has perhaps contributed most towards the improvement in yield. The figures given below give an idea of the effect of green fodder on the annual milk yield per cow:

<i>Year.</i>	<i>Average daily consumption of green fodder per cow.</i>	<i>Average annual milk yield per cow.</i>
	<i>lbs.</i>	<i>lbs.</i>
1931-2 ..	45	4,679.3
1932-3 ..	38	4,171.9
1933-4 ..	62	5,493.0
1934-5 ..	69	6,037.0

Part I of this report deals with the data collected in the Lyallpur College Dairy for a period of four years, 1930-1 to 1934-5, while Part II deals with the data collected from Gujars

for three years ending 1934-5. The conditions under which cattle are kept and milk is produced by the Gujars have been given in section 1 of Part II. As the method of working out the cost and the management of the herd in the College Dairy had been given in detail in the earlier publication, it has not been considered necessary to repeat them here.

I am greatly indebted to Chaudhri Lal Chand Sikka, Manager of the College Dairy, who is mostly responsible for the necessary close supervision of the work during the period the inquiry was conducted and for continuous hard work in tabulating the enormous data which has been collected in connection with this inquiry. As I left Lyallpur in March, 1935, most of the work had to be done by him. I am also grateful to Mr. D. P. Johnston, I.A.S., who, as Professor of Agriculture for the first two years, provided the necessary facilities for supervision of the inquiry.

KARTAR SINGH.

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PART I

LYALLPUR AGRICULTURAL COLLEGE DAIRY

A.—COST OF MILK PRODUCTION IN THE YEARS, 1931-32 AND 1932-33.

1. *Number of Cows Kept.*—The total number of cow-days* was 8,650 for the year 1931-2 and 7,913 for 1932-3. On an average this comes to 23·63 cows per day for the former and 21·68 for the latter year.

2. *Feed.*—Statement 1 below shows the quantity, price per maund and total value of each of the different foodstuffs fed to the cows during the two years under report :—

STATEMENT 1.

Quantities and Values of the Foodstuffs Used.

Foodstuffs.	Quantity consumed.	Value.	Average price per maund.
	Mds. Srs. Ch.	Rs. a. p.	Rs. a. p.
Concentrates—			
1931-32 	699 23 8	1,140 6 4	1 10 1
1932-33 	663 10 2	1,101 11 3	1 10 6·9
Green fodder—			
1931-32 	4,765 2 0	1,093 14 0	0 3 8
1932-33 	3,652 1 8	1,039 0 6	0 4 6·5
Bhusa—			
1931-32 	641 33 0	167 2 6	0 4 2
1932-33 	537 30 4	212 13 9	0 6 4
Salt—			
1931-32 	13 18 0	33 12 11	2 8 3
1932-33 	16 18 7	37 3 6	2 4 2
<i>Total—</i>			
1931-32 	<i>6,119 26 8</i>	<i>2,435 3 9</i>	..
1932-33 	<i>4,869 20 5</i>	<i>2,390 13 0</i>	..

*Sum total of cows kept each day during the year.

▲

It will be observed from the foregoing statement that the total quantity of all the feeds consumed, except salt in 1931-2 and green fodder in 1932-3, was more than in 1930-1, as shown in the previous publication.* This is as it should have been, because, as is clear from the table given below, the number of cows maintained during both these years was higher than the number in 1930-1. The average annual milk production per cow was highest in 1931-2, and this naturally caused an increase in the total consumption of foodstuffs as the quantity of concentrates fed is roughly in proportion to the quantity of milk produced by the cows.

Year.	Total No. of cow-days.	Average No. of cows kept in herd during the year.	Average over-	Average annual
			all daily milk yield per cow.	milk yield per cow.
			lbs.	lbs.
1930-31 ..	7,598	20.82	{11.44†	{4,176.7†
			{11.67‡	{4,259.3‡
1931-32 ..	8,650	23.63	12.82	4,679.3
1932-33 . . .	7,913	21.68	11.43	4,171.9

The lower consumption of salt in 1931-2 than in 1930-1 in spite of the increased number of cows maintained, is explained by the fact that in 1931-2, unlike the previous year, not much salt was fed in grain, but was kept before the cows as rock-salt to lick, and consequently less was consumed. During 1932-3, it was again fed, partly mixed with the grain ration, and partly licked by the cows from the rock-salt kept before them, with the result that the total consumption of salt increased.

The lower quantity of green fodder consumed in 1932-3 was due to its decreased production in the dairy fodder area that year on account of the lower yields obtained, as shown in Statement 3.

The total value of the feeds used, however, was lower during both 1931-2 and 1932-3 than it was in 1930-1. This was because of the lower prices prevailing for the concentrates and bhusa owing to the general agricultural depression during these years.

There was not much difference between the prices for 1931-2 and 1932-3. For concentrates they were very nearly the same

*See Statement 1, page 3, of "*Cost of Milk Production at Lyallpur, Punjab*," (Board of Economic Inquiry, Punjab, Publication No. 25).

† Published figure in the previous publication (page 10).

‡ Revised figure.

in both years, those of green fodder and bhusa were lower in 1931-2 than in the following year, and the price of salt in 1932-3 was lower than in the previous year. Because of the larger consumption during 1931-2, the total value of all foodstuffs was also higher that year than in the succeeding year, although owing to the lower prices of green fodder and bhusa, the difference was not as great as it would have been if the prices had been the same during both the years.

3. *Concentrates*.—Statement 2 on the next page shows the details of the total quantity and value of the different concentrates used ; the percentage which each item bears to the total quantity and value; and the quantity and value of each of the concentrates used to produce 100 lbs. of milk.

Wheat bran formed the larger part of the total concentrates fed—54·71 per cent. in 1930-1, 51·61 per cent. in 1931-2 and 45·09 per cent. in 1932-3. Since, however, it was the cheapest of all foods, its price formed 37·39 per cent. of the total value of concentrates in 1930-1, 32·83 per cent. in 1931-2 and 33·09 per cent. in 1932-3. Gram continued to be second in importance, although its percentage of the total concentrates increased from 25·57 in 1930-1 to 30·68 in 1931-2 and 33·41 in 1932-3. Being a dearer food than wheat bran, however, its cost worked out to 43·25 per cent. of the total cost in 1931-2 and 39·08 per cent. in 1932-3 as against 40·67 per cent. in 1930-1.

Toria (Indian rape) cake was the next important constituent of the ration and quantitatively it formed 13·45 per cent. of the total ration in 1931-2 and 16·92 per cent. in 1932-3 as compared with 7·65 per cent. in 1930-1. The proportion of its value to that of the total concentrates fed was 18·98, 20·60 and 9·60 per cent. respectively, for these years. The other less important concentrates were cotton-seed, wheat and barley in 1931-2 and cotton-seed, wheat and linseed cake in 1932-3. Just as in 1930-1, cotton-seed was fed during the winter months, partly because of its heating property, and partly because of its costive effect on the bowels, which are otherwise liable to be very loose in that season because of the feeding of very succulent *rabi* (winter) fodders, such as turnips, Japan sarson (rape) and *berseem* (Egyptian clover). Barley was fed during the summer months of June and July because it is said to have cooling properties.

It will be observed that, relatively, more of gram and cake and less of bran were fed in the later two years than in 1930-1.

STATEMENT 2.
Quantities and Values of the Concentrates Used.

Foodstuffs.	Year.	Total quantity consumed.	Total cost.	Average price per maund.	Quantity used per 100 lbs. of milk produced.	Cost per 100 lbs. of milk produced.	PERCENTAGE OF TOTAL.	
							Quantity.	Value.
Wheat bran ..	1931-32	Mds. Sr. Ch. 361 0 12	Rs. a. p. 374 7 5	Rs. a. p. 1 0 7	lbs. 27-02	Annas. 5-45	51-61	32-83
	1932-33	299 2 4	364 7 8	1 3 6	26-74	6-36	45-09	33-09
Gram ..	1931-32	214 26 8	493 2 9	2 4 9	16-06	7-18	30-68	43-25
	1932-33	221 25 6	430 9 1	1 15 1	19-81	7-51	33-41	39-08
Toria cake ..	1931-32	94 3 4	216 14 3	2 4 11	7-04	3-15	13-45	18-98
	1932-33	112 6 8	227 3 11	2 0 5	10-03	3-96	16-92	20-60
Cotton-seed ..	1931-32	10 22 0	23 11 9	2 4 0	0-79	0-35	1-51	2-11
	1932-33	26 0 0	67 7 0	2 9 6	2-32	1-18	3-91	6-14
Barley ..	1931-32	9 11 0	15 4 2	1 10 4	0-69	0-22	1-32	1-32
	1932-33	..	..	..	..	..	..	..
Wheat ..	1931-32	10 0 0	16 14 0	1 11 0	0-75	0-25	1-43	1-51
	1932-33	3 30 0	9 6 0	2 8 0	0-34	0-16	0-57	0-83
Linseed cake ..	1931-32	..	..	..	..	..	..	..
	1932-33	0 26 0	2 9 7	4 0 0	0-06	0-05	0-10	0-26
<i>Total</i> ..	1931-32	699 23 8	1,140 6 4	1 10 1	52-35	16-60	100-00	100-00
	1932-33	663 10 2	1,101 11 3	1 10 6-9	59-30	19-22	100-00	100-00

The increase in the quantity of gram was the result of a greater fall in its price during these two years than in that of bran. The relevant figures are shown in the table below :—

Foodstuffs.	Average starch equivalent value of one maund (82 lbs.) of foodstuffs.	Price per lb. of starch equivalent in—			Decrease in price of 1 lb. starch equivalent over 1930-1 price in—	
		1930-31.	1931-32.	1932-33.	1931-32.	1932-33.
	lbs.	Pies.	Pies.	Pies.	Per cent.	Per cent.
Gram ..	54.94	12.05	8.03	6.79	33.4	43.65
Wheat bran ..	42.64	6.01	4.67	5.49	22.3	8.65

It will be noticed that whereas the price per lb. of starch equivalent in gram decreased by 33.4 per cent. in 1931-2 and 43.65 in 1932-3 compared with its value in 1930-1, that of wheat bran only decreased by 22.3 and 8.65 per cent., respectively, during these years. Thus, relatively, gram became cheaper than wheat bran during these two years and hence more of it was used.

More toria cake was fed to narrow down the nutritive ratio of the grain ration. It is thought that wheat bran, gram and cake should be fed in the ratio 2:1:1 for the best results. The figures for 1930-1 showed that the quantity of cake fed was too little—only 7.65 per cent. of the total quantity of concentrates—and this was increased to form 13.45 per cent. of the total ration in 1931-2 and 16.92 in 1932-3. The cake fed is machine-pressed and as it has a very pungent taste the animals do not relish it. They have to get accustomed to its use, and hence its proportion is being only gradually increased.

On an average 52.35 lbs. of concentrates costing 16.60 annas in 1931-2 and 59.30 lbs. costing 19.22 annas in 1932-3, were fed to produce 100 lbs. of milk as compared with 60.54 lbs. costing 25.62 annas in 1930-1. It was pointed out in the previous report that the grain consumption per 100 lbs. of milk was higher than it was in England.* The decrease in 1931-2 is mainly the result of the special efforts made to reduce grain consumption, although probably it is also partly due to the increased average milk production of the herd. During 1932-3 grain consumption again increased to about the 1930-1 level, as less green fodder was available that year.

4. *Green Fodder.*—During 1930-1, the green fodder fed was valued at the prevailing bazar rate, *i.e.*, Rs. 0-4-0 per maund. About 19.17 acres of land are attached to the Dairy Farm where

* *Ibid*, page 4.

all the green fodder fed to the stock is raised and normally little is purchased. For the two years under report, detailed records of the cost of production of the various fodder crops grown in this area for feeding to stock, were maintained, from which data the actual cost of production of different fodders has been worked out, and charged for the quantities fed to the cows.

Appendix A shows the details of the cost of production per acre and per maund for the different crops. It will be observed that land revenue, rent for the land and the value of manure applied have all been included in the cost figures, although no expenditure was actually incurred on these items. The land belongs to the Government, hence no payments were made on account of rent or land revenue. The manure applied to the crops was all produced on the Farm. Land revenue has been charged at Rs. 6-8-0 per acre, local cesses at Rs. 1-2-2 ($17\frac{1}{2}$ per cent. of land revenue), and rent at Rs. 400 per square.* These are the rates prevailing in the adjoining villages for first class land.

Statement 3 on the next page summarises the cost of production of individual fodder crops for the two years under report. It will be observed that maize, chari (great millet) and Sudan grass were the fodders grown in *kharif* (summer crops) in 1931-2, and turnips, Japan sarson, *raya* (*Brassica Juncea*), oats and berseem during the *rabi* (winter crops) of that year. During 1932-3 the fodders grown were the same as in 1931-2, except Sudan grass in *kharif* and *raya* and turnips in *rabi*. Gram was also grown during the *rabi* of that year.

The yields obtained in 1931-2 were fairly good for all the crops grown except maize. This was rather low owing to the poor quality of the land of the fodder area, which is somewhat light and therefore not very suitable for growing maize.

The yields obtained in 1932-3 were generally poorer than in 1931-2; only berseem in *rabi* and chari in *kharif* yielded well, while the outturn was particularly low in the case of maize, Japan sarson, gram and oats. The average yield per acre for all fodders was much lower—only 275.6 maunds in 1932-3 compared with 330.0 maunds in 1931-2.

There was not much difference in the costs per acre of the different crops during the two years. The cost per maund was, however, generally lower during 1931-2 than it was in the following year because of the larger yields obtained per acre for maize, Japan sarson and oats. As the cost per acre does not vary much, but the cost per maund is greatly affected by differences in the yield, every effort should be made to get as high a tonnage as possible to produce the fodder at the lowest cost.

* Square: A division of land in the Canal Colonies of the Punjab, size 1,100 feet by 1,100 feet in the Lyallpur District; equivalent to 25 killas or 27.8 acres.

STATEMENT 3.

Summary of the Cost of Production of Various Fodders.

(K. = Kanals; M. = Marlas.)

Fodders.	TOTAL AREA.		YIELD PER ACRE.		COST PER ACRE.		COST PER MAUND.	
	1931-32.	1932-33.	1931-32.	1932-33.	1931-32.	1932-33.	1931-32.	1932-33.
	K. M.	K. M.	Mds.	Mds.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
KHARIF FODDERS—								
Maize with mixtures	33 3	56 2	180·8	166·5	68 5 2	75 11 8	0 6 0	0 7 3
Chari with mixtures	46 12	33 5	212·0	247·7	65 2 5	67 6 7	0 4 11	0 4 4
Sudan grass ..	9 11	..	257·5	..	87 0 8	..	0 5 5	..
<i>Total</i> ..	<i>89 6</i>	<i>89 7</i>	<i>204·8</i>	<i>196·7</i>	<i>67 2 7</i>	<i>72 14 9</i>	<i>0 5 3</i>	<i>0 5 11</i>
RABI FODDERS—								
Japan sarson ..	3 17	12 17	342·1	121·4	54 7 2	47 5 2	0 2 7	0 8 2
Turnips ..	4 10	..	399·4	..	93 13 0	..	0 3 9	..
Raya ..	7 16	..	367·0	..	88 2 1	..	0 3 10	..
Gram ..	..	18 11	..	90·8	..	40 9 11	..	0 8 9
Oats ..	19 3	32 2	393·9	252·3	74 3 9	75 2 1	0 3 0	0 4 9
Berseem ..	22 0	26 6	753·2	778·8	108 12 10	102 3 2	0 2 4	0 2 1
<i>Total</i> ..	<i>57 6</i>	<i>89 16</i>	<i>525·2</i>	<i>354·3</i>	<i>89 9 8</i>	<i>75 15 1</i>	<i>0 2 9</i>	<i>0 3 5</i>
<i>All fodders</i> ..	<i>146 12</i>	<i>179 3</i>	<i>330·0</i>	<i>275·6</i>	<i>76 13 8</i>	<i>74 4 8</i>	<i>0 3 8·7</i>	<i>0 4 3·7</i>

The cost per maund was the lowest in the case of berseem.—Rs. 0-2-4 in 1931-2 and Rs. 0-2-1 in 1932-3—because of its very high average yield per acre, although its cost per acre was the highest.

The kharif crops were on the whole more costly to grow than the rabi crops because of differences in yields obtained and this is well illustrated by the statement under discussion. If, however, the rabi and kharif crops be compared on the basis of the cost of a pound of dry matter, this difference in favour of the rabi crops would not be so pronounced. The rabi fodders are more succulent and contain a higher percentage of moisture with a lower percentage of dry matter—about 15 per cent. The kharif crops have on the other hand a higher dry matter content—about 25 per cent. On this basis the average price per maund of dry matter works out to Rs. 1-5-0 for kharif fodders and Rs. 1-3-2 for rabi fodders in 1931-2, and Rs. 1-7-8 for kharif and Rs. 1-5-1 for rabi in 1932-3.

Statements 5-A and 5-B on the next two pages show respectively for 1931-2 and 1932-3 the amount and the value of the various fodders fed to cows in each month of the two years. Statement 4 below (prepared from these two statements) summarises for the different months, the average quantities of green fodder fed to a cow. For comparison similar figures for 1930-1 are also included:—

STATEMENT 4.

Month.	Daily Green Fodder Consumption per Cow.		
	1930-31.	1931-32.	1932-33.
	lbs.	lbs.	lbs.
April	60	79	55
May	42	56	45
June	31	30	39
July	33	23	39
August	30	30	37
September	35	37	28
October	41	36	26
November	48	28	20
December	59	34	20
January	45	54	28
February	72	75	48
March	77	68	67
<i>Average—</i>			
12 months	48	45	38
6 kharif months (June to November) ..	36	31	32
6 rabi months (December to May) ..	59	60	44

It will be observed that the quantity of fodder fed daily to a cow was lower in 1931-2 and 1932-3 than it was in 1930-1, the figures for 1932-3 being the lowest because of the smaller quantities raised during these years owing to lower yields obtained. During all the three years the quantity of green fodder fed during the kharif months was lower than that fed in the rabi months. As

STATEMENT 5-A.

Quantities and Values of the Different Fodders used in 1931-32.

Month.	Berseem.	Oats.	Turnips.	Raya.	Sarson.	Maize.	Chari.	Sudan grass.	Total quantity used.	Total value.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	Rs. a. p.
1931—										
April ..	46,110	4,839	..	..	..	..	..	..	50,949	102 10 11
May ..	32,403	1,677	..	..	..	4,670	..	1,654	40,404	94 15 0
June ..	..	..	..	..	..	6,020	10,123	5,735	21,878	89 8 0
July ..	..	..	..	..	..	2,425	14,603	..	17,028	66 2 1
August ..	..	..	..	..	..	..	22,225	..	22,225	83 10 6
September ..	..	..	..	..	..	5,490	20,836	..	26,326	103 11 7
October ..	..	..	..	..	..	14,741	9,696	2,635	27,072	115 4 5
November ..	..	..	..	1,870	..	18,119	..	..	19,989	88 15 6
December ..	4,455	..	10,174	10,315	..	..	..	..	24,944	67 3 2
1932—										
January ..	32,357	..	8,250	560	..	..	..	..	41,167	82 4 2
February ..	25,485	19,055	..	..	7,645	..	..	..	52,185	103 8 3
March ..	26,301	21,627	..	..	..	..	..	..	47,928	96 0 5
Total (1931-32) ..	167,111	47,198	18,424	12,745	7,645	51,465	77,483	10,024	392,095	1,093 14 0

STATEMENT 5-B.

Quantities and Values of the Different Fodders used in 1932-33.

Month.	Berseem.	Oats.	Gram.	Sarson.	Maize.	Chari.	Chari hay.	Berseem hay.	Total quantity used.	Total value.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	Rs. a. p.
1932—										
April ..	15,218	17,937	..	..	..	..	..	..	33,155	68 0 5
May ..	18,928	..	..	..	8,902	..	..	..	27,830	82 11 7
June ..	..	..	..	..	12,536	12,302	..	..	24,838	110 6 2
July ..	..	..	..	..	9,185	16,615	..	..	25,800	106 1 9
August ..	..	..	..	..	6,301	18,079	..	..	24,380	94 15 6
September ..	..	..	..	..	11,479	6,171	..	..	17,650	84 2 8
October ..	..	..	..	..	10,664	4,897	..	2,220	17,781	88 15 3
November ..	..	..	..	2,486	8,076	..	2,720	190	13,472	92 2 0
December ..	12,651	..	..	758	..	..	..	..	13,409	24 15 6
1933—										
January ..	16,295	1,560	..	2,457	..	..	..	..	20,312	47 1 0
February ..	19,598	6,121	..	6,392	..	..	..	..	32,111	93 7 3
March ..	19,731	26,006	2,992	..	..	..	..	..	48,729	146 1 5
Total (1932-33) ..	102,421	51,624	2,992	12,093	67,143	58,064	2,720	2,410	299,467	1,039 0 6

already stated this was because of the lower yields obtained per acre in that season. Owing to the higher dry matter content of kharif fodders, however, the actual consumption of dry matter is not as low as it appears from figures of fodder consumption.

On an average 356.57 lbs. of green fodder in 1931-2 and 326.52 lbs. in 1932-3 were fed to produce 100 lbs. of milk instead of 413.58 lbs. fed during 1930-1. The value of these fodders amounted to 15.92, 18.13 and 20.17 annas and formed 44.92, 43.47 and 40.00 per cent., respectively, of the total feed cost for these years.

5. *Bhusa*.—During 1931-2, 48.03 lbs. and during the next year 48.08 lbs. of bhusa (straw) were fed to produce 100 lbs. of milk as compared with 31.56 lbs. in 1930-1. The increased consumption during the two years was due to the lower quantity of green fodder consumed. The value of bhusa fed per 100 lbs. of milk obtained amounted to 2.43 and 3.71 annas respectively; these formed 10.49 and 11.04 per cent. of the total feed cost.

6. *Summary of Foodstuffs*.—Statement 6 below summarises the total quantities and values of different feeds used to produce 100 lbs. of milk.

STATEMENT 6.

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

Foodstuffs.	Total quantity.		Total value.		Quantity per 100 lbs. of milk.	Cost per 100 lbs. of milk.	PERCENTAGE OF TOTAL—	
							Quantity.	Value.
	Mds.	S. C.	Rs.	a. p.	lbs.	Annas.		
Concentrates—								
1931-32 ..	699	23 8	1,140	6 4	52.35	16.60	11.43	46.84
1932-33 ..	663	10 2	1,101	11 3	59.30	19.22	13.62	46.08
Green fodder—								
1931-32 ..	4,765	2 0	1,093	14 0	356.57	15.92	77.86	44.92
1932-33 ..	3,652	1 8	1,039	0 6	326.52	18.13	75.00	43.47
Bhusa—								
1931-32 ..	641	33 0	167	2 6	48.03	2.43	10.49	6.86
1932-33 ..	537	30 4	212	13 9	48.08	3.71	11.04	8.89
Salt—								
1931-32 ..	13	18 0	33	12 11	1.00	0.49	0.22	1.38
1932-33 ..	16	18 7	37	3 6	1.47	0.65	0.34	1.56
Total—								
1931-32 ..	6,119	36 8	2,435	3 9	457.95	35.44	100.00	100.00
1932-33 ..	4,869	20 5	2,390	13 0	435.37	41.71	100.00	100.00

The figures in this table show that on an average the following quantities of the different feeds were required to produce 100 lbs. of milk :—

<i>Feed.</i>	<i>1931-32.</i>	<i>1932-33.</i>
	lbs.	lbs.
Concentrates	52.35	59.30
Green fodder	356.57	326.52
Bhusa	48.03	48.08
Salt	1.00	1.47

The total cost of feed required to produce 100 lbs. of milk comes to 35.44 annas in 1931-2 and 41.71 annas in 1932-3 against 50.56 annas in 1930-1. These amounts formed 37.31 and 40.44 per cent., respectively, of the total cost of production as given in Statement 7, against 50.0 per cent. in 1930-1. The main reason for this decrease is the great fall in the rates of foodstuffs used, although the lower quantity of concentrates fed per 100 lbs. of milk in 1931-2 was also partly responsible for it that year.

7. *Manual Labour.*—The total charges on this account amounted to Rs. 1,030-6-7 in 1931-2 and Rs. 1,069-5-0 in 1932-3, for 20,829.5 and 19,808.95 working hours respectively, put in to feed and milk the cows. Taking eight hours to be the average working day of a man, the total number of man-days was 2,603.7 and 2,476.12 respectively for these two years. This means that on an average 7.11 men were daily engaged in 1931-2 and 6.78 in 1932-3 to look after the cows. The average working day of the *beldar* (workman) employed in the Dairy Farm was longer in actual practice, 10 hours on an average, and hence less men were actually engaged.

In all, 110.2 days (8-hour day) of work per cow kept was put in, in 1931-2 and 114.2 days in 1932-3. To produce 100 lbs. of milk 2.37 days work was done in 1931-2 and 2.70 days in 1932-3; the cost of these amounted to 15.0 and 18.65 annas and formed 15.79 and 18.09 per cent., respectively, of the total cost of production of milk. Corresponding figures for 1930-1 were 2.40 days, 19.83 annas and 19.04 per cent.

8. *Bullock Labour.*—In all, 128.81 days (8-hour day) of one pair of bullocks in 1931-2 and 93.43 days in 1932-3 were spent instead of only 37.61 days in 1930-1. The increase over 1930-1 was due to the fact that, whereas in 1930-1 the bullock labour represented the work of the bullocks for chaffing fodder and doing certain other jobs in the Dairy Farm (such as haulage of grain, etc., but not including the labour of harvesting and carting fodder to the farm), in 1931-2 and 1932-3 the work included the carting of fodder to the Dairy Farm from the fodder area. (During 1930-1 four annas per maund was taken to be the rate of

fodder at the Dairy Farm). Less fodder was raised in 1932-3 than in the preceding year and hence the bullock labour required for carrying fodder was also less.

The daily cost of upkeep of a pair of bullocks being 34·16 annas in 1931-2 and 37·68 annas in 1932-3, the total cost of bullock labour amounted to Rs. 275-0-8 and Rs. 220-0-6, respectively, or 4·00 and 3·84 annas respectively, per 100 lbs. of milk produced, and 4·21 and 3·72 per cent. respectively, of the total cost of production.

9. *Buildings*.—The charges on account of buildings amounted to Rs. 749-3-4 in 1931-2 and Rs. 740-0-1 in 1932-3, which are 11·48 per cent. and 12·52 per cent. respectively, of the total cost of production of milk, or 10·90 and 12·91 annas respectively per 100 lbs. of milk produced.

10. *Equipment*.—The charges for equipment amounted to Rs. 446-3-7 in the first year and Rs. 417-3-0 the next. These formed 6·84 and 7·05 per cent. respectively, of the total cost of milk production; and 6·49 and 7·28 annas respectively, per 100 lbs. of milk produced.

11. *Cow Cost*.—The total value of the cows in the herd in the beginning of 1931-2 amounted to Rs. 3,200. One cow died during the year and three more were culled on account of low production and sold at a price lower than their inventory price, thus causing a loss of Rs. 395-9-7. Four heifers which joined the herd during the year also turned out to be poor producers on freshening, and hence were sold at a price lower than their inventory value thus causing a further loss of Rs. 154. The depreciation for the year on the remaining cows at 12 per cent. of their book value at the time of their joining the herd, *i.e.*, on an average about Rs. 150 per cow, was Rs. 352-9-10. The interest charges at 8 per cent. on the value of cows amounted to Rs. 274-11-8, and the total charges on account of cow cost amounted to Rs. 1,176-15-1. This works out at 17·12 annas per 100 lbs. of milk produced, and forms 18·03 per cent. of the total cost of milk production. This is very much higher than in 1930-1, because of the losses sustained through sales of cows and the death of a cow during the year.

The total value of cows in the herd at the beginning of 1932-3 was Rs. 2,990. Four heifers freshened during the year and joined the cows. Of these one proved to be a poor producer, however, and was therefore sold causing a loss of Rs. 39-12-7 over her inventory price. There were no casualties among the cows and hence there was no loss on this account. The interest and depreciation on the value of the remaining cows being Rs. 625-11-4, the total charges on account of cow cost amounted to Rs. 665-7-11 during the year. This works out at 11·61 annas per 100 lbs. of milk produced and forms 11·26 per cent. of the total cost of milk production.

12. *Bull Cost.*—The total cost of keeping the bull amounted to Rs. 194-2-1 in 1931-2 and Rs. 202-9-10 in 1932-3. The proportionate share of this cost charged to cows according to the number kept amounted to Rs. 76-5-9 in 1931-2 and Rs. 73-3-4 in 1932-3. These are 1·17 and 1·24 per cent. respectively, of the total cost of milk production, and 1·11 and 1·28 annas per 100 lbs. of milk produced.

13. *Miscellaneous Costs.*—The total cost on miscellaneous items was Rs. 337-12-6 in the first year and Rs. 336-2-5 in the next. This works out at 5·17 per cent. of the total cost of milk production and 4·91 annas per 100 lbs. of milk produced in 1931-2 and 5·68 per cent. and 5·86 annas in 1932-3.

14. *Summary of Costs.*—Statement 7 on the next page summarises the total cost of milk production for the two years under report. The total cost amounted to Rs. 6,527-3-3 in 1931-2 and Rs. 5,912-3-3 in 1932-3 and the total production was 109,964½ lbs. and 91,715½ lbs. respectively, so that the gross cost works out at 94·97 annas in 1931-2 and 103·14 annas in 1932-3 per 100 lbs. of milk produced; in 1930-1 it was 104·17 annas.

15. *Income from Sources other than Milk.*—In addition to milk, however, the cows produced calves and manure and the returns from these sources somewhat reduced the cost of milk production, as shown below.

(a). *Calves.*—In all 20 calves were born during 1931-2 and their value amounted to Rs. 27. In 1932-3, 23 calves, valued at Rs. 33, were born.

(b). *Manure.*—The total quantity of manure produced by the cows was estimated to be 3,101 maunds in 1931-2 and 2,835½ maunds in 1932-3. Valuing it at Rs. 2 per cart-load of 20 maunds its value amounts to Rs. 310-1-7 in the first year and Rs. 283-8-9 in the following.

16. *Net Cost of Milk Production.*—Subtracting the income derived from these sources from the total expenditure on milk production, the net cost per 100 lbs. of milk comes to 90·07 annas for 1931-2 and 97·62 annas for 1932-3; in 1930-1 it was 98·67 annas. The average milk yield per cow for these three consecutive years was 4,176·9 lbs., 4,679·3 lbs. and 4,171·9 lbs. The yield was thus about the same in the first and the third year when the milk cost was also about equal; it was higher in 1931-2 when the milk cost was the lowest.

17. *Seasonal Variations in the Cost of Milk Production.*—Although the net cost of producing milk was 90·07 annas per 100 lbs. of milk in 1931-2 and 97·62 annas in 1932-3, there were considerable variations in the cost for different months owing to the variations in the total milk production during each month: the

STATEMENT 7.

Summary of the Total Cost of Producing Milk.

Items.	Year.	Total Cost.			Percentage of total.	Cost per cow.			Per 100 lbs. of milk.
		Rs.	a.	p.		Rs.	a.	p.		Annas.
<i>Cost—</i>									
Feed ..	1931-32	2,435	3	9	37·31	103	3	0	35·44
	1932-33	2,390	13	0	40·44	110	4	5	41·71
Manual labour ..	1931-32	1,030	6	7	15·79	43	10	7	15·00
	1932-33	1,069	5	0	18·09	49	5	2	18·65
Bullock labour ..	1931-32	275	0	8	4·21	11	10	6	4·00
	1932-33	220	0	6	3·72	10	2	4	3·84
Buildings ..	1931-32	749	3	4	11·48	31	11	11	10·90
	1932-33	740	0	1	12·52	34	2	2	12·91
Equipment ..	1931-32	446	3	7	6·84	18	14	6	6·49
	1932-33	417	3	0	7·05	19	4	0	7·28
Cow cost ..	1931-32	1,176	15	1	18·03	49	13	11	17·12
	1932-33	665	7	11	11·26	30	11	1	11·61
Bull cost ..	1931-32	76	5	9	1·17	3	3	9	1·11
	1932-33	73	3	4	1·24	3	6	0	1·28
Miscellaneous ..	1931-32	337	12	6	5·17	14	5	0	4·91
	1932-33	336	2	5	5·68	15	8	1	5·86
<i>Total cost</i> ..	1931-32	6,527	3	3	100·00	276	9	2	94·97
	1932-33	5,912	3	3	100·00	272	11	3	103·14
<i>Credits not milk—</i>									
Calves ..	1931-32	27	0	0	..	1	2	4	0·39
	1932-33	33	0	0	..	1	8	4	0·57
Manure ..	1931-32	310	1	7	..	13	2	3	4·51
	1932-33	283	8	9	..	13	1	3	4·95
<i>Total credits</i> ..	1931-32	337	1	7	..	14	4	7	4·90
	1932-33	316	8	9	..	14	9	7	5·52
NET COST ..	1931-32	6,190	1	8	..	262	4	7	90·07
	1932-33	5,595	10	6	..	258	1	8	97·62

higher the milk production, the lower the cost and vice versa. This is well illustrated in Statement 8 below which gives the monthly production of milk and the cost per 100 lbs. of milk for the two years.

STATEMENT 8.
Monthly Production of Milk and Net Cost per 100 lbs.

Month.	1931-32.		1932-33.	
	Total production.	Net cost per 100 lbs. of milk.	Total production.	Net cost per 100 lbs. of milk.
	lbs.	Annas.	lbs.	Annas.
April ..	9,440-00	92-2	7,528-00	85-4
May ..	9,803-75	87-9	7,117-50	99-9
June ..	10,122-50	80-7	6,450-00	116-3
July ..	10,700-75	74-9	4,217-25	175-2
August ..	9,886-75	83-0	2,706-50	257-2
September ..	7,982-00	102-0	2,241-75	298-7
October ..	7,209-50	116-2	4,837-75	147-6
November ..	7,503-00	104-8	6,689-50	114-5
December ..	7,849-75	101-3	9,715-75	73-3
January ..	10,445-75	81-3	12,727-25	62-3
February ..	9,810-75	84-4	13,161-00	60-8
March ..	9,209-75	89-0	14,323-00	66-9
<i>Average</i> ..	<i>9,163-69</i>	<i>90-07</i>	<i>7,642-94</i>	<i>97-6</i>

It will be observed that during 1931-2 the cost per 100 lbs. of milk decreased gradually from April to July as the milk yield increased. In July when the milk production was the highest—10,700 $\frac{3}{4}$ lbs.—the cost was the lowest, 74-9 annas. After that it increased gradually with the decreasing milk production until October, the month of lowest production, when the cost was the highest—116-2 annas. After October the cost fell again with the increase in production until January when it began to rise again with lowered milk yield.

There was a much greater variation in the milk production in individual months during 1932-3, with the result that the cost of milk also showed a very much greater variation from month to month than in 1931-2. This was due to the fact that in order to produce more milk in the winter season (as mentioned in the previous publication)*, the bull was kept away from the cows during the summer of 1931 and was left with them in the following December and January. This resulted in a very much reduced milk supply in August and September 1932, and consequently a high cost; but a very much increased supply in December 1932 and January, February and March of 1933, with a lower cost of production. Apart from this, the cost figures exhibited the same tendency as in the previous two years, viz., the more the milk the less the cost and vice versa.

* *Ibid*, page 12, para. 24.

B.—COST OF MILK PRODUCTION IN THE YEARS,
1933-34 AND 1934-35.

18. *Introductory.*—It has been considered advisable to discuss the cost of production of milk for 1933-4 and 1934-5 separately because there have been considerable changes in the management of the dairy herd during these years. The following are the more important of these changes :—

(1). Increase in the quantity of green fodder raised in the Dairy fodder area and fed to the cows, as is shown by the following figures :—

Year.	<i>Total quantity of green fodder raised in Dairy fodder area.</i>		<i>Quantity of green fodder fed per cow per day.</i>
		lbs.	
1931-32	..	495,916	45
1932-33	..	506,121	38
1933-34	..	756,255	62
1934-35	..	942,708	69

The area of land attached to the Dairy for growing fodder crops was 19·17 acres up to and including the year 1933-4 ; during 1934-5 this area was increased to 26·71 acres.

It will be observed from the foregoing figures that about 50 per cent. more green fodder was produced from the same area in 1933-4 than in each of the previous two years ; this was done by following a very much higher intensity of cropping. During 1934-5, because of the increased area of the land coupled with higher yields of fodder obtained per acre, about 90 per cent. more fodder was produced than in 1931-2 or 1932-3 and about 25 per cent. more than in 1933-4.

The quantity of green fodder fed per cow was 45 lbs. per day during 1931-2. During the next year it decreased to 38 lbs. per day, and in the following year it increased to 62 lbs., while in 1934-5 it was 69 lbs.

(2). A decrease in the cost of production of fodder crops, as is shown by the following figures :—

Year.	<i>Cost of production of one maund of fodder.</i>		
		Rs.	a. p.
1931-32	..	0	3 8·7
1932-33	..	0	4 3·7
1933-34	..	0	3 6·3
1934-35	..	0	3 0·5

(3). As a result of the increased quantity of green fodder used and better management generally of the Dairy herd, the average annual milk production per cow for the herd increased from 4,172 lbs. in 1932-3 to 5,493 lbs. in 1933-4 and 6,037 lbs. in 1934-5.

(4). As a result of the very much increased annual milk production per cow, the overhead charges for milk production have decreased very materially.

(5). All these factors combined have been instrumental in lowering the cost of production per 100 lbs. of milk, from 97·62 annas in 1932-3 to 75·81 annas in 1933-4 and 69·52 annas in 1934-5.

19. *Number of Cows Kept.*—The total number of cow-days was 9,291 for the year 1933-4 and 9,106 for 1934-5 ; or on an average 25·46 cows were kept throughout the year during the former and 24·95 cows during the latter year.

20. *Feed.*—Statement 9 below shows the quantity, price and the total value of each of the different foodstuffs fed to the cows during the two years under report.

STATEMENT 9.

Quantities and Values of the Foodstuffs used.

Foodstuffs.	Quantity consumed.			Value.			Average price per maund.		
	Mds.	Srs.	Ch.	Rs.	a.	p.	Rs.	a.	p.
Concentrates—									
1933-34	883	35	0	1,389	14	10	1	9	2
1934-35	956	31	12	1,233	4	5	1	4	7
Green fodder—									
1933-34	7,057	33	12	1,580	9	2	0	3	7
1934-35	7,697	11	4	1,606	2	3	0	3	4
Bhusa—									
1933-34	329	35	2	183	6	7	0	8	11
1934-35	273	22	0	174	6	3	0	10	2
Salt—									
1933-34	27	3	7	65	5	9	2	5	6
1934-35	29	1	9	70	6	11	2	6	9
Minerals—									
1933-34	2	4	8	18	2	11	8	9	8
1934-35	2	4	8	18	2	11	8	9	8
<i>Total—</i>									
1933-34	8,298	27	5	3,219	4	4	..	..	..
1934-35	8,958	31	1	3,102	6	9	..	..	..

It will be observed from the above table that larger quantities of all the foodstuffs, except bhusa, were fed in these years than previously. This is due to the larger number of cows maintained and the higher average annual milk production per cow. Less of bhusa was fed as the quantity of green fodder used was very much more.

There was a higher consumption of all the different feeds during 1934-5 than in 1933-4, because of the higher average milk production per cow, although the number of cows kept was slightly lower—24.95 against 25.46 in 1933-4.

Concentrates and green fodder were cheaper during these two years than in the previous years, their rates being the lowest during 1934-5. The rates of bhusa on the other hand were higher, being the highest during 1934-5.

21. *Concentrates.*—Statement 10 on the next page shows the details of the quantities and values of the different concentrates used in all, and to produce 100 lbs. of milk; and the percentage which each item bears to its respective total.

It will be seen from this table that gram, wheat bran, toria cake, barley and cotton-seed were the concentrates used in 1933-4. During 1934-5, in addition to these some wheat was also fed as an experiment. As in the past years, wheat bran, gram and toria cake were fed throughout the year, cotton-seed only during the winter and barley during the summer.

Quantitatively, wheat bran continued to be the most important constituent of the grain ration. It formed 44.65 per cent. of the total weight of concentrates during 1933-4 and 49.69 per cent. during 1934-5. Gram was the second most important ingredient forming 29.15 per cent. of the total in 1933-4 and 29.80 per cent. in 1934-5. Toria cake came next, constituting 16.80 and 13.55 per cent. in the respective years. Other concentrates used, in order of their importance quantitatively, were barley and cotton-seed in 1933-4 and barley, cotton-seed and wheat in 1934-5.

In spite of the fact that much more wheat bran was fed than gram, the total value of the former was less than that of the latter, as the price of wheat bran was much lower than that of gram.

Toria cake formed 16.80 per cent. of the grain ration in 1933-4 and 13.55 per cent. in 1934-5. It was not possible to increase its amount in the ration over the 1932-3 level (when it formed 16.92 per cent. of the total weight of ration), owing to its pungent taste and consequent unpalatability. In fact, during 1934-5, in order to make the ration more palatable, its proportion was slightly reduced. This, no doubt, widened the nutritive ratio* of the ration somewhat, but the change was considered necessary as it was observed that with the increase in milk yield, and therefore of grain ration to be fed, some of the cows did not consume all the ration put before them if the proportion of cake in it was not decreased. The addition of some other more palatable cake, such as linseed, would certainly have improved the ration and balanced it better, but as this was not available locally, and would have proved very costly if purchased from outside, it was not fed.

* Ratio between digestible proteins and the combined digestible carbohydrates and fat.

STATEMENT 10.
Quantities and Values of the Concentrates used.

Foodstuffs.	Year.	Total quantity consumed.	Total cost.	Average price per maund.	Quantity used per 100 lbs. of milk produced.	Cost per 100 lbs. of milk produced.	PERCENTAGE OF TOTAL.	
							Quantity.	Value.
Gram ..	1933-34	Mds. S. C. 257 24 12	Rs. a. p. 539 9 3	Rs. a. p. 2 1 6	lbs. 15-21	Annas. 6-22	29-15	38-83
	1934-35	284 18 0	547 3 2	1 14 9	15-52	5-81	29-80	44-38
Wheat bran ..	1933-34	394 26 4	500 6 7	1 4 3	23-30	5-76	44-65	35-96
	1934-35	475 18 8	468 1 9	0 15 9	25-87	4-97	49-69	37-97
Toria cake ..	1933-34	148 20 0	191 7 2	1 4 7½	8-77	2-21	16-80	13-79
	1934-35	130 10 4	110 5 6	0 13 6½	7-05	1-17	13-55	8-93
Barley ..	1933-34	44 34 0	105 0 0	2 5 5½	2-65	1-21	5-07	7-55
	1934-35	28 27 0	40 12 2	1 6 9	1-56	0-43	2-99	3-28
Cotton-seed ..	1933-34	38 10 0	53 7 10	1 6 4½	2-26	0-62	4-33	3-87
	1934-35	22 38 0	38 7 10	1 10 10	1-25	0-41	2-40	3-15
Wheat ..	1933-34	15 .. 0	28 .. 0	1 .. 3	..	..	..	..
	1934-35	15 0 0	28 6 0	1 14 3	0-81	0-30	1-57	2-29
<i>Total</i> ..	1933-34	883 35 0	1,389 14 10	1 9 2	52-19	16-02	100-0	100-0
	1934-35	956 31 12	1,233 4 5	1 4 7	52-06	13-09	100-0	100-0

In all, 52.19 lbs. of concentrates costing 16.02 annas during 1933-4 and 52.06 lbs. costing 13.09 annas during 1934-5, were fed to produce 100 lbs. of milk. The quantity and value thus decreased from those of the previous years. This was, as will be shown in the next section, the result of the increased quantity of green fodder used.

22. *Green Fodder.*—The fodder given to the cows was all raised in the Dairy fodder area. As stated earlier, there were 19.17 acres of land attached to the Dairy for the supply of green fodder up to the year 1933-4 and 26.71 acres thereafter. The following scheme was followed quite successfully for the supply of green roughage throughout the year :—

<i>Crop.</i>	<i>Time of sowing.</i>	<i>Time of harvesting.</i>
Maize with Rawan (cow peas).	Beginning of March to middle of September.	Middle of May to middle of November.
Chari-guara (great millet and field vetch)	Middle of April to middle of August.	Beginning of July to middle of November.
Japan sarson (rape)	..Beginning of September.	Middle of November to middle of December.
Turnips	.. Ditto.	Middle of December to middle of January.
Oats (<i>desi</i>)	..Beginning of October to end of November.	End of December to end of March.
Berseem	..End of September to end of October.	End of November to end of May.
Oats (foreign)	..December.	Beginning of April to middle of May.

As in the previous two years, detailed accounts regarding the cost of production of the various fodder crops were maintained, and the data regarding the cost of production of the different crops are given in Appendix A. (pages 69-70). Statement 11 on the next page summarises this data separately for the rabi and kharif crops.

In general the yields were higher in 1934-5 than in the previous year; only turnips and oats yielded less. The lower yield of turnips was due to poor seed, and that of oats to less manure applied. The yields were very much higher for the rabi than for the kharif crops. Berseem gave the highest tonnage of green fodder per acre—786.3 maunds in 1933-4 and 914.1 maunds in 1934-5; while the yield of maize was the lowest—197.6 maunds in 1933-4 and increased to 214.8 maunds the next year. The average yields for 1933-4 were about equal to those for the year 1931-2 and higher than for 1932-3; those for 1934-5 were the highest of all the four years.

STATEMENT 11.

Summary of the Cost of Production of Various Fodders.

(K. = Kanals; M. = Marlas.)

Fodders.	TOTAL AREA.		YIELD PER ACRE.		COST PER ACRE.		COST PER MAUND.	
	1933-34.	1934-35.	1933-34.	1934-35.	1933-34.	1934-35.	1933-34.	1934-35.
	K. M.	K. M.	Mds.	Mds.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
KHARIF FODDERS—								
Maize and mixtures ..	118 5	102 10	197·6	214·8	66 6 6	76 1 10	0 5 5	0 5 8
Chari and mixtures ..	25 3	43 12	238·8	244·6	60 0 2	56 2 10	0 4 0	0 3 8
<i>Total</i> ..	<i>143 8</i>	<i>146 2</i>	<i>204·8</i>	<i>221·3</i>	<i>65 4 6</i>	<i>70 2 8</i>	<i>0 5 1</i>	<i>0 5 0</i>
RABI FODDERS—								
Turnips ..	16 14	11 4	559·7	486·6	48 10 3	45 7 8	0 1 4·6	0 1 6
Japan sarson ..	14 18	11 0	267·6	435·8	73 5 0	84 11 9	0 4 5	0 3 1
Oats ..	33 10	54 2	305·6	239·1	86 2 11	57 13 5	0 4 6·09	0 3 10·4
Berseem ..	26 10	39 10	786·3	914·1	79 8 8	67 13 4	0 1 7·4	0 1 2·24
<i>Total</i> ..	<i>91 12</i>	<i>115 16</i>	<i>484·8</i>	<i>512·0</i>	<i>75 4 9</i>	<i>62 9 9</i>	<i>0 2 6</i>	<i>0 1 11·5</i>
<i>- All fodders</i> ..	<i>235 0</i>	<i>261 18</i>	<i>313·96</i>	<i>351·2</i>	<i>69 3 0</i>	<i>66 12 7</i>	<i>0 3 6·3</i>	<i>0 3 0·5</i>

The cost per acre was lower for most crops in 1934-5 than it was the year before. It was higher in the case of maize and Japan sarson only ; mainly because of the higher cost of the labour and manure applied to these crops that year. The lower cost of other crops is the result of the general improvement in the management of the fodder area.

The cost per maund for all the different crops, except maize and turnips, was lower in 1934-5 than in 1933-4, owing both to the lower cost and higher yields per acre. For all the fodder crops the cost was Rs. 0-3-0·5 per maund for 1934-5 against Rs. 0-3-6·3 in 1933-4. As in the previous years, the cost was very much lower for rabi than for kharif fodders. It cost nearly twice as much to raise a maund of fodder during the latter season than it did during the former, mainly because of the differences in the yields of the crops grown during the two seasons. Of the different crops, berseem was the cheapest to grow, its cost of production being as low as Rs. 0-1-2·24 per maund during 1934-5 ; next in order came turnips, oats, Japan sarson, chari and maize. The last named, although the most suitable kharif fodder for milch cattle, was grown at the highest cost—Rs. 0-5-5 per maund in 1933-4 and Rs. 0-5-8 during 1934-5. There is a great need for an equally suitable crop for milch cattle, but cheap to grow like berseem, to replace maize as fodder during the kharif season and thus reduce the cost. Chari is no doubt cheaper to grow, but, being less succulent and more fibrous, it is not a really first class fodder for milch animals.

The average cost of all fodders (Rs. 0-3-6·3 in 1933-4 and Rs. 0-3-0·5 in 1934-5) was lower than in 1931-2 or 1932-3 when it was Rs. 0-3-8·7 and Rs. 0-4-3·7 respectively. The decrease is due to the better management of land and labour used for crop production. Statements 13-A and 13-B on pages 25 and 26 show the details of the amounts and values of the fodders used in each month during the two years, 1933-4 and 1934-5.

It may be noted that berseem in rabi and maize in kharif formed the bulk of the green fodder fed. These two crops together provided about two-thirds of the total amount used. Their high nutritive value and special suitability for milch cattle, on account of their stimulating effect on milk production, are responsible for their larger use. Statement 12 on the next page gives the quantity of green fodder fed per cow per day during the different months of the two years under review :—

STATEMENT 12.

Daily Green Fodder Consumption per Cow.

Month.	1933-34.		1934-35.	
			lbs.	lbs.
April	67	74
May	62	37
June	50	51
July	49	57
August	51	54
September	54	61
October	58	59
November	49	74
December	89	95
January	71	73
February	62	92
March	86	107
<hr/>				
Average—				
12 months	62	69
6 kharif months (June to November)	52	59
6 rabi months (December to May)			73	79

It will be observed from the above table that every cow received daily on an average 62 lbs. of green fodder during 1933-4 and 69 lbs. the next year; in the three previous years the figures were 48 lbs. (1930-1), 45 lbs. (1931-2) and 38 lbs. (1932-3). This shows that the green fodder supply was much more liberal during the years under report than in the past when it was relatively scarce. In Part A it was pointed out that the supply of green fodder was particularly scanty during the kharif months—(page 8). There was a very great improvement in this respect during the two years, 1933-5. This is well illustrated in the above statement in which the average quantity of green fodder during the kharif and rabi months is given separately. It will be seen that this was 52 and 59 lbs. daily during the six kharif months (June to November) and 73 and 79 lbs. during the six rabi months (December to May) during 1933-4 and 1934-5 respectively. From these figures it would appear that the cows got more green fodder during the rabi than the kharif months even in these two latter years. This difference is, however, only apparent and not real, as the dry matter content of kharif fodders is about 60 per cent. higher than that of rabi fodders.

STATEMENT 13-A.

Quantities and Values of the Different Fodders used in 1933-34.

Month.	Berseem.	Oats.	Sareon.	Turnips.	Maize.	Chari.	Berseem silage.	Total quantity used.	Total value.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	Rs. a. p.
April ..	36,766	9,152	..	..	..	..	..	45,918	92 1 0
May ..	37,632	1,039	..	..	5,547	..	..	44,218	86 11 5
June ..	..	..	..	..	35,185	..	..	35,185	144 3 4
July ..	..	..	..	..	35,995	3,815	..	39,810	159 3 7
August ..	..	..	..	..	38,040	5,927	..	43,967	174 1 2
September ..	..	..	..	..	37,348	7,271	..	44,619	175 5 7
October ..	..	..	..	..	44,768	2,190	144	47,102	190 8 0
November ..	..	..	22,935	..	12,628	..	2,430	37,993	133 8 10
December ..	4,985	622	5,813	59,974	..	..	..	71,394	91 4 3
January ..	13,590	20,632	..	22,710	..	..	..	56,932	111 11 7
February ..	26,462	16,210	..	..	..	..	..	42,672	88 5 6
March ..	46,904	22,029	..	..	..	..	..	68,933	133 8 11
<i>Total (1933-34) ..</i>	<i>166,339</i>	<i>69,684</i>	<i>28,748</i>	<i>82,684</i>	<i>209,511</i>	<i>19,203</i>	<i>2,574</i>	<i>578,743</i>	<i>1,580 9 2</i>

STATEMENT 13-B.

Quantities and Values of the Different Fodders used in 1934-35.

Month.	Berseem.	Oats.	Sarson.	Turnips.	Maize.	Chari.	Total quantity used.	Total value.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	Rs. a. p.
April	43,983	12,582	..	..	..	..	56,565	97 7 11
May	10,587	..	..	..	17,162	..	27,749	87 3 6
June .. ..	..	..	..	..	36,892	515	37,407	160 13 8
July .. ..	..	..	..	..	35,504	10,495	45,999	182 13 1
August .. ..	..	..	..	..	29,314	13,191	42,505	163 9 11
September .. ..	..	..	..	..	24,122	21,716	45,838	165 1 1
October .. ..	..	..	..	..	41,783	3,576	45,359	190 9 0
November	7,565	..	35,341	..	10,053	..	52,959	134 1 3
December	33,406	..	..	37,340	..	..	70,746	72 12 7
January	22,006	33,552	..	..	..	..	55,558	118 14 2
February	47,174	17,277	..	..	..	..	64,451	93 10 5
March	56,093	29,948	..	..	..	..	86,041	139 1 8
<i>Total (1934-35)</i>	<i>220,814</i>	<i>93,359</i>	<i>35,341</i>	<i>37,340</i>	<i>194,830</i>	<i>49,493</i>	<i>631,177</i>	<i>1,606 2 3</i>

This greater and more uniform supply of green fodder throughout the year has had a very beneficial effect on the milk supply from the cows, which has improved considerably, as is shown by the following figures :—

<i>Year.</i>	<i>Green fodder fed per cow per day.</i>	<i>Dry fodder fed per cow per day.</i>	<i>Concentrates fed per 100 lbs. of milk.</i>	<i>Average annual yield per cow.</i>
	lbs.	lbs.	lbs.	lbs.
1931-32	.. 45	6.1	52.35	4,679
1932-33	.. 38	5.9	59.30	4,172
1933-34	.. 62	2.9	52.19	5,493
1934-35	.. 69	2.5	52.06	6,037

It will be seen from the above table that the milk production varied directly with the green fodder supply. It was the highest during 1934-5, when the supply of green fodder was most, and lowest in 1932-3 when the supply was least. Even the larger quantity of concentrates fed per 100 lbs. of milk during 1932-3 did not arrest the fall of yield due to the poor fodder supply that year. This increased consumption of green fodder has been at the cost of bhusa, which has a lower food value than green fodder. The increased milk production as a result of increased consumption of green fodder, was due to the increased nutritive value of their ration, when green fodder replaced the less nutritious bhusa. On an average 416.75 lbs. of green fodder in 1933-4 and 418.84 lbs. in 1934-5 were fed to produce 100 lbs. of milk. The value of this amounted to 18.21 and 17.05 annas respectively and formed 49.10 and 51.78 per cent. of the total feed cost.

It was mentioned earlier that during 1931-2, when the annual milk production per cow was 4,679 lbs., 356.57 lbs. of green fodder was consumed to produce 100 lbs. of milk. During 1932-3, with the annual milk production at 4,172 lbs., 326.52 lbs. of green fodder was consumed. For the two years under report, 416.75 lbs. and 418.84 lbs. of green fodder was consumed to produce 100 lbs. of milk when the milk production was 5,493 and 6,037 lbs., respectively. This means that in spite of the higher milk production in the years under report, more green fodder was consumed per 100 lbs. of milk than in the previous years. This appears anomalous, as, since normally there is little difference in the roughage consumption of a good, indifferent, or poor producer, the quantity of roughage required to produce 100 lbs. of milk should decrease and not increase as the milk production improves; that is, a good

milker should be able to produce 100 lbs. of milk from a smaller quantity of roughages than a poor milker. The anomaly is, however, only apparent and not real, since, as mentioned earlier, the consumption of bhusa decreased considerably as the consumption of green fodder increased. The cows in fact actually consumed less dry matter in the total roughages during the two years under report than in previous years.

23. *Bhusa*.—On account of the increased quantity of green fodder fed, the quantity of bhusa consumed per 100 lbs. of milk decreased to only 19·48 lbs. in 1933-4 and 14·89 lbs. in 1934-5 (in 1931-2 and 1932-3 it was about 48 lbs.). The value of this amounted to 2·11 and 1·85 annas, respectively, and formed 5·69 and 5·62 per cent. of the total cost of feed.

24. *Salt*.—To produce 100 lbs. of milk 1·60 lbs. of salt was given each year, and this is slightly more than in the previous year. More salt was used partly to help the animals to digest the larger quantity of food consumed and partly to meet the higher demand for chlorine in the system on account of the increased milk production. The value of this salt each year amounted to 0·75 annas which formed 2·02 per cent. of the total feed cost during 1933-4 and 2·28 per cent. during 1934-5.

25. *Minerals*.—The feeding of minerals was a special feature of the year 1934-5. Until then these had never been used as it was felt that there was no special need for them, the ordinary mixed ration supplying all the mineral requirements of the cows. Towards the close of that year there occurred two cases of abortion in the herd amongst the highest milkers, and it was felt that probably the deficiency of minerals in the ration was the cause of the trouble. The feeding of "Churn" Brand Mineral Feeding Flour purchased from the Imperial Chemical Industries (India), Ltd., Karachi, was thus started and is being continued. There have been no further cases of abortion in spite of the still greater increased milk production during 1935-6 (6,256 lbs.) and 1936-7 (6,917 lbs.).

It is felt that when the milk production of a cow is higher than 5,000 lbs. per annum, it is desirable to supplement its ration with some minerals. This will not only keep the animal healthy and in good condition, but will also enhance its persistency of milk secretion. The feeding of minerals has become a permanent feature of the system of the rationing of cows at the College Dairy. It is thought that the improvement in the yield of the cows since 1935-6, as already alluded to, is, in part, due to this.

The total cost of the mineral feeding flour in 1934-5 was Rs. 18-2-11, which formed 0·57 per cent. of the total value of the foodstuffs used.

26. *Summary of Foodstuffs.*—The following statement shows the quantities and values of the foodstuffs used in 1933-4 and 1934-5 per 100 lbs. of milk :—

STATEMENT 14.

Quantities and Values of the Foodstuffs used per 100 lbs. of Milk Produced.

Foodstuffs.	Total quantity.	Total value.	Quantity per 100 lbs. of milk.	Cost per 100 lbs. of milk.	PERCENTAGE OF TOTAL—	
					Quantity.	Value.
	Mds. S. C.	Rs. a. p.	lbs.	Annas.		
Concentrates—						
1933-34 ..	883 35 0	1,389 14 10	52·19	16·02	10·65	43·19
1934-35 ..	956 31 12	1,233 4 5	52·06	13·09	10·68	39·75
Green fodder—						
1933-34 ..	7,057 33 12	1,580 9 2	416·75	18·21	85·05	49·10
1934-35 ..	7,697 11 4	1,606 2 3	418·84	17·05	85·92	51·78
Bhusa—						
1933-34 ..	329 35 2	183 6 7	19·48	2·11	3·97	5·69
1934-35 ..	273 22 0	174 6 3	14·89	1·85	3·05	5·62
Salt—						
1933-34 ..	27 3 7	65 5 9	1·60	0·75	0·33	2·02
1934-35 ..	29 1 9	70 6 11	1·60	0·75	0·33	2·28
Minerals—						
1933-34 ..	.. ..	.. ..	..	..	..	..
1934-35 ..	2 4 8	18 2 11	0·11	0·19	0·02	0·57
<i>Total—</i>						
1933-34 ..	8,298 27 5	3,219 4 4	490·02	37·09	100·00	100·00
1934-35 ..	8,958 31 1	3,102 6 9	487·50	32·94	100·00	100·00

The above figures show that on an average the following quantities of the different feeds were required to produce 100 lbs. of milk :—

Feed.	1933-34.	1934-35.
	lbs.	lbs.
Concentrates	52·19	52·06
Green fodder	416·75	418·84
Bhusa	19·48	14·89
Salt	1·60	1·60
Minerals .. ..	..	0·11

The total value of these comes to 37·09 and 32·94 annas for the years 1933-4 and 1934-5 respectively, as compared with 50·56 annas in 1930-1, 35·44 in 1931-2 and 41·71 in 1932-3. The cost of feed formed 46·27 and 44·87 per cent. of the gross cost of production of 100 lbs. of milk for the years under report.

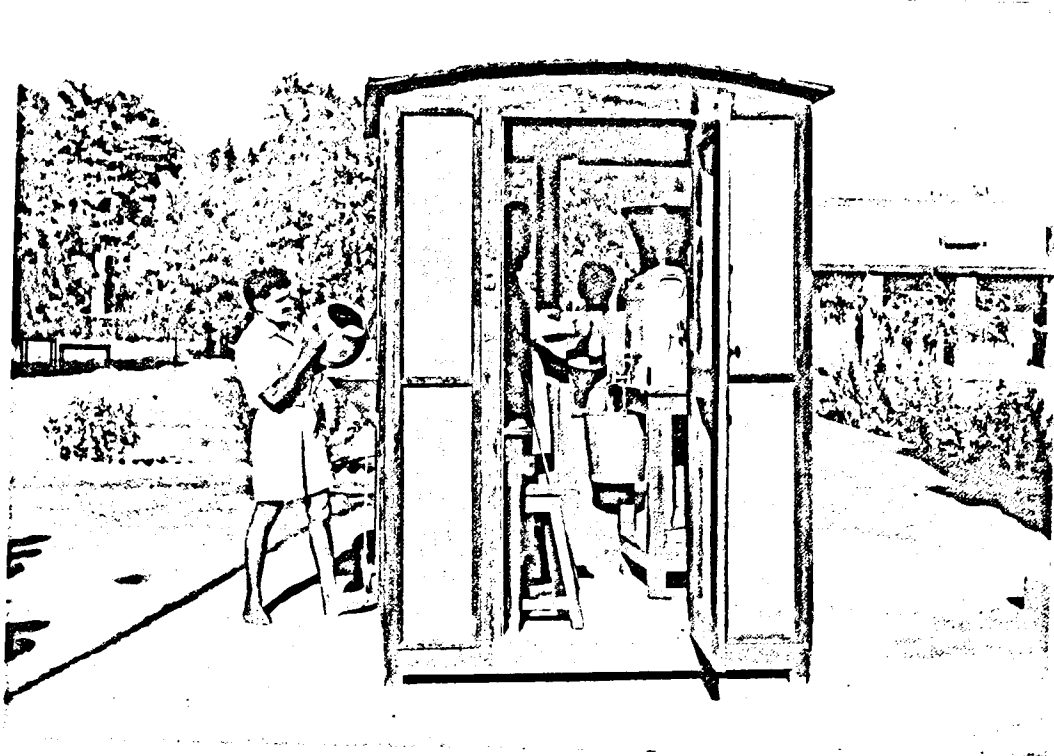
27. *Manual Labour.*—The total charges on this account amounted to Rs. 1,055-12-0 in 1933-4 and Rs. 1,090-11-0 in 1934-5 for 21,991·69 and 21,571·60 working hours of one man respectively in feeding and milking the cows. Taking eight hours to be the average working day of a man, the total number of man-days was 2,748·96 and 2,696·45 respectively, for these two years; or on an average 7·53 men were daily engaged in 1933-4 and 7·39 in 1934-5 to look after the cows. Since the workmen in the Dairy generally put in more than eight hours daily, the number of them actually employed was less than these figures show. On an average 107·97 days (8-hour day) work was put in to look after a cow during 1933-4, and 108·07 days during 1934-5, as compared with 110·2 days in 1931-2 and 114·2 in 1932-3.

To produce 100 lbs. of milk the labour required was 1·98 days of one man in 1933-4 and 1·79 days in 1934-5. It may be noted that these figures are considerably lower than those for the previous years—2·37 days in 1931-2 and 2·70 days in 1932-3,—and this is because of the increase in milk production. Whereas the total labour required to look after a cow has remained the same during the different years, the labour requirements for 100 lbs. of milk must show a decrease during the years since the milk production per cow has improved. This emphasises the effect of improvement in the milking quality of a cow on the reduction in labour cost; which to produce 100 lbs. of milk amounted to 12·16 annas in 1933-4 and 11·58 annas in 1934-5, *i.e.*, about 25 per cent. lower than in 1931-2 and 50 per cent. lower than in 1932-3. This cost formed 15·19 per cent. of the total cost of milk production in 1933-4 and 15·77 per cent. in 1934-5.

28. *Bullock Labour.*—In all, 120·64 days (8-hour day) of one pair of bullocks in 1933-4 and 129·89 days in 1934-5, were spent for the cows. The daily working cost of a pair of bullocks being 32·44 annas in 1933-4 and 29·87 annas in 1934-5, the total cost of this labour amounted to Rs. 244-10-0 and Rs. 242-8-0 respectively; or, 2·82 and 2·58 annas respectively, per 100 lbs. of milk, and 3·51 and 3·50 per cent. respectively, of the total cost of producing 100 lbs. of milk. The cost of bullock labour is lower than in the previous years for the same reason as that for manual labour.

29. *Buildings.*—The charges on account of the buildings for the cows amounted to Rs. 762-6-5 per annum during both the years. The cost of buildings works out to 8·78 and 8·10 annas respectively per 100 lbs. of milk during 1933-4 and 1934-5, and 10·95 and 11·06 per cent. of the total cost of milk, and is consequently considerably lower during the years under report than in the past because of the increased milk production.

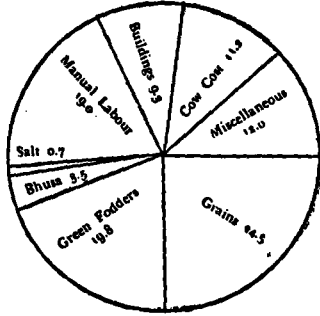
PUNJAB AGRICULTURAL COLLEGE DAIRY



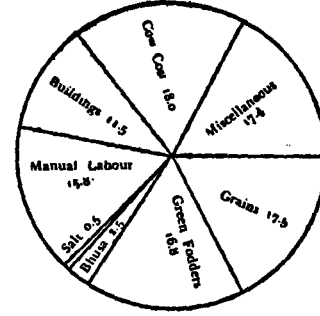
THE MILK ROOM

Milk recording and distribution is going on. The room is fly-proof, and the door has been opened to admit light required for table work.

**CHART I.
COLLEGE DAIRY.
GROSS COSTS OF MILK PRODUCTION ON A PERCENTAGE BASIS,
1930-31 to 1934-35.**

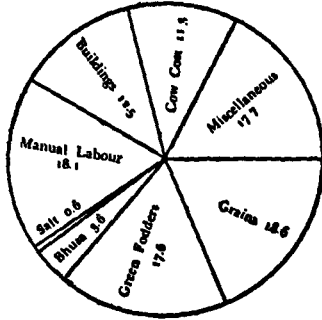


1930-31

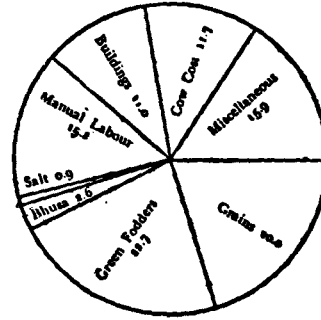


1931-32

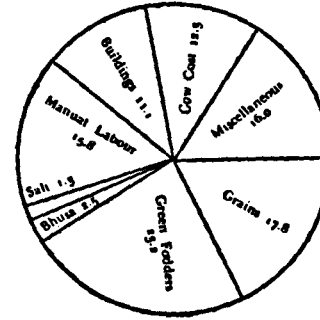
1932-33



1933-34



1934-35



30. *Equipment.*—The cost of equipment amounted to Rs. 424-0-3 in 1933-4 and Rs. 453-0-8 the next year, and these are not very different from the previous years. The cost per 100 lbs. of milk was, however, much lower because of the increased production. It was only 4·89 annas in 1933-4 and 4·81 annas in 1934-5 ; *i.e.*, 6·09 and 6·55 per cent. of the total cost of milk.

31. *Cow Cost.*—No casualties occurred among the cows during either of the two years and hence there was no loss on this account. Some cows were, however, culled and sold on account of old age and low production, in both the years. Since a lower price was realised for these cows when sold than their inventory value, there was some loss to the Dairy through their sale. Such total loss, together with the interest and depreciation on the inventory value of the remaining cows, which comprise the cow cost, amounted to Rs. 815-12-6 during 1933-4 and Rs. 847-13-7 during 1934-5. The cow cost amounted to 9·40 annas per 100 lbs. of milk during the first year and 9·00 annas during the second ; these form respectively 11·73 per cent. and 12·26 per cent. of the total cost of the milk.

32. *Bull Cost.*—The total cost of upkeep of the herd bull amounted to Rs. 204-8-11 in 1933-4 and Rs. 199-0-10 in 1934-5. The proportionate shares of this cost charged to cows according to the number kept amounted to Rs. 86-12-6 and Rs. 82-12-3 respectively ; *i.e.*, 1·25 and 1·19 per cent. of the total cost of milk and 1·00 and 0·88 annas per 100 lbs. of milk produced.

33. *Miscellaneous Costs.*—The total cost on account of miscellaneous articles was not materially different during the two years from what it had been in the previous years. It amounted to Rs. 349-3-10 in 1933-4 and Rs. 331-14-2 in 1934-5 ; which works out at 4·02 and 3·52 annas respectively per 100 lbs. of milk produced and 5·01 and 4·80 per cent. of the total cost of production.

34. *Summary of Costs.*—The total cost of milk production for the two years is summarised in Statement 15 on the next page. It will be observed from this table that the total cost amounted to Rs. 6,957-13-10 in 1933-4 and Rs. 6,913-8-10 in 1934-5. The total milk yield was 138,870 and 150,695 lbs., respectively, in the two years, and the gross costs work out to 80·16 and 73·41 annas per 100 lbs. of milk produced. Chart I opposite this page represents the position graphically for the four years (1931-2 to 1934-5) in continuation of the first year these accounts were kept, *viz.*, 1930-1.

35. *Income from Sources other than Milk.*—

(a). *Calves.*—In all, 27 calves were born during 1933-4. Their value amounted to Rs. 44 only. During 1934-5, 24 calves were born whose value amounted to Rs. 40.

STATEMENT 15.

Summary of the Total Cost of Producing Milk.

Item.	1933-4.				1934-5.			
	Total cost.	Percent- age.	Cost per cow.	Cost per 100 lbs. of milk.	Total cost.	Percent- age.	Cost per cow.	Cost per 100 lbs. of milk.
<i>Cost—</i>	Rs. a. p.		Rs. a. p.	Annas.	Rs. a. p.		Rs. a. p.	Annas.
Feeding ..	3,219 4 4	46·27	126 7 1	37·09	3,102 6 9	44·87	124 5 6	32·94
Manual labour ..	1,055 12 0	15·19	41 7 6	12·16	1,090 11 0	15·77	43 11 5	11·58
Bullock labour ..	244 10 0	3·51	9 9 9	2·82	242 8 0	3·50	9 11 6	2·58
Buildings ..	762 6 5	10·95	29 15 1	8·78	762 6 5	11·06	30 8 11	8·10
Equipment ..	424 0 3	6·09	16 10 6	4·89	453 0 8	6·55	18 2 6	4·81
Cow cost ..	815 12 6	11·73	32 0 8	9·40	847 13 7	12·26	33 15 9	9·00
Bull cost ..	86 12 6	1·25	3 6 6	1·00	82 12 3	1·19	3 5 1	0·88
Miscellaneous ..	349 3 10	5·01	13 11 6	4·02	331 14 2	4·80	13 4 10	3·52
<i>Total cost</i> ..	6,957 13 10	100·00	273 4 7	80·16	6,913 8 10	100·00	277 1 6	73·41
<i>Credits not milk—</i>								
Calves ..	44 0 0	..	1 11 7	0·51	40 0 0	..	1 9 8	0·42
Manure ..	332 14 10	..	13 1 3	3·84	326 4 9	..	13 1 5	3·47
<i>Total credits</i> ..	376 14 10	..	14 12 10	4·35	366 4 9	..	14 11 1	3·89
NET COST ..	6,580 15 0	..	258 7 9	75·81	6,547 4 1	..	262 6 5	69·52

(b). *Manure*.—The total weight of manure dropped by the cows during 1933-4 was estimated to be 3,329·27 maunds and during the next year, 3,263 maunds. The value of this at Rs. 2 per cart-load of 20 maunds amounted to Rs. 332-14-10 and Rs. 326-4-9 respectively for each of the two years.

36. *Net Cost of Milk Production*.—Subtracting the total income derived from sources other than milk from the total expenditure, the total net cost of milk production amounted to Rs. 6,580-15-0 in 1933-4 and Rs. 6,547-4-1 in 1934-5, and the net cost per 100 lbs. of milk produced 75·81 and 69·52 annas respectively. The net cost in the previous years was 98·67 annas in 1930-1, 90·07 in 1931-2 and 97·62 in 1932-3.

37. *Seasonal Variations in the Cost*.—As in the previous years, the cost of production of milk showed a seasonal variation according to the changes in the amount of milk production. This is illustrated in the following table which gives the amount of milk produced and the cost per 100 lbs., for the different months of the year.

It will be seen from this table that the cost during the different months varied with the milk production. It was generally higher when the milk production was low and vice versa.

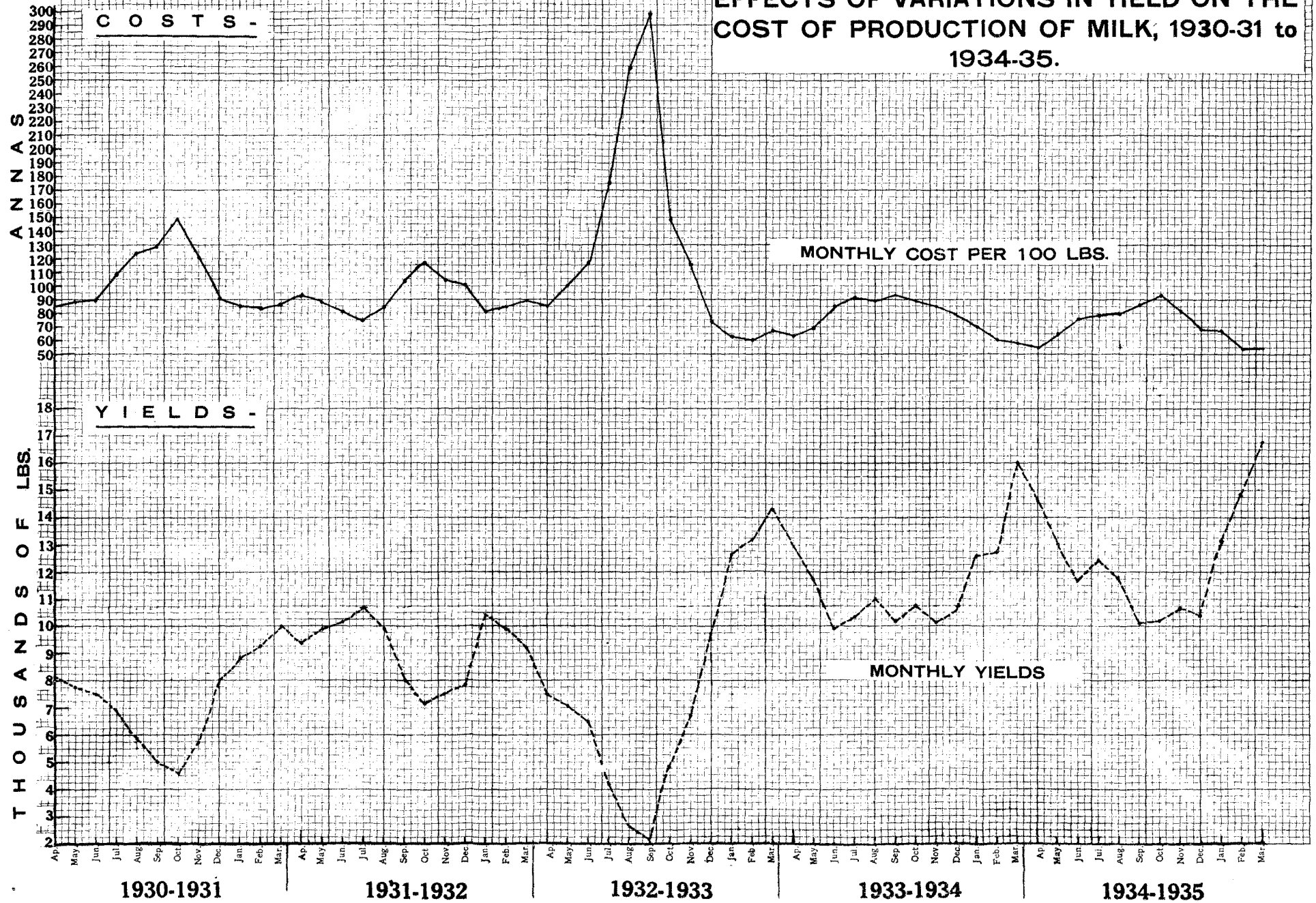
STATEMENT 16.

Monthly Production of Milk and Cost per 100 lbs.

Month.	1933-34.		1934-35.	
	Total production.	Net cost per 100 lbs. of milk.	Total production.	Net cost per 100 lbs. of milk.
	lbs.	Annas.	lbs.	Annas.
April ..	13,013·75	63·70	14,697·00	54·11
May ..	11,692·25	68·84	13,004·00	64·17
June ..	9,903·75	85·45	11,680·00	76·12
July ..	10,326·00	90·57	12,411·50	77·53
August ..	11,046·50	88·86	11,817·75	79·28
September ..	10,165·00	92·91	10,087·25	86·19
October ..	10,713·25	88·97	10,204·00	93·19
November ..	10,131·75	84·92	10,626·00	82·37
December ..	10,567·00	78·20	11,311·25	67·55
January ..	12,554·25	70·02	13,162·25	66·94
February ..	12,721·50	59·65	14,846·00	53·86
March ..	16,035·00	56·96	16,848·00	54·43
<i>Average</i> ..	<i>11,572·50</i>	<i>75·81</i>	<i>12,557·92</i>	<i>69·52</i>

The graph opposite this page illustrates the seasonal variations in the cost for the different months of the years under report (1931-2 to 1934) together with the figures for 1930-1—(as shown in the graph opposite page 12 of Publication No. 25).

GRAPH
 SHOWING MONTHLY THE
EFFECTS OF VARIATIONS IN YIELD ON THE
COST OF PRODUCTION OF MILK, 1930-31 to
1934-35.



SUMMARY OF PART I

Detailed accounts for the cost of production of milk in the College Dairy were continued for four years ending 31st March 1935. The details of the management of the herd have already been given in the previous report—"Cost of Milk Production at Lyallpur, Punjab," the Board's Publication No. 25). The cost of production for the first two years (1931-2 and 1932-3) is given in Part A, while that for the later two years in Part B. The separation is important because a material change had been made in the feeding of cows during the latter period, which consisted in giving a greatly increased quantity of green fodder to the cows. This was made possible by increasing the yield per acre and by the additional area of land put under fodders. The actual amount of green fodder given, along with the average annual milk yield per cow, in the four years, is shown below :—

<i>Year.</i>	<i>Average daily consumption of green fodder per cow.</i>		<i>Average annual milk yield per cow.</i>
		<i>lbs.</i>	<i>lbs.</i>
1931-32	..	45	4,679.3
1932-33	..	38	4,171.9
1933-34	..	62	5,493.0
1934-35	..	69	6,037.0

It appears from the above figures that this increased amount of green fodder fed to the cows is mainly, if not wholly, responsible for the increase in milk yield per cow. The increased yield of green fodder per acre was also responsible for reducing its cost of production per maund, which was about Rs. 0-3-0 in 1934-5 as against Rs. 0-3-6 in 1933-4, Rs. 0-4-4 in 1932-3 and Rs. 0-3-8 in 1931-2.

The net cost of production of 100 lbs. of milk was as follows :—

<i>Year.</i>	<i>Cost in Annas.</i>		
1931-32	90.07
1932-33	97.62
1933-34	75.81
1934-35	69.52

It will be seen that the cost of production has decreased considerably during the last two years under report. This is partly because the milk yield per cow per year has increased and partly because of the decreased cost of production of fodder crops owing to an increased yield per acre.

The care and general management of high yielding cows require special attention, and this may also be partly responsible for reducing the cost of production in the College Dairy, where such expert attention is available.

Proportions of the Major Items in 100 lbs. of Milk Produced.

The table below gives the unit proportions of the important items which go to make up the cost of producing 100 lbs. of milk and are more or less constant for the respective annual milk yields in various years. As these items make up about two-thirds of the net cost of production it is quite easy to work it out approximately at any given time by taking the prices of various feeds and the wages then current.

Unit Proportions per 100 lbs. of Milk Produced in the College Dairy.

Year.	Concentrates.	Green fodder.	Bhusa.	Salt.	Manual labour.
	lbs.	lbs.	lbs.	lbs.	Days
1930-31 ..	60.54	413.58	31.56	1.48	2.40
1931-32 ..	52.35	356.57	48.03	1.00	2.37
1932-33 ..	59.30	326.52	48.08	1.47	2.70
1933-34 ..	52.19	416.75	19.48	1.60	1.98
1934-35 ..	52.06	418.84	14.89	1.60 0.11*	1.79

*Minerals.

PART II

GUJAR MANDI, LYALLPUR

A.—GENERAL.

38. *Cattle Management by Gujars.*—About 30 families of Gujars reside in the Gujar mandi, a locality where the professional milk-sellers live and keep their cattle. These families had a herd of about 140 cows and 10 buffaloes, which produced about 15 maunds of milk daily.

The cows were mostly of the Montgomery breed and the buffaloes of Murrah breed. No bulls were maintained by the Gujars but some bulls of the Montgomery breed supplied to the town by the Municipality were used in getting the cows served some years ago. Recently, however, a very powerful bull of the Hissar breed supplied by the District Board to an adjacent village found his way to the Gujar mandi and ousted all other bulls, none of whom now visits the mandi, as all the cows are served by him. The stock of cows is deteriorating because of this system of promiscuous breeding. Buffaloes are served by buffalo-bulls kept by "Ahatawalas" (owners of stables). Normally no breeding is carried on; the animals are sold when dry and new buffaloes bought in their stead. The cows are of average quality and yield on an average about 3,000 lbs. of milk per annum.

Different Gujars follow different methods to replenish their stock of animals. Some of them rear their own young stock for the purpose and retain the animals when dry. Others sell the animals when not in milk and replace them by purchase, while some maintain the strength of their stock, partly by rearing their own young stock, and partly by purchasing cows.

The calves are not weaned at birth and, therefore, not hand-fed as is the practice in the College Dairy. They are allowed to suckle their dams at milking time. Since the calf is required to stimulate the cow to drop milk in her udder, great difficulty is experienced in milking if the calf dies. Quite often the Gujar has to resort to the pernicious practice of *phuka** to milk the cow under such circumstances, and to prevent her from going dry. The buffaloes are also unweaned, but they are more tractable, and can be more easily milked if a calf dies, although in a few very bad cases it is the practice to milk the buffalo by *vatti*. †

* Blowing air into the vagina of the animal.

† Inserting a bamboo or the switch of her tail in the vagina of the animal.

39. *Feeding.*—Stall-feeding is practised throughout the winter but during the summer and monsoon months this is supplemented with grazing. The Gujars own no land and hence depend for grazing on the grass which grows in the cattle-fair grounds—about 100 acres in area—and the compounds of residential bungalows. Several Gujars join together and rent these grounds for the crop of grass growing there and share the cost according to the number of animals grazed. During the latter half of April and in May their cattle also graze free on the stubble of rabi crops. The Gujars depend mainly on grazing for the supply of roughages to their cows during the summer and supplement this with stall-feeding when the cattle do not get enough feed from outside, but in winter the animals are wholly stall-fed. Hence the costs of production of milk are much lower during the summer than in winter.

As in the College Dairy, the feed consists of concentrates, bhusa and green fodder and the Gujar buys his requirements of these from day to day. Being a spendthrift, and addicted to the vices of gambling and drinking, he has usually no capital with which to buy his annual requirements at the harvesting time when the prices are considerably lower than they are later in the year. He buys these daily as required: the bhusa and all green fodders being invariably paid for in cash, while the concentrates may be bought either for cash or on credit. In the latter case, the shopkeeper either charges a higher price for lower grade stuff, or charges a fairly high rate of interest. As long as the cows of the Gujar are in milk his daily earnings from its sale may be enough to pay for his requirements of concentrates and other foodstuffs, but when they go dry, as they usually do in winter, his earnings fall and he has to buy concentrates on credit. Thus the Gujar gets into debt, and when once involved, he seldom gets free; nearly all the Gujars in the Lyallpur Gujar mandi are in debt, some of them very heavily. If a Gujar after dealing with one creditor for some time becomes dissatisfied on account of the heavy rate of interest, or poor quality or high price of foodstuffs, he may change to another, but he soon finds that this new choice brings no improvement. To tempt the Gujar to deal with him the shopkeeper may charge a low rate of interest at first, but soon afterwards, when he finds that the Gujar owes him a fairly large sum, his methods change.

The concentrates are fed in the form of "*gotawa*," *i.e.*, soaked in water and mixed with bhusa; plenty of water is put in to make the *gotawa* very sloppy. The cows are said to relish this and it is supposed to have a beneficial effect on milk production. This practice is quite different from that followed in the College Dairy where the concentrates are fed directly, and bhusa is given to the cows mixed with the green fodders.

Maize and chari during the kharif, and turnips, oats and berseem during the rabi harvest, are the fodders fed by the Gujars. Normally these are bought daily from the market, but occasionally a standing crop of fodder may also be purchased and fed. Fodder is given chaffed but no Gujar owns a chaff-cutter. They either buy fodder already chaffed or chop it themselves with a *toka* (hand chopper).

40. *Milking*.—Every Gujar has a fixed stand in the town where he takes his cows every morning and evening to milk them in the presence of his customers, but the buffaloes are milked in the mandi and are not taken to the city; one or more cows may also be milked there. The milk obtained in the mandi, after adulteration with water or goats' milk, or the unsold surplus supply of the morning (kept through the day by boiling), is sold in the evening along with freshly drawn milk. Cows giving abnormal milk, such as "bloody" milk or some very poor in fat, are also milked in the mandi; this supply is sold mixed with other milk.

41. *Adulteration of Milk*.—All the three Gujars whose accounts were maintained, practised adulteration in one or other of the two usual ways, *viz.*, by the addition of water or goats' milk, the latter being bought from the goat-herds at Rs. 0-1-0 per seer. The extent of adulteration varied with the supply and demand of milk. If the latter was high and the former low, more adulteration was done and during the periods when the supply exceeded the demand, as in the rainy season, little or no adulteration took place.

Cow's milk was less adulterated than that of the buffalo as the latter was invariably sold adulterated with water; in fact buffaloes were kept only because their milk could stand more adulteration. One of the three Gujars also added some sugar to such adulterated milk in order to raise its specific gravity with a view to escape detection, if such milk were tested for its genuineness by means of a lactodensimeter by the public health authorities.

42. *Milk Cost*.—The cost has been worked out *on the basis of genuine milk produced*. The yield of every individual cow of each of the three Gujars was recorded in turn once in every three days and from this the total milk yield given by the cow in her lactation was computed. The milk actually milked into the pail was noted but that taken by the calf was not taken into account. Sometimes the calf would accidentally get loose and suck away the whole of the milk of the mother; a record of such occasions was kept and these were not included when computing the total milk production of the cow. Once in every 28 days (on the 11th night of the new moon), most of the Gujars sell no milk except to a few permanent customers, but distribute some free to the poor and use the remainder in their own households. This milk has also been taken into account in working out the cost.

43. *Manual Labour.*—Milk production is mostly a family concern with the Gujars as the whole family does this work as their chief occupation. Womenfolk help by supplying the water requirements of the animals both for gotawa and drinking, in the collection of their dung, and making this into cakes and selling them. The male members attend to the feeding, milking and the general care of the cows and to the sale of milk. Hired labour may be employed when necessary.

For the purpose of this study adult family labour, both male and female, has been charged at the same rate as hired labour. The usual wages paid by Gujars to a labourer (who is usually himself a Gujar, but being poorer has no cows of his own) were Rs. 9 per month, plus daily food valued at Rs. 4 per month, *i.e.*, a total of Rs. 13 per month.

44. *Equipment.*—A few *waltohis* (large milk vessels usually of brass), one or more *gadvis* (smaller vessels), a *pawa* (small vessel used as a measure), a couple of buckets or tubs, a few pegs of wood or iron, some chains or ropes, and *ganis* (necklaces or bells) and halters, all costing from Rs. 30 to Rs. 40, comprise the full equipment of a Gujar for his business. Unlike a modern dairy farm, therefore, his expenditure under this heading is very little.

45. *Cow Cost.*—The cows were valued at the time of starting the inquiry and their value, together with that of others bought later, when in the prime of life, was determined. Similarly, when a home-bred heifer was drafted into the herd on freshening, she was valued at the market rate; on this value 12 per cent. depreciation and 8 per cent. interest were charged as the cow cost.

46. *Bull Cost.*—As no bull was kept by the Gujars there were no expenses under this head. The Hissar bull which served the cows ate at his will from the different mangers available. The cost of feeding him is thus included in that of cows.

47. *Buildings.*—Usually there are no separate sheds for the housing of animals. Cattle are kept in the back room of the Gujar's dwelling during the winter and in summer they are tied down to pegs fixed in the open yard in front of the house. Only one of the three Gujars had a separate semi-pacca winter shed for his cattle. The floors are all *kachcha* (unbricked) and therefore insanitary and unhygienic; urine soaks in them as there is no drainage. The barns are dark and unventilated. For lack of proper housing, even on rainy days during the monsoons, the cattle are kept tied in the open. The ground gets miry, and most uncomfortable for the cattle, which cannot get any rest as they have to remain standing on such days,

and as a result their milk yield suffers considerably. Each of the Gujars had a *pacca manger* where the animals were fed.

The portion of the dwelling used for housing cattle in the case of two of the Gujars, and the special shed of the third, together with their *pacca mangers*, were valued with the help of an overseer of the Public Works Department. Interest was charged at 8 per cent. on the capital outlay, and depreciation at rates varying from $3\frac{1}{4}$ to $6\frac{2}{3}$ per cent. according to the nature of the building (*i.e.*, whether *kachcha* or *pacca*), and its estimated life. Annual repairs to buildings (such as *lipai*, *i.e.*, putting on the walls a thin coat of fresh mud mixed with dung or straw) was done by family labour, the cost of which has been included in the cost of manual labour.

48. *Income from Sources other than Milk.*—

(a). *Calves.*—The calves are not weaned but allowed to suckle the mothers until these can be milked without them. Usually the calves are separated from the dam at the age of three or four months, although the period varies with the temperament of the cow, and the fancy of the Gujar. Actually the calves do not get a full share of milk for the whole of this period but only for the first five or six weeks. They are then able to eat solid food and are brought to the mother and allowed to suck her just enough to stimulate her milk supply. The quantity of milk which the calf is allowed even in the earlier stages of its life is not what it requires for its normal body growth but only just enough to keep it alive. The total quantity of milk that it gets is from 150 to 200 lbs., while in the College Dairy it is about 600 lbs. It thus looks miserable until weaned of milk diet and put on solid food. Many calves die of debility and starvation, particularly during the winter when conditions are more severe. Three to four months after calving, when the cow can be persuaded to give milk without the calf, the two are separated and the calf may be reared to maturity or sold, generally for about Rs. 4 at that age. This amount has been credited to the Gujars' account for every calf born to the cows. It is higher than in the case of the College Dairy where the calves are weaned at birth, and credit is given at the rate of Re. 1 per male and Rs. 2 per female calf.

(b). *Manure.*—The dung is collected by the female members of the family and made into cakes, which are then sold in the market for fuel at about Rs. 0-8-0 per maund. Every Thursday the dung dropped by the animals in the afternoon is not collected but left, as an act of charity, for the females of the poorer Gujars to collect. Once a month the dung dropped by the animals was collected, made into dung cakes, and the weight recorded. From this data the quantity of dung cakes produced by the animals of each of the three Gujars examined was computed.

Although the female members of all the three families made dung cakes, one family which did not sell any but used the cakes for its own domestic needs, has been given credit for the dung produced by its animals.

(c). *Miscellaneous Income.*—All the three men added to the income derived from the sale of milk, dung cakes and calves, by doing some service to private individuals, *e.g.*, treating their sick cows, rendering help in milking cows which were giving trouble because of the death of the calf, etc. In addition to this they won prizes for some of their cattle exhibited at the local horse and cattle fair. In working out the cost of milk, credit has been given for all such income: it may be noted that there was no such income in the case of the College Dairy.

B.—COST OF MILK PRODUCTION IN THE YEARS,
1932-33 TO 1934-35.

49. *Number of Cows Kept.*—The number of cows kept by the different Gujars during the three years is given below :—

STATEMENT 17.

Number of Cows kept by the Gujars.

Gujar.	TOTAL NO. OF COW-DAYS.				AVERAGE NO. OF COWS KEPT.			
	1932-33.	1933-34.	1934-35.	Total.	1932-33.	1933-34.	1934-35.	Total.
A.	3,134	3,793	3,237	10,164	8.59	10.39	8.87	27.85
B.	2,706	2,908	1,909	7,523	7.41	7.97	5.23	20.61
C.	3,511	3,361	2,942	9,814	9.62	9.21	8.06	26.89
<i>Total</i>	<i>9,351</i>	<i>10,062</i>	<i>8,088</i>	<i>27,501</i>	<i>25.62</i>	<i>27.57</i>	<i>22.16</i>	<i>75.35</i>

It will be seen from this table that Gujar B kept on an average the smallest number of cows in each of the three years; Gujar A had the largest number in 1933-4 and 1934-5 and Gujar C in 1932-3. The number of cows kept on any one day by each Gujar varied between 7 and 10, except in the case of Gujar B during 1934-5 when, because of death and disease in his stock, the number decreased at one time to only 4 cows.

50. *Milk Production.*—The details of the milk production of individual cows kept by the different Gujars in these three years together with other relevant particulars of these cows, are given in Appendix C. The data are summarised below :—

STATEMENT 18.

Summary of the Total Annual Milk Production and Average Production per Cow for each Gujar.

Years.	G U J A R S .			
	A.	B.	C.	Total.
Average number of cows kept—				
1932-33 ..	8.59	7.41	9.62	25.62
1933-34 ..	10.39	7.97	9.21	27.57
1934-35 ..	8.87	5.23	8.06	22.16
<i>Total</i> ..	<i>27.85</i>	<i>20.61</i>	<i>26.89</i>	<i>75.35</i>
Total milk production—	lbs.	lbs.	lbs.	lbs.
1932-33 ..	30,082	22,917	30,661	83,660
1933-34 ..	38,505	21,532	30,291	90,328
1934-35 ..	31,542	14,690	25,984	72,216
<i>Total</i> ..	<i>100,129</i>	<i>59,139</i>	<i>86,936</i>	<i>246,204</i>
Average production per cow per annum—	lbs.	lbs.	lbs.	lbs.
1932-33 ..	3,502	3,093	3,187	3,265
1933-34 ..	3,706	2,702	3,289	3,276
1934-35 ..	3,556	2,809	3,224	3,259
<i>Average</i> ..	<i>3,597</i>	<i>2,869</i>	<i>3,233</i>	<i>3,268</i>

It will be seen from the above table that the average production per cow in any year was the highest for Gujar A ; Gujar C came next and Gujar B had the lowest production. As will be shown later, the cost of production is in inverse order to the amount produced. It is lowest in the case of Gujar A, slightly higher for C and the highest for B. There was little difference in the average production of the cows of these Gujars from year to year.

The following table compares the annual average milk production of the three Gujars with that of the College Dairy in each of the three years under study :—

Year.		Average overall daily milk yield per cow in College Dairy.	Average annual milk production per cow—	
			In College Dairy.	By the Gujars.
		lbs.	lbs.	lbs.
1932-33	..	11.43	4,173	3,265
1933-34	..	15.05	5,493	3,276
1934-35	..	16.54	6,037	3,259

The average annual production per cow in the College Dairy compared with that of Gujars, was about 28 per cent. higher during 1932-3, about 68 per cent. higher during 1933-4 and about 85 per cent. higher during 1934-5. Thus, whereas the production increased by about 45 per cent. in the College Dairy during the three years, it remained practically at the same level in the case of the Gujars. The reason for this static state of affairs in the case of the latter and the great improvement in the College Dairy lies in the different conditions of herd management prevailing at the two places. Whereas at the Dairy the stock was being constantly improved and its level of production raised by a policy of selective breeding, intelligent culling and scientific feeding and management, together with continual replacement of the lower producers with better home-bred animals, the Gujars mostly replenished their stock by outside purchases, and this effected no improvement in the milk production of their animals. No doubt cattle breeding is expensive and does not pay in India at present, as it costs much more to rear an animal to the age of usefulness than the price at which it can be sold when mature. But Indian cattle are poor and uneconomical producers of milk, and in order to bring about any improvement in them, which, as the data of the College Dairy show, is so essential in order to lower the cost of milk production, it is necessary for owners to raise their own cattle (as was done in the College Dairy) rather than replace them by outside purchases (as was the practice with the Gujars). If the latter method is followed there can be no progress, but money spent in breeding better cattle is fully repaid by the extra milk produced by such cattle.

51. *Feed.*—Statement 19 shows the quantity, price per maund and total value of the foodstuffs used by the three Gujars each year; also the average quantity and cost per cow.

STATEMENT 19.

Quantities and Values of the Foodstuffs used.

Foodstuffs.	Quantity used.	Value.	Average price per maund.	PER COW.	
				Quantity.	Cost.
	Mds. S. Ch.	Rs. a. p.	Rs. a. p.	Mds. S. Ch.	Rs. a. p.
Concentrates—					
1932-33 ..	630 35 15	1,331 15 10	2 1 9	24 25 0	51 15 10
1933-34 ..	561 38 6	1,191 10 9	2 1 11	20 15 2	43 3 7
1934-35 ..	535 23 5	980 14 10	1 13 5	24 8 9	44 4 3
<i>Total</i> ..	<i>1,728 17 10</i>	<i>3,504 9 5</i>	<i>2 0 5</i>	<i>22 37 5</i>	<i>46 7 11</i>
				(average)	
Green fodder—					
1932-33 ..	1,601 23 0	374 5 3	0 3 9	62 20 8	14 9 9
1933-34 ..	2,814 21 8	609 6 2	0 3 6	102 3 8	22 1 8
1934-35 ..	1,930 6 12	404 8 10	0 3 4	87 4 1	18 4 1
<i>Total</i> ..	<i>6,346 11 4</i>	<i>1,388 4 3</i>	<i>0 3 6</i>	<i>84 8 15</i>	<i>18 6 9</i>
				(average)	
Bhusa—					
1932-33 ..	512 17 8	347 7 9	0 9 1	20 0 0	13 9 0
1933-34 ..	257 33 12	203 4 6	0 12 7	9 14 1	7 6 0
1934-35 ..	305 1 0	164 0 4	0 8 7	13 30 6	7 6 5
<i>Total</i> ..	<i>1,075 12 4</i>	<i>714 12 7</i>	<i>0 9 9</i>	<i>14 10 13</i>	<i>9 7 9</i>
				(average)	

It will be seen from the above table that the rate of concentrates was about the same during each of the first two years, but lower in 1934-5; the rate of green fodder was the highest in the first year and decreased in the next two years; bhusa was the dearest in the second year and cheapest in the third. Except in the case of concentrates in 1934-5 and bhusa in 1933-4, the differences in the rates of the various feeds in each of the three years were not very great. Statement 20 on the next page compares the rates of the feeds in the case of the Gujars and the College Dairy :—

STATEMENT 20.

Rates of Feeds purchased by the Gujars and the College Dairy.

Feeds.	Year.	RATE PER MAUND—	
		Gujars.	College Dairy.
		Rs. a. p.	Rs. a. p.
Concentrates	1932-33	2 1 9	1 10 7
	1933-34	2 1 11	1 9 2
	1934-35	1 13 5	1 4 7
Green fodder	1932-33	0 3 9	0 4 6·5
	1933-34	0 3 6	0 3 7
	1934-35	0 3 4	0 3 4
Bhusa	1932-33	0 9 1	0 6 4
	1933-34	0 12 7	0 8 11
	1934-35	0 8 7	0 10 2

It will be seen from the above table that the Gujars always bought concentrates and bhusa (except the latter in 1934-5) at a considerably higher rate than was done by the College Dairy. It cost the latter more during 1932-3 to raise the green fodder in its own area than the price the Gujars paid for it in the bazar, although during the next two years, the rates were about equal in each case.

The quantity of concentrates fed per cow was about equal in 1932-3 and 1934-5 and lower in 1933-4. Less green fodder, and therefore more bhusa, was fed in 1932-3; in the following year, however, more of the former than of the latter was fed. Statement 21 on the next page shows the quantity, price per maund and values of the different feeds given to the cows in the three years by the Gujars A, B and C, respectively.

52. *Concentrates.*—The details of the various concentrates fed by the Gujars during the three years are given in Statement 22; details of each Gujar separately are given in Appendix B. It will be seen from this table that a greater variety of feeds was given by the Gujars than was done in the College Dairy. Although the feeds and their proportion in the total ration varied slightly from year to year, gram and wheat bran constituted by far the major constituents of the concentrate mixture throughout. These together formed 87·10 per cent. of the total ration in 1932-3, 93·05 per cent. in 1933-4 and 91·74 in 1934-5. Of these two items gram was much more extensively used, forming about two-thirds of the total ration. Toria cake was also fed, but very sparingly, and comprised only 2·88 per cent. of the total ration in 1932-3 and 0·65 and 0·74 per cent. respectively in the next two years. The use of the other

STATEMENT 21.

Quantities and Values of the Foodstuffs used by the Gujars.

Foodstuffs.	Quantity used.			Value.			Average price per maund.		
	Mds.	Srs.	Ch.	Rs.	a.	p.	Rs.	a.	p.
GUJAR A.									
Concentrates—									
1932-33	186 19 10	405	11	9	2	2	10
1933-34	213 17 7	444	12	2	2	1	4
1934-35	178 10 9	336	5	9	1	14	2
Green fodder—									
1932-33	488 39 8	120	4	8	0	3	11
1933-34	905 8 0	186	11	8	0	3	4
1934-35	552 28 12	117	9	4	0	3	5
Bhusa—									
1932-33	146 31 8	96	12	3	0	10	6
1933-34	111 1 4	86	7	5	0	12	6
1934-35	112 11 0	60	8	2	0	8	7
GUJAR B.									
Concentrates—									
1932-33	201 29 3	412	8	5	2	0	9
1933-34	128 32 10	292	8	3	2	4	4
1934-35	136 26 15	248	0	7	1	13	0
Green fodder—									
1932-33	556 5 0	126	11	0	0	3	8
1933-34	1,015 17 8	229	13	0	0	3	7
1934-35	482 4 0	101	13	3	0	3	5
Bhusa—									
1932-33	147 33 4	99	8	4	0	10	9
1933-34	44 11 0	33	5	10	0	12	5
1934-35	72 22 0	38	5	2	0	8	5
GUJAR C.									
Concentrates—									
1932-33	242 27 2	513	11	8	2	1	10
1933-34	219 28 5	454	6	4	2	1	11
1934-35	220 25 13	396	7	8	1	12	9
Green fodder—									
1932-33	556 18 8	127	5	7	0	3	8
1933-34	893 36 0	192	13	6	0	3	5
1934-35	895 14 0	185	2	3	0	3	4
Bhusa—									
1932-33	217 32 12	151	3	2	0	11	1
1933-34	102 21 8	83	7	3	0	13	0
1934-35	120 8 0	65	3	0	0	8	8

STATEMENT 22.
Quantities and Values of the Concentrates used by the Gujars.

Concentrates.	Year.	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.	
			Rs.	a. p.				Rs. a. p.	Quantity.	Value.
Wheat bran ..	1932-33	136 14 12	220	0 8	1 9 10	13-37	4-21	21-62	16-53
	1933-34	118 16 15	161	7 1	1 5 10	10-75	2-86	21-07	13-55
	1934-35	135 12 10	174	10 5	1 4 8	15-36	3-87	25-25	17-81
Gram ..	1932-33	413 3 10	959	6 3	2 5 2	40-49	18-35	65-48	72-05
	1933-34	404 21 9	950	4 3	2 5 7	36-72	16-83	71-98	79-73
	1934-35	356 6 10	735	3 8	2 1 0	40-44	16-29	66-49	74-97
Toria cake ..	1932-33	18 8 6	34	15 2	1 14 9	1-78	0-67	2-88	2-63
	1933-34	3 26 8	5	7 1	1 7 10	0-33	0-10	0-65	0-47
	1934-35	3 37 15	5	1 8	1 4 8	0-45	0-11	0-74	0-51
Massar ..	1932-33	13 16 0	21	14 9	1 10 2	1-31	0-42	2-12	1-65
	1933-34	8 3 6	13	13 2	1 11 4	0-73	0-24	1-43	1-14
	1934-35	10 0 8	13	11 4	1 5 11	1-14	0-30	1-87	1-38
Mamni (ear-cockle) ..	1932-33	8 4 13	13	3 2	1 10 0	0-80	0-25	1-29	0-98
	1933-34	0 20 0	0	13 0	1 10 0	0-05	0-02	0-10	0-09
	1934-35	6 27 8	8	10 0	1 4 7	0-77	0-19	1-27	0-87
Gram husk ..	1932-33	5 30 13	11	4 0	1 15 2	0-57	0-21	0-92	0-82
	1933-34	9 5 11	16	9 0	1 13 0	0-83	0-29	1-63	1-37
	1934-35	20 13 4	39	2 3	1 14 10	2-31	0-87	3-80	4-00
Massar husk ..	1932-33	3 30 0	6	9 9	1 12 2	0-36	0-13	0-58	0-51
	1934-35	3 4 14	4	6 8	1 6 8	0-35	0-10	0-58	0-46
Barley ..	1932-33	32 5 3	64	7 4	2 0 1	3-15	1-23	5-09	4-83
	1933-34	17 24 5	43	5 2	2 7 4	1-60	0-77	3-14	3-65
Cotton seed ..	1932-33	0 2 6	0	2 9	2 2 10	0-01	..	0-02	..
<i>Total</i> ..	1932-33	630 35 15	1,331	15 10	2 1 9	61-84	25-47	100-00	100-00
	1933-34	561 38 6	1,191	10 9	2 1 11	51-01	21-11	100-00	100-00
	1934-35	535 23 5	980	14 0	1 13 5	60-82	21-73	100-00	100-00

concentrates was more or less seasonal. For instance barley, and gram husk, were fed only during the summer for their cooling effect and cotton-seed, *massar* (lentil) and *massar* husk during the winter, or to cows not coming in season, for their heating effect; some *mamni* (ear-cockle)* was also fed each year although it seldom formed an important ingredient of the ration. In general, the selection and purchase of the daily requirements of concentrates was characterised by a lack of system. Unlike the College Dairy the Gujars did not follow any set scale for mixing the different concentrates. Although during the whole year more kinds of feeds were used than was done in the College Dairy, the daily ration generally lacked variety: not infrequently it consisted of gram exclusively. In the selection of feeds the fancy and prejudice of the Gujars played a more important part than the utility, or real food value, of feed in relation to its price.

The common belief that Gujars feed their animals on the cheaper husks, brans and other bye-products of the milling industry—feeds which are said to stimulate milk production,—with a view of getting more milk from their animals, is not substantiated by these figures. It can safely be said that, at any rate in Lyallpur, where the Gujars feed much more of gram than husks, bran or *mamni*, this belief is baseless. Because gram is a more costly food than other bye-products such as wheat bran and toria cake, and because it formed a very much higher proportion of the concentrate mixture in the case of Gujars than it did in the College Dairy, the price per maund of the concentrate mixture used by the former was very much higher.

The following table compares the amounts and values of the concentrates fed by the Gujars and the College Dairy to produce 100 lbs. of milk; also in the case of the Gujars the percentage the cost bore to the total cost:—

Year.	Weight of concentrates.		Cost of concentrates.		Percentage to
	College Dairy.	Gujars.	College Dairy.	Gujars.	total cost of feed.
	lbs.	lbs.	Annas.	Annas.	Per cent.
1932-33	.. 59.30	61.84	19.22	25.47	64.84
1933-34	.. 52.19	51.01	16.02	21.11	59.47
1934-35	.. 52.06	60.82	13.09	21.73	63.32

The higher cost of concentrates in the case of the Gujars is due to the larger amount used by them than the College Dairy, and also to the higher price paid. The lower quantity fed by them in 1933-4 was due to the large quantity of fodder consumed that year. The Gujars did not feed concentrates strictly in proportion to the

* This was in the form of the refuse from wheat flour mills which contains thin wheat grains and other refractions.

milk produced as was done in the College Dairy, but the soaked grain was mixed with bhusa to make the gotawa, which was then spread in the manger and the cows allowed to eat together. Those cows which gave less milk were removed from the manger earlier and this was the only attempt made to feed the better milkers more liberally.

It will be seen from Appendix B., showing the various concentrates fed by each Gujar in the three years, that they gave their animals nearly the same feed and in more or less the same proportions. There was, however, a distinct difference in the quantity and therefore value, of the concentrates fed by the Gujars to produce 100 lbs. of milk. This is illustrated in the following statement :—

STATEMENT 23.

Quantity and Value of the Concentrates used to produce 100 lbs. of Milk.

Year.	GUJAR A.		GUJAR B.		GUJAR C.	
	Quantity	Value.	Quantity	Value.	Quantity	Value.
	lbs.	Annas.	lbs.	Annas.	lbs.	Annas.
1932-33 ..	50-83	21-58	72-18	28-80	64-90	26-81
1933-34 ..	45-46	18-48	49-06	21-74	59-48	24-00
1934-35 ..	46-34	17-06	76-29	27-02	69-63	24-41

It will be seen from this table that each year Gujar A managed to produce 100 lbs. of milk at a considerably lower cost than the other two men by giving his animals less grain. This was partly because of his better cows and partly because, as will be shown later, his animals got more grazing than those of the other men. Except in 1933-4, when he fed green fodder very liberally and therefore less grain, Gujar B fed the largest quantity of grain to produce 100 lbs. of milk; this was probably because of his poorer animals.

53. *Green Fodder.*—The total quantity and value of green fodder used by the three Gujars each year, the quantity and value used to produce 100 lbs. of milk and the percentage that these bear to the total quantity and value of food respectively are given in the following Statement; relevant figures from Statements 6 and 14 giving similar information for the College Dairy, are also shown for comparative purposes :—

STATEMENT 24.
Quantities and Values of the Green Fodder used.

Gujars and College Dairy.	Total quantity fed.	Total value.	PER 100 LBS. OF MILK PRODUCED.		PERCENTAGE TO TOTAL.	
			Quantity	Cost.	Quantity	Value.
1932-33.	Mds. S. Ch.	Rs. a. p.	lbs.	Annas.		
Gujar A. ..	488 39 8	120 4 8	133-29	6-40	59-47	19-32
Gujar B. ..	556 5 0	126 11 0	198-99	8-84	61-41	19-82
Gujar C. ..	556 18 8	127 5 7	148-82	6-64	54-72	16-06
<i>All Gujars ..</i>	<i>1,601 23 0</i>	<i>374 5 3</i>	<i>156-98</i>	<i>7-16</i>	<i>58-25</i>	<i>18-23</i>
College Dairy	3,652 1 8	1,039 0 6	326-52	18-13	75-00	43-47
1933-34.						
Gujar A. ..	905 8 0	186 11 8	192-77	7-76	73-61	26-01
Gujar B. ..	1,015 17 8	229 13 0	386-70	17-07	85-44	41-34
Gujar C. ..	893 36 0	192 13 6	241-98	10-19	73-50	26-40
<i>All Gujars ..</i>	<i>2,814 21 8</i>	<i>609 6 2</i>	<i>255-50</i>	<i>10-79</i>	<i>77-44</i>	<i>30-29</i>
College Dairy	7,057 33 12	1,580 9 2	416-75	18-21	85-05	49-10
1934-35.						
Gujar A. ..	552 28 12	117 9 4	143-69	5-96	65-55	22-84
Gujar B. ..	482 4 0	101 13 3	269-11	11-09	69-74	26-23
Gujar C. ..	895 14 0	185 2 3	282-56	11-40	72-43	28-63
<i>All Gujars ..</i>	<i>1,930 6 12</i>	<i>404 8 10</i>	<i>219-17</i>	<i>8-96</i>	<i>69-66</i>	<i>26-11</i>
College Dairy	7,697 11 4	1,606 2 3	418-84	17-05	85-92	51-78

Gujar B on the average fed more green fodder to produce 100 lbs. of milk than the other Gujars, and Gujar A the smallest quantity, because his cows had more grazing. Partly because of grazing and partly because, as will be shown later, the Gujars used more *bhusa*, their cows got much less fodder than the College Dairy cows, which were exclusively stall-fed. The cost of green fodder fed by the Gujars to produce 100 lbs. of milk was consequently lower than that in the College Dairy; as was also cost as a percentage of the total feed cost. This shows that whereas the Gujars produced milk mostly from concentrates, the Dairy produced a good part of its supply from green fodder.

54. *Bhusa*.—The total quantity and value of wheat *bhusa* fed by the Gujars during the three years, the quantity and value required to produce 100 lbs. of milk and the percentage that these bear to the total quantity and value of all foodstuffs used, are given in the following statement; relevant figures for the College Dairy are included for comparison:—

STATEMENT 25.

Quantities and Values of the Bhusa used.

Gujars and College Dairy.	Total quantity fed.	Total value.	PER 100 LBS. OF MILK PRODUCED.		PERCENTAGE TO TOTAL—	
			Quantity	Cost.	Quantity	Value.
	Mds. S. Ch.	Rs. a. p.	lbs.	Annas.		
1932-33.						
Gujar A. ..	146 31 8	96 12 3	40·01	5·15	17·85	15·54
Gujar B. ..	147 33 4	99 8 4	52·89	6·95	16·32	15·59
Gujar C. ..	217 32 12	151 3 2	58·26	7·89	21·42	19·09
<i>All Gujars ..</i>	<i>512 17 8</i>	<i>347 7 9</i>	<i>50·23</i>	<i>6·65</i>	<i>18·67</i>	<i>16·93</i>
College Dairy	537 30 4	212 13 9	48·08	3·71	11·04	8·89
1933-34.						
Gujar A. ..	111 1 4	86 7 5	23·64	3·59	9·03	12·04
Gujar B. ..	44 11 0	33 5 10	16·86	2·48	3·72	6·01
Gujar C. ..	102 21 8	83 7 3	27·76	4·41	8·43	11·42
<i>All Gujars ..</i>	<i>257 33 12</i>	<i>203 4 6</i>	<i>23·41</i>	<i>3·60</i>	<i>7·10</i>	<i>10·14</i>
College Dairy	329 35 2	183 6 7	19·48	2·11	3·97	5·69
1934-35.						
Gujar A. ..	112 11 0	60 8 2	29·19	3·07	13·31	11·77
Gujar B. ..	72 22 0	38 5 2	40·50	4·17	10·49	9·86
Gujar C. ..	120 8 0	65 3 0	37·93	4·01	9·72	10·07
<i>All Gujars ..</i>	<i>305 1 0</i>	<i>164 0 4</i>	<i>34·63</i>	<i>3·63</i>	<i>11·01</i>	<i>10·57</i>
College Dairy	273 22 0	174 6 3	14·89	1·85	3·05	5·62

The quantity of bhusa used varied with the quantity of green fodder fed and grazed. Gujar A generally gave less bhusa than B or C, because he used more green fodder (including grazing) than either of them. Except A in 1932-3 and B in 1933-4, the Gujars fed on an average about 32 per cent. more wheat bhusa to produce 100 lbs. of milk than did the College Dairy. Because of the larger quantity and the higher rate, the cost of bhusa was very much higher in their case (as also the percentage of this cost to the total food cost), than with the College Dairy.

55. *Salt.*—Common salt is considered a necessary ingredient of the concentrate mixture in the College Dairy, but very little salt is used by the Gujars. Only when a cow was suffering from indigestion was she given a handful of salt as a medicine. There is, therefore, no expenditure shown under this head in these accounts; whatever little salt was fed, has been charged as medicine under the item "Miscellaneous." Probably the Gujar cows get too little salt. If, as in the College Dairy, this were included in the ration

the addition would have a beneficial effect both on the health of the cows and their milk supply.

56. *Grazing.*—This is a feature of the feeding system of the Gujars which did not exist in the College Dairy. The men own no land, and consequently have no regular grazing areas or paddocks, but rent the cattle fair grounds, the Polo ground, the Race Course, and grass and fodders growing in the compounds of various private bungalows. In addition, stubble in the cultivated fields from which crops have been harvested, are also used and for these the Gujars pay nothing.

The amount of grazing available determines the amount of green fodder and bhusa fed. If it is copious the cows may not be given any roughages at home. On the other hand on days when little or no grazing is available, the cows may be entirely stall-fed. Gujar A depended more than the others on grazing and as this is cheaper than stall-feeding, the total cost of the keep of his cows, and, therefore, the cost of production of milk, are lower.

The following statement shows the cost of grazing in the case of the different Gujars for the three years :—

STATEMENT 26.
Cost of Grazing.

Gujars.	Total.	Per cow.	Per 100 lbs. of milk produced.	Percentage of total cost of milk production.
	Rs. a. p.	Rs. a. p.	Annas.	Per cent.
1932-33.				
Gujar A. ..	95 0 0	11 1 0	5-05	7-52
Gujar B. ..	43 11 0	5 14 3	3-05	3-95
Gujar C. ..	62 1 2	6 7 3	3-24	4-80
<i>All Gujars</i> ..	<i>200 12 2</i>	<i>7 13 5</i>	<i>3-84</i>	<i>5-48</i>
1933-34.				
Gujar A. ..	141 11 4	13 10 5	5-89	9-88
Gujar B. ..	86 8 10	10 13 9	6-43	6-92
Gujar C. ..	120 13 7	13 1 11	6-38	9-25
<i>All Gujars</i> ..	<i>349 1 9</i>	<i>12 10 7</i>	<i>6-18</i>	<i>8-75</i>
1934-35.				
Gujar A. ..	81 3 5	9 2 6	4-12	9-15
Gujar B. ..	42 15 4	8 3 5	4-67	5-88
Gujar C. ..	54 11 2	5 15 0	3-37	4-81
<i>All Gujars</i> ..	<i>178 13 11</i>	<i>8 1 2</i>	<i>3-96</i>	<i>6-49</i>

These figures show that there were variations not only among the different Gujars but also from year to year; thus the average cost per cow was Rs. 7-13-5 the first year, Rs. 12-10-7 the next and Rs. 8-1-2 in the last.

57. *Total Cost of Feed.*—The three Gujars together fed the following quantities of different foodstuffs to produce 100 lbs. of milk :—

<i>Feeds.</i>		1932-33.	1933-34.	1934-35.
		lbs.	lbs.	lbs.
Concentrates	..	61·84	51·01	60·82
Green fodder	..	156·98	255·50	219·17
Bhusa	..	50·23	23·41	34·63

The above, however, does not include grazing because it was not possible to form any idea of the amount of grass eaten by the cows. The cost has, however, been worked out from the amount of rent paid, as given in Statement 26. Including the cost of grazing, therefore, the total values of these feeds were as given below—(the corresponding figures for the College Dairy are also shown for comparison) :—

<i>Year.</i>	PER 100 LBS. OF MILK—				
	<i>Gujars.</i>		<i>College Dairy.</i>		
	<i>Amount.</i>	<i>Percentage of gross costs.</i>	<i>Amount.</i>	<i>Percentage of gross costs.</i>	
	Annas.	Per cent.	Annas.	Per cent.	
1932-33	..	43·12	61·55	41·71	40·44
1933-34	..	41·68	58·97	37·09	46·27
1934-35	..	38·28	62·70	32·94	44·87

58. *Manual Labour.*—Gujar A had two servants to assist him in his work throughout the period of the inquiry; B and C had one servant each for a part of the first year only, in addition to their own and their families' labour. Adult labour was paid at Rs. 13 per month, *i.e.*, Rs. 9 in cash, plus food valued at Rs. 4; and this rate was charged for all adult labour, both family and hired. Child family labour was charged at the rate of similar hired labour. Statement 27 shows the cost of labour of each Gujar in the three years, together with the cost at the College Dairy in these years :—

STATEMENT 27.
Cost of Manual Labour.

Gujars and College Dairy.	Total.	Per cow.	Per 100 lbs. of milk produced.	Percentage of total cost of production.
1932-33.	Rs. a. p.	Rs. a. p.	Annas.	Per cent.
Gujar A. ..	234 9 1	27 5 2	12-48	18-56
Gujar B. ..	207 8 6	27 15 11	14-49	18-80
Gujar C. ..	178 4 2	18 8 6	9-30	13-77
<i>All Gujars</i> ..	<i>620 5 9</i>	<i>24 3 5</i>	<i>11-87</i>	<i>16-93</i>
College Dairy ..	1,069 5 0	49 5 2	18-65	18-09
1933-34.				
Gujar A. ..	267 4 1	25 11 11	11-11	18-63
Gujar B. ..	160 14 9	20 3 0	11-96	12-87
Gujar C. ..	213 13 2	23 3 6	11-30	16-36
<i>All Gujars</i> ..	<i>642 0 0</i>	<i>23 4 7</i>	<i>11-37</i>	<i>16-08</i>
College Dairy ..	1,055 12 0	41 7 6	12-16	15-19
1934-35.				
Gujar A. ..	246 12 9	27 13 2	12-52	27-80
Gujar B. ..	135 1 5	25 13 3	14-71	18-48
Gujar C. ..	235 1 10	29 2 9	14-48	20-66
<i>All Gujars</i> ..	<i>617 0 0</i>	<i>27 13 6</i>	<i>13-67</i>	<i>22-38</i>
College Dairy ..	1,090 11 0	43 11 5	11-58	15-77

The cost of labour per 100 lbs. of milk was the highest for B and with one exception (1932-3), lowest for A. The differences are the result of variations in average production per cow. Taking the three men together, their cost was lower than that of the College Dairy except in 1934-5 when it was higher. The lower cost of the Gujars in the first year was due to the lower rate of wages than in the College Dairy, where the labourers get higher rates (Rs. 13 to Rs. 22 per month). Although the wages remained the same in the Dairy during the next two years—the cost per cow was roughly the same—yet the cost of labour per 100 lbs. of milk became nearly as low as that of the Gujars in 1933-4 and lower in 1934-5, because of the increased production per cow. As a percentage of the total cost the Dairy showed a higher proportion in the first year and the Gujars during the next two.

59. *Bullock Labour.*—Unlike the College Dairy the Gujars did not incur any expenditure on this account.

60. *Buildings.*—The part of the buildings used for housing cattle (including young stock) by Gujars A, B and C, were valued at Rs. 963-8-0, Rs. 653-8-0 and Rs. 158-8-0, respectively. A's buildings were thus the most costly and C's cheapest.

From the total cost of buildings the cows' share was determined in each case according to their numerical strength. In order to work out the cost of buildings to be charged to cows, interest was charged at 8 per cent., and depreciation at rates varying from 3½ to 50 per cent., according to the type of building and its estimated life. This cost for each of the Gujars is given separately in the following table, together with the figures for the College Dairy:—

STATEMENT 28.

Charges on Account of Buildings.

Gujars and College Dairy.	Total.	Per cow.	Per 100 lbs. of milk produced.	Percentage of total cost of production.
	Rs. a. p.	Rs. a. p.	Annas.	Per cent.
1932-33.				
Gujar A. ..	87 3 0	10 2 6	4.63	6.90
Gujar B. ..	49 5 3	6 11 2	3.44	4.47
Gujar C. ..	19 12 10	2 0 11	1.03	1.52
<i>All Gujars</i> ..	<i>156 5 1</i>	<i>6 1 7</i>	<i>2.99</i>	<i>4.27</i>
College Dairy ..	740 0 1	34 2 2	12.91	12.52
1933-34.				
Gujar A. ..	106 15 4	10 4 10	4.44	7.46
Gujar B. ..	63 5 6	7 15 2	4.71	5.07
Gujar C. ..	26 6 8	2 13 11	1.40	2.02
<i>All Gujars</i> ..	<i>196 11 6</i>	<i>7 2 2</i>	<i>3.49</i>	<i>4.93</i>
College Dairy ..	762 6 5	29 15 1	8.78	10.95
1934-35.				
Gujar A. ..	106 15 4	12 0 11	5.43	12.06
Gujar B. ..	56 6 0	10 12 6	6.14	7.71
Gujar C. ..	22 9 0	2 7 2	1.39	1.98
<i>All Gujars</i> ..	<i>185 14 4</i>	<i>8 6 3</i>	<i>4.12</i>	<i>6.74</i>
College Dairy ..	762 6 5	30 8 11	8.10	11.06

It will be seen that although the costs are generally higher during the last two years than in the first, there are greater variations among the Gujars from year to year, because of the differences in the values of their buildings. Those of C were the cheapest and the cost per 100 lbs. of milk was also the lowest ;

Gujar B had slightly better buildings, but the very much increased cost during the last year was due to the smaller number of cows maintained by him. The average cost of the Gujars' buildings was very much lower than those of the College Dairy which were all pacca and up-to-date, and cost very much more.

61. *Equipment.*—The cost of equipment is shown in the following statement :—

STATEMENT 29.
Cost of Equipment.

Gujars and College Dairy.	Total.	Per cow.	Per 100 lbs. of milk produced.	Percentage of total cost of production.
	Rs. a. p.	Rs. a. p.	Annas.	Per cent.
1932-33.				
Gujar A. ..	9 9 6	1 1 11	0-51	0-76
Gujar B. ..	6 13 2	0 14 9	0-48	0-62
Gujar C. ..	9 13 9	1 0 5	0-52	0-76
<i>All Gujars</i> ..	26 4 5	1 0 5	0-50	0-72
College Dairy ..	417 3 0	19 4 0	7-28	7-05
1933-34.				
Gujar A. ..	10 5 6	0 15 11	0-43	0-72
Gujar B. ..	7 1 3	0 14 3	0-53	0-57
Gujar C. ..	10 6 5	1 2 0	0-54	0-80
<i>All Gujars</i> ..	27 13 2	1 0 2	0-49	0-70
College Dairy ..	424 0 3	16 10 6	4-89	6-09
1934-35.				
Gujar A. ..	10 5 6	1 2 8	0-52	1-16
Gujar B. ..	7 13 2	1 7 11	0-85	1-07
Gujar C. ..	10 15 9	1 3 1	0-68	0-97
<i>All Gujars</i> ..	29 2 5	1 4 11	0-65	1-06
College Dairy ..	453 0 8	18 2 6	4-81	6-55

The charges on account of equipment form a very minor item in the cost of production of milk for the Gujars, and they were fairly uniform for all. They were very much higher in the College Dairy, as was to be expected seeing that the Gujars possess little in the way of equipment except for some cheap brass vessels and a few chains and ropes.

62. *Cow Cost.*—The next statement shows the cow cost for the different Gujars and for each year; figures of the College Dairy are also inserted for comparison :—

STATEMENT 30.

Cow-Cost.

Gujars and College Dairy.	Total.	Per cow.	Per 100 lbs. of milk produced.	Percentage of total cost of production.
1932-33.	Rs. a. p.	Rs. a. p.	Annas.	Per cent.
Gujar A. ..	192 0 8	22 5 10	10-21	15-19
Gujar B. ..	144 6 11	19 7 9	10-09	13-09
Gujar C. ..	213 11 11	22 3 6	11-15	16-50
<i>All Gujars</i> ..	550 3 6	21 7 7	10-52	15-02
College Dairy ..	665 7 11	30 11 1	11-61	11-26
1933-34.				
Gujar A. ..	158 3 7	15 4 0	6-58	11-03
Gujar B. ..	364 13 3	45 12 5	27-10	29-19
Gujar C. ..	191 9 7	20 12 10	10-12	14-66
<i>All Gujars</i> ..	714 10 5	25 14 9	12-66	17-90
College Dairy ..	815 12 6	32 0 8	9-40	11-73
1934-35.				
Gujar A.* ..	-82 0 10	-9 4 0	-4-16	-9-24
Gujar B. ..	98 4 6	18 12 8	10-71	13-45
Gujar C. ..	151 12 11	16 7 9	9-35	13-34
<i>All Gujars</i> ..	168 0 7	7 9 4	3-72	6-09
College Dairy ..	847 13 7	33 15 9	9-00	12-26

It will be remembered that Cow Cost includes the interest and depreciation on the value of cows, losses through death or sale at a lower price, and less profit made, if any, when sold at a price higher than their inventory value.

There is a considerable variation between the different Gujars and from year to year, according to the death or survival of their cows and the profit or loss incurred through sales. Thus during 1933-4, one of the cows of Gujar B died causing him to incur a loss of Rs. 88. Three more cows which had contracted some disease were sold at prices considerably lower than their inventory value, and this caused a further loss of Rs. 154-6-5. B's cow cost was, therefore, very high for that year, *i.e.*, Rs. 364-13-3. On the other hand during 1934-5, A sold 13 cows and earned a profit of Rs. 168-10-10. He replaced his better cows by buying cheaper ones and the profit thus made was more than the interest and depreciation in the value of his stock. His cow cost therefore for that year was a minus quantity to the amount of Rs. 82-0-10, as

* The cow-cost is a minus quantity in the case of Gujar A in 1934-5 as he made a profit through sale of his cows which exceeded the cow-cost.

shown in the above statement. The differences in the cost per 100 lbs. of milk produced are rather erratic and lack any definite trend. The figures for the College Dairy are higher than those of the Gujars because of the higher-priced cattle kept there.

63. *Bull Cost.*—As the Gujars did not keep a bull no expenditure was incurred by them under this head.

64. *Miscellaneous Costs.*—The cost on account of this item is shown for each Gujar for each year in the following statement; College Dairy figures are also shown for comparison:—

STATEMENT 31.
Miscellaneous Expenditure.

Gujars and College Dairy.	Total.	Per cow.	Per 100 lbs. milk produced.	Percentage of total cost of production.
1932-33.	Rs. a. p.	Rs. a. p.	Annas.	Per cent.
Gujar A. ..	22 14 4	2 10 8	1-22	1-80
Gujar B. ..	13 8 4	1 12 5	0-94	1-22
Gujar C. ..	19 1 1	1 15 9	1-60	1-47
<i>All Gujars</i> ..	55 7 9	2 2 8	1-06	1-51
College Dairy ..	336 2 5	15 8 1	5-86	5-68
1933-34.				
Gujar A. ..	32 0 9	3 1 5	1-33	2-23
Gujar B. ..	11 8 9	1 7 2	0-86	0-92
Gujar C. ..	13 4 3	1 7 0	0-70	1-01
<i>All Gujars</i> ..	56 13 9	2 1 0	1-01	1-42
College Dairy ..	349 3 10	13 11 6	4-02	5-01
1934-35.				
Gujar A. ..	9 14 3	1 1 10	0-51	1-11
Gujar B. ..	2 3 9	0 6 11	0-25	0-31
Gujar C. ..	16 2 10½	1 12 1	1-00	1-40
<i>All Gujars</i> ..	28 4 10½	1 4 5	0-62	1-03
College Dairy ..	331 14 2	13 4 10	3-52	4-80

As the Gujars used few accessories the cost of their miscellaneous expenditure is a very small item and much lower than that in the Dairy. The cost of medicines used in the treatment of cows made up a fair proportion of the miscellaneous cost in the Dairy, but the Gujars incurred little expenditure of this kind as they get the more serious cases of illness in their animals treated free in the adjoining District Board Veterinary Hospital, while for ordinary ailments

and slight disorders they use country medicines (such as oil), and these are very cheap.

65. *Summary of Costs.*—Statement No. 32 on pages 62 and 63 gives full details of each item of the total cost of milk production for each Gujar for each year and the following were the total costs on the basis of each 100 lbs. of milk produced :—

<i>Gujar.</i>	<i>1932-3.</i>	<i>1933-4.</i>	<i>1934-5.</i>	<i>Average.</i>
	<i>Annas.</i>	<i>Annas.</i>	<i>Annas.</i>	<i>Annas.</i>
A. ..	67-23	59-61	45-03	57-30
B. ..	77-08	92-88	79-61	83-46
C. ..	67-58	69-04	70-09	65-84
<i>Average</i> ..	<u>70-06</u>	<u>70-70</u>	<u>61-06</u>	<u>67-66</u>

Gujar A managed to produce milk more cheaply than the other two throughout the course of the inquiry because of the better organisation of his business in general, lower cost of feeding, owing to greater use of grazing, and lower cow cost (particularly during 1934-5) as a result of the sale of some of his cows at a considerable profit and their replacement by cheaper animals.

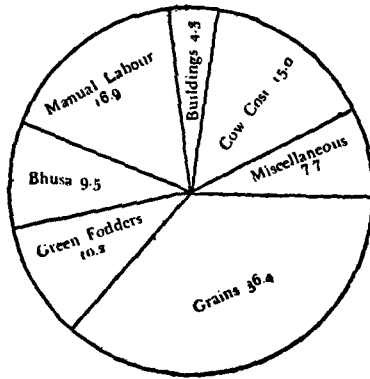
The cost of production was the highest in the case of Gujar B mainly because of the abnormal losses during 1933-4 in his stock from death and disease, amounting to 29-19 per cent. of the total cost. With this exception the cost in the case of the Gujars was always lower than that of the College Dairy. Chart 2 opposite, made in a similar manner to Chart 1, shows the gross costs of milk production on a percentage basis.

66. *Income from Sources other than Milk.*—This is shown in Statement 32 for each Gujar. Such income was from the following sources :—

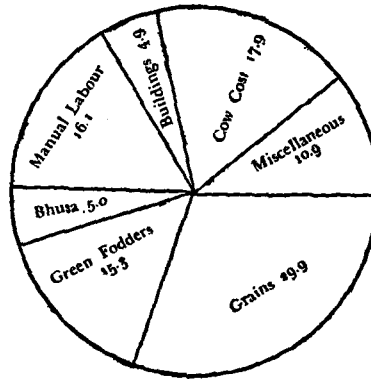
(a). *Calves.*—Although there were slight differences from year to year, the average income per cow for the three years amounted to Rs. 4-0-4 in the case of Gujar A, Rs. 3-7-11 for B, Rs. 3-9-1 for C, and Rs. 3-11-5 on the average for the three. This is higher than that in the College Dairy because in the latter case the calves are weaned at birth and valued at Re. 1 per male and Rs. 2 per female calf, whereas the Gujars allow the calves to suckle for from three to four months before weaning and then sell them at an average price of about Rs. 4 per calf. Because in the Gujars' accounts nothing has been allowed for the milk consumed by the calves, credit at a higher rate, which approximates to the value of the calves when weaned, has been given.

(b). *Manure.*—The income per 100 lbs. of milk produced from the dung dropped by cows, which was sold in the form of cakes by the Gujars, amounted on an average to 5-40 annas for A, 8-63 annas for B, 6-64 annas for C, and 6-61 annas for the three combined. This again is higher than the amount recorded for the

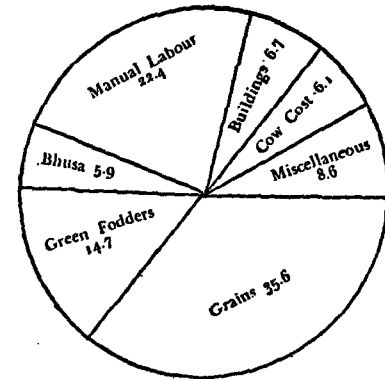
CHART II.
GUJARS.
GROSS COSTS OF MILK PRODUCTION ON A PERCENTAGE BASIS,
1932-33 to 1934-35.



1932-33



1933-34



1934-35

GUJAR MANDI, LYALLPUR



The picture shows a part of the Gujar Mandi at Lyallpur, with cows being milked by Gujars.

College Dairy, not because of any difference in the income from dung per cow, which is almost equal in both cases, but because of the higher average milk production per cow in the College Dairy.

(c). *Miscellaneous*.—It will be remembered that the foregoing were the only two sources of income from cows, apart from milk, in the College Dairy, but the Gujars received additional income from prizes won in the local horse and cattle fair and as rewards for their technical skill for services rendered to people in the handling and treatment of uncontrollable animals. (Such income has been shown as "Miscellaneous" income in Statement 32.) On an average, and for the whole period, it amounted to 0·98, 0·94 and 0·64 annas per 100 lbs. of milk produced in the case of A, B and C respectively, and 0·85 annas for the three combined.

(d). *Total*.—The value of total credits other than milk per 100 lbs. of milk produced were as follows:—

<i>Gujar.</i>		1932-33.	1933-34.	1934-25.	<i>Annual average.</i>
		Annas.	Annas.	Annas.	Annas.
A.	..	8·44	7·40	8·86	8·17
B.	..	11·59	10·06	13·54	11·52
C.	..	7·76	8·73	10·94	9·05
<i>Average</i>	..	<u>9·05</u>	<u>8·48</u>	<u>10·56</u>	<u>9·28</u>

67. *Net Cost of Milk Production*.—This was as follows per 100 lbs. of milk produced:—

<i>Gujar.</i>		1932-33.	1933-34.	1934-35.	<i>Annual average.</i>
		Annas.	Annas.	Annas.	Annas.
A.	..	58·79	52·21	36·17	49·13
B.	..	65·49	82·82	66·07	72·95
C.	..	59·82	60·31	59·15	59·79
<i>Average</i>	..	<u>61·01</u>	<u>62·22</u>	<u>50·50</u>	<u>58·38</u>
College Dairy	..	<u>97·62</u>	<u>75·81</u>	<u>69·52</u>	..

The average milk production per cow in the College Dairy was 4,172 lbs. for 1932-3, 5,493 lbs. in 1933-4 and 6,037 lbs. during 1934-5 and in the case of the Gujars it was 3,265, 3,276 and 3,259 lbs. respectively for these years. The College Dairy could not manage to produce milk as cheaply as the Gujars in spite of its very much higher production per cow, although as a result of the great improvement in milk production during 1933-4 and 1934-5 the cost was brought down considerably. The higher cost in the Dairy is not due to higher cost of food, which per 100 lbs. of milk produced was, as already mentioned, lower than in the case of the Gujars, but because of the very much higher over-head charges.

STATE
Summary of the Costs

Particulars.	Cujar.	1932-33.				1933-34.						
		Total.		Per cow.	Per 100 lbs. milk produced.	Percentage of total cost.	Total.		Per cow.	Per 100 lbs. milk produced.		
		Rs.	a. p.	Rs.	a. p.	Annas.	Per cent.	Rs.	a. p.	Rs.	a. p.	Annas.
Costs.												
Feed	A.	622	12 8	72	8 6	33-13	49-27	717	15 3	69	2 8	29-83
	B.	638	11 9	86	2 6	44-59	57-85	555	11 1	69	11 7	41-29
	C.	792	4 5	82	5 10	41-34	61-18	730	11 1	79	5 5	38-60
	All	2,053	12 10	80	2 7	39-28	56-07	2,004	5 5	72	11 2	35-50
Manual Labour.	A.	234	9 1	27	5 2	12-48	18-56	267	4 1	25	11 11	11-11
	B.	207	8 6	27	15 11	14-49	18-80	160	14 9	20	3 0	11-96
	C.	178	4 2	18	8 6	9-30	13-77	213	13 2	23	3 6	11-30
	All	620	5 9	24	3 5	11-87	16-93	642	0 0	23	4 7	11-37
Buildings	A.	87	3 0	10	2 6	4-63	6-90	106	15 4	10	4 10	4-44
	B.	49	5 3	6	11 2	3-44	4-47	63	5 6	7	15 2	4-71
	C.	19	12 10	2	0 11	1-03	1-52	26	6 8	2	13 11	1-40
	All	156	5 1	6	1 7	2-99	4-27	196	11 6	7	2 2	3-49
Equipment	A.	9	9 6	1	1 11	0-51	0-76	10	5 6	0	15 11	C-43
	B.	6	13 2	0	14 9	0-48	0-62	7	1 3	0	14 3	0-53
	C.	9	13 9	1	0 5	0-52	0-76	10	6 5	1	2 0	C-54
	All	26	4 5	1	0 5	0-50	0-72	27	13 2	1	0 2	0-49
Cow Cost	A.	192	0 8	22	5 10	10-21	15-19	158	3 7	15	4 0	6-58
	B.	144	6 11	19	7 9	10-09	13-09	364	13 3	45	12 5	27-10
	C.	213	11 11	22	3 6	11-15	16-50	191	9 7	20	12 10	10-12
	All	550	3 6	21	7 7	10-52	15-02	714	10 5	25	14 9	12-68
Miscellaneous.	A.	22	14 4	2	10 8	1-22	1-80	32	0 9	3	1 5	1-33
	B.	13	8 4	1	12 5	0-94	1-22	11	8 9	1	7 2	0-86
	C.	19	1 1	1	15 9	1-00	1-47	13	4 3	1	7 0	0-70
	All	55	7 9	2	2 8	1-06	1-51	56	13 9	2	1 0	1-01
Grazing	A.	95	0 0	11	1 0	5-05	7-52	141	11 4	13	10 5	5-89
	B.	43	11 0	5	14 3	3-05	3-95	86	8 10	10	13 9	6-43
	C.	62	1 2	6	7 3	3-24	4-80	120	13 7	13	1 11	6-38
	All	200	12 2	7	13 5	3-84	5-48	349	1 9	12	10 7	6-18
Total Cost	A.	1,264	1 3	147	3 7	67-23	100-00	1,434	7 10	138	3 2	59-61
	B.	1,104	0 11	148	14 9	77-08	100-00	1,249	15 5	156	13 4	92-88
	C.	1,295	1 4	134	10 2	67-58	100-00	1,307	0 9	141	14 7	69-04
	All	3,663	3 6	142	15 8	70-06	100-00	3,991	8 0	144	12 8	70-70
Credits not milk:												
Calves	A.	36	0 0	4	3 1	1-92	..	44	0 0	4	3 10	1-83
	B.	36	0 0	4	13 8	2-51	..	16	0 0	2	0 1	1-19
	C.	36	0 0	3	11 10	1-88	..	40	0 0	4	5 6	2-12
	All	108	0 0	4	3 5	2-06	..	100	0 0	3	10 0	2-65
Manure	A.	101	6 3	11	12 11	5-39	..	109	14 8	10	9 5	4-57
	B.	109	15 3	14	13 4	7-68	..	104	12 1	13	2 4	7-78
	C.	111	12 5	11	9 11	5-83	..	114	3 11	12	6 6	6-03
	All	323	7 11	12	9 9	6-18	..	328	14 8	11	14 11	6-83
Miscellaneous.	A.	21	4 0	2	7 8	1-13	..	24	0 0	2	5 0	1-00
	B.	20	0 0	2	11 2	1-40	..	14	9 6	1	13 4	1-09
	C.	1	0 0	0	1 8	C-05	..	11	0 0	1	3 1	0-58
	All	42	4 0	1	10 5	0-81	..	49	9 6	1	12 9	0-88
Total Credits.	A.	158	10 3	18	7 8	8-44	..	177	14 8	17	2 3	7-40
	B.	165	15 3	22	6 2	11-59	..	135	5 7	16	15 9	10-06
	C.	148	12 5	15	7 5	7-76	..	165	3 11	17	15 1	8-73
	All	473	5 11	18	7 7	9-05	..	478	8 2	17	8 8	8-48
Net Cost	A.	1,105	7 0	128	11 11	58-79	..	1,256	9 2	121	0 11	52-21
	B.	938	1 8	126	8 7	65-49	..	1,114	9 10	139	13 7	82-82
	C.	1,146	4 11	119	2 9	59-82	..	1,141	12 10	123	15 6	60-31
	All	3,189	13 7	124	3 1	61-01	..	3,512	15 10	127	6 9	62-22

MENT 32.
of Milk Production.

Percentage of total cost.	1934-35.				AVERAGE 1932-33 TO 1934-35.			
	Total.	Per cow.	Cost per 100 lbs. milk produced.	Percentage of total cost.	Total.	Per cow.	Per 100 lbs. milk produced.	Percentage of total cost.
Percent.	Rs. a. p.	Rs. a. p.	Annas.	Per cent.	Rs. a. p.	Rs. a. p.	Annas.	Percent
50.05	514 7 3	58 0 0	26.09	57.96	1,855 3 2	66 9 10	29.64	51.73
44.46	388 3 0	74 3 7	42.28	53.10	1,582 9 10	76 12 8	42.82	51.30
55.90	646 12 11	70 3 8	39.82	56.84	2,169 12 5	80 11 1	39.93	58.01
60.22	1,549 7 2	69 14 9	34.32	56.21	5,607 9 5	74 6 9	36.44	53.86
18.53	246 12 9	27 13 2	12.52	27.80	748 9 11	26 14 1	11.96	20.88
12.87	135 1 5	25 13 3	14.71	18.48	503 8 8	24 6 11	13.62	16.32
16.36	235 1 10	29 2 9	14.48	20.66	627 3 2	23 5 2	11.54	16.77
16.08	617 0 0	27 13 6	13.67	22.38	1,579 5 9	24 15 1	12.21	18.05
7.46	106 15 4	12 0 11	5.43	12.06	301 1 8	10 12 11	4.91	8.40
5.07	56 6 0	10 12 6	6.14	7.71	169 0 9	8 3 3	4.57	5.48
2.02	22 9 0	2 7 2	1.39	1.98	68 12 6	2 8 11	1.27	1.84
4.93	185 14 4	8 6 3	4.12	6.74	638 14 11	7 2 5	3.52	5.16
0.72	10 5 6	1 2 8	0.52	1.16	30 4 6	1 1 5	0.48	0.84
0.57	7 13 2	1 7 11	0.85	1.07	21 11 7	1 10 10	0.59	0.70
0.80	10 15 9	1 3 1	0.68	0.97	31 3 11	1 2 7	0.58	0.84
0.70	29 2 5	1 4 11	0.65	1.06	83 4 0	1 1 8	0.54	0.81
11.03	82 0 10	9 4 0	4.16	9.24	268 3 5	9 10 1	4.29	7.48
29.19	98 4 6	18 12 8	10.71	13.45	607 8 8	29 7 8	16.44	19.70
14.66	151 12 11	16 7 9	9.35	13.34	557 2 5	20 11 6	10.25	14.90
17.60	168 0 7	7 9 4	3.72	6.69	1,432 14 6	19 0 3	9.31	13.77
2.23	9 14 3	1 1 10	0.51	1.11	64 13 4	2 5 3	1.04	1.81
0.92	2 3 9	0 6 11	0.25	0.31	27 4 10	1 5 2	0.74	0.88
1.01	16 2 10 1/2	1 12 1	1.00	1.40	48 8 2 1/2	1 12 11	0.89	1.29
1.42	28 4 16 1/2	1 4 5	0.62	1.03	140 10 4 1/2	1 13 10	0.91	1.35
9.88	81 3 5	9 2 6	4.12	9.15	317 14 9	11 6 8	5.08	8.86
6.92	42 15 4	8 3 5	4.67	5.88	173 3 2	8 6 5	4.68	5.62
9.25	54 11 2	5 15 0	3.37	4.81	237 9 11	8 13 5	4.38	6.35
8.75	178 13 11	8 1 2	3.96	6.49	728 11 10	9 10 9	4.73	7.00
100.00	887 9 8	100 1 1	45.03	100.00	3,586 2 9	128 12 3	57.30	100.00
100.00	730 15 2	139 12 3	75.61	100.00	3,024 15 6	149 10 11	83.46	100.00
100.00	1,138 2 5 1/2	127 3 6	70.09	100.00	3,740 4 6 1/2	139 1 7	68.84	100.00
100.60	2,756 11 3 1/2	124 6 4	61.66	100.00	10,411 6 9 1/2	138 2 10	67.66	100.00
..	32 0 0	3 9 9	1.62	..	112 0 0	4 0 4	1.79	..
..	20 0 0	3 13 2	2.18	..	72 0 0	3 7 11	1.95	..
..	20 0 0	2 2 9	1.23	..	96 0 0	3 9 1	1.77	..
..	72 0 0	3 4 0	1.59	..	260 0 0	3 11 5	1.82	..
..	126 10 3	14 4 3	6.43	..	337 15 2	12 2 2	5.40	..
..	104 4 7	19 15 1	11.36	..	318 15 11	15 7 8	8.63	..
..	134 10 1	14 9 10	8.29	..	360 10 5	13 6 7	6.64	..
..	365 8 11	16 7 11	8.10	..	1,017 9 6	13 8 1	6.61	..
..	16 0 0	1 13 0	0.81	..	61 4 0	2 3 2	0.98	..
..	..	..	..	..	34 9 6	1 10 10	0.94	..
..	23 0 0	2 7 11	1.42	..	35 0 0	1 4 10	0.64	..
..	39 0 0	1 12 2	0.87	..	130 13 6	1 11 9	0.85	..
..	174 10 3	19 11 0	8.86	..	511 3 2	18 5 8	8.17	..
..	124 4 7	23 12 3	13.54	..	425 9 5	20 10 5	11.52	..
..	177 10 1	19 4 6	10.94	..	491 10 5	18 4 6	9.05	..
..	476 8 11	21 8 0	10.56	..	1,428 7 0	18 15 3	9.28	..
..	712 15 5	80 6 1	36.17	..	3,074 15 7	110 6 7	49.13	..
..	606 10 7	116 0 0	66.07	..	2,659 6 1	129 0 6	72.95	..
..	960 8 4 1/2	107 15 0	59.15	..	3,248 10 1 1/2	120 13 1	59.79	..
..	2,280 2 4 1/2	102 14 4	50.60	..	8,982 15 9 1/2	119 3 7	58.38	..

This lower cost of production of milk in the case of the professional cow keepers reveals an important reason for the lack of enterprise in starting modern dairies on a commercial scale for the supply of milk to Indian cities. The only possibility of making a dairy farm run on modern lines, financially successful, is, as has been shown by the accounts of the College Dairy, to reduce the cost of production of milk by improving the yield per cow. That a great improvement is possible in this respect is shown by the experience gained at the College Dairy, where the average milk production per cow has increased three-and-a-half times during the course of the last twenty years—from about 2,000 lbs. in 1914-5 to about 7,000 lbs. in 1936-7—through following a policy of selective breeding, intelligent culling and scientific management.

68. *Financial Position of the Gujars.*—The average cost of milk production for the total period approximated to Rs. 0-1-3 per seer in the case of the Gujars and the sale price of their milk varied from Rs. 0-1-6 to Rs. 0-1-9 per seer. Taking the lower figure (Rs. 0-1-6), the Gujars' profit on a cow giving 3,268 lbs. per annum on an average, amounted to Rs. 25-8-0. This is in addition to the wages they and the members of their families were credited with as labourers, and interest on the cost of capital outlay on the little equipment owned and used for milk production. The profit is not much when it is borne in mind that the business is open to serious risks because of death and disease in the live stock, as actually happened in the case of Gujar B in 1933-4 when his cow cost was nearly 30 per cent. of the total cost as against 13 per cent. in the other two years. He therefore increased his profits by selling more highly watered milk or goats' milk, as pure cows' milk. The amount of adulteration varied from Gujar to Gujar and even with the same Gujar at different times of the year, according to his supply of milk and its demand. It was always difficult to determine the exact amount of adulteration, as this was naturally kept a closely guarded secret, but it is estimated that one seer of water to 4 to 5 seers of milk, *i.e.*, from 20 to 25 per cent., was the average extent of the adulteration, when it was done.

This mal-practice is not adopted by the modern dairyman who tries to give an honest deal to his customers, but such a virtue definitely stands in the way of his concern becoming financially successful in competition with the irresponsible adulterator. If modern dairies, run on up-to-date lines, are to be a success financially, it is essential that the honest milk producer be protected through effective legislation preventing the sale of adulterated milk on a small scale.

SUMMARY OF PART II.

In order to work out the cost of production of milk by Gujars in Gujar Mandi, Lyallpur, the day-to-day accounts of income and expenditure of three Gujars were started in 1932 and maintained for three years. The total number of cows kept by these men was, on an average, about 25 per year, *i.e.*, a little over 8 per Gujar per year. The average milk yield per cow per year was 3,268 lbs. as compared with an average of 5,234 lbs. in the College Dairy for the same period. This difference in the milk yield was due to the fact that Gujars purchased cows to replace the dry and old ones, while the College Dairy replaced the old cows by drafting home-bred stock.

Another difference in the management was that the Gujar fed 3·4 lbs. more concentrates to produce 100 lbs. of milk than was done in the Dairy. Their concentrated ration contained more gram and they fed more bhusa and less of green fodder than did the College Dairy. As the concentrates were bought at a higher rate than those in the Dairy and also because a larger amount was fed, the cost of feeding was higher than that in the College Dairy and formed a higher percentage of the total cost of milk production.

The cost of manual labour per cow was much higher in the Dairy than it was with the Gujars because the labourers employed by the former were paid higher wages. The cost per 100 lbs. of milk, however, was less in 1934-5 in the case of the College Dairy because there the yield of milk per cow was higher. In 1933-4 the cost per 100 lbs. of milk was almost equal in both cases while in 1932-3 it was higher in the case of the Dairy owing to low yield.

As the buildings of the Gujars were of a very cheap type the cost per cow, and even per 100 lbs., was much lower than it was in the Dairy where all the buildings were relatively expensive; and the same remark applies to equipment.

The cost per cow was lower in the case of Gujars than in the Dairy, but per 100 lbs. of milk produced it was nearly equal in the year 1932-3, higher in 1933-4 and lower in 1934-5. The expenses under the item "Miscellaneous" were also much lower in the case of the Gujars.

The average gross cost of producing 100 lbs. of milk for the three years for all the three Gujars came to 67·66 annas. Deducting 9·28 annas, which was the income from sources other than milk, *i.e.*, income from calves, manure and miscellaneous, the net cost per 100 lbs. comes to 58·38 annas, as against 78·57 annas in the College Dairy.

The various items of cost and the percentage that each formed of the average gross cost of producing milk are given below :—

<i>Items.</i>	<i>Percentage.</i>
1. Feed	53·86
2. Grazing	7·00
3. Manual Labour	18·05
4. Buildings	5·16
5. Equipment	0·81
6. Cow Cost	13·77
7. Miscellaneous	1·35
<i>Total</i>	<u>100·00</u>

There was great variation in the cost of production of milk from year to year and from Gujar to Gujar. The lowest net cost was in the case of Gujar A for the year 1934-5 (36·17 annas); while the maximum was in the case of Gujar B for the year 1933-4 (82·82 annas). On an average the net cost per 100 lbs. for the three men came to 61·01 annas in 1932-3, 62·22 in 1933-4 and 50·50 in 1934-5, *i.e.*, an average of 58·38 annas for the whole period.

A final word may be added about the comparative cost of milk production by these Gujars and the College Dairy. It has been stated that the cost of production by the former on the average for three years came to 7 pies per lb. as against 9·4 pies in the College Dairy. The latter thus produced milk at a higher cost than the Gujars, in spite of the fact that the average yield per cow was very much higher. On further analysis of the various items of cost, this appears to be due to the higher overhead cost, and particularly in the charges for buildings and equipment in the Dairy. Judging from the cost of food alone, the cost is lower in the College Dairy than with the Gujars.

APPENDIX A

COST OF PRODUCTION OF FODDERS AT THE COLLEGE DAIRY

STATEMENT 32.—In the Years 1931-32 and 1932-33.

Items.	CHARI-GUARA, CHARI, ETC.		CHARI HAY.	MAIZE.		BERSEEM.		OATS.	
	1931-32.	1932-33.	1932-33.	1931-32.	1932-33.	1931-32.	1932-33.	1931-32.	1932-33.
Total Area ..	K. M.	K. M.	K. M.	K. M.	K. M.	K. M.	K. M.	K. M.	K. M.
Total Yield ..	46 12	33 5	12 12	33 3	56 2	22 0	26 6	19 3	32 2
	100,828 lbs.	84,411 lbs.	8,399 lbs.	61,441 lbs.	95,721 lbs.	169,847 lbs.	209,926 lbs.	77,329 lbs.	83,003 lbs.
Manual Labour ..	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.
Bullock Labour ..	28 5 11	24 13 3	9 6 11	32 8 0	47 15 4	28 14 3	41 2 10	17 12 9	21 13 8
Seed ..	92 1 3	79 15 8	21 15 10	84 7 7	137 2 5	63 4 1	72 12 7	53 1 3	69 10 0
	11 11 0	8 3 5	3 0 10.5	7 14 0	13 10 4	11 6 0	15 12 0	6 2 6	12 0 0
Manure ..	100 12 10	76 9 7	27 9 7	42 12 9	163 9 7	151 12 11	134 6 5	29 12 9	96 0 0
Implements ..	10 2 2	3 7 5	0 14 5	9 4 9	5 15 0	6 15 5	2 14 4	5 13 5	2 12 6
Water Rate ..	8 11 10	6 3 0	2 4 3.5	15 5 3	25 3 11.5	4 2 0	4 14 11	12 9 0	21 1 0
Land Revenue and Rent ..	127 11 2	80 14 4	29 7 0	90 13 5	137 8 6	60 4 7	63 15 9	52 7 7	78 1 7
Total Cost ..	379 8 2	280 2 8	94 10 11	283 1 9	531 1 1	326 11 3	335 14 10	177 11 3	301 6 9
Less Value of Seed ..	..	..	..	..	..	27 8 0	..	..	..
Net Cost ..	379 8 2	280 2 8	94 10 11	283 1 9	531 1 1	299 3 3	335 14 10	177 11 3	301 6 9
Cost per acre ..	65 2 5	67 6 7	62 8 0	68 5 2	75 11 8	108 12 10	102 3 2	74 3 9	75 2 1
Yield per acre ..	212.0 Mds.	247.7 Mds.	65.0 Mds.	180.8 Mds.	166.5 Mds.	753.2 Mds.	778.8 Mds.	393.9 Mds.	252.3 Mds.
Cost per maund ..	0 4 11	0 4 4	0 15 4.6	0 6 0	0 7 3	0 2 4	0 2 1	0 3 0	0 4 9

(Continued.)

APPENDIX A.—Continued.
COST OF PRODUCTION OF FODDERS AT THE COLLEGE DAIRY
STATEMENT 32.—In the Years 1931-32 and 1932-33.

(Concluded.)

Items.	SUDAN GRASS.		JAPAN SARSON.		GRAM.	TURNIPS.	RAYA.	ALL GREEN FODDERS.	
	1931-32.		1931-32.	1932-33.	1932-33.	1931-32.	1931-32.	1931-32.	1932-33.
	K. M.		K. M.	K. M.	K. M.	K. M.	K. M.	K. M.	K. M.
Total Area ..	9 11		3 17	12 17	18 11	4 10	7 16	146 12	179 3
Total Yield ..	25,206 lbs.		13,502 lbs.	15,896 lbs.	17,274 lbs.	18,424 lbs.	29,339 lbs.	495,916 lbs.	506,121 lbs.
	Rs. a. p.		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual Labour ..	10 12 4		2 2 3	7 9 4	8 2 9	3 5 10	7 1 7	130 14 11	151 9 2
Bullock Labour ..	28 4 2		7 9 8	24 3 8	21 12 6	12 0 2	25 0 4	365 12 5	405 8 10
Seed ..	3 0 0		0 10 0	3 0 0	2 1 7	1 8 0	0 12 0	42 15 6	54 11 4
Manure ..	30 12 10		2 6 5	24 3 2	30 6 4	21 6 4	24 12 8	404 9 6	525 3 1
Implements ..	3 1 9		0 13 5	0 15 7	0 13 10	1 5 2	2 12 0	40 4 1	16 14 8
Water Rate ..	1 12 9		2 0 4	6 13 3	7 8 7	0 13 6	4 2 3	49 9 4	71 12 8-5
Land Revenue and Rent ..	26 2 8		10 8 9	31 4 2	45 2 1	12 5 4	21 6 0	401 11 6	436 14 5
Total Cost ..	103 14 6		26 3 3	99 2 2	115 15 8	52 12 4	55 14 10	1,435 13 4	1,663 11 2
Less Value of Seed ..	..		..	..	..	..	..	27 8 0	..
Net Cost ..	103 14 6		26 3 3	99 2 2	115 15 8	52 12 4	55 14 10	1,408 5 4	1,663 11 2
Cost per acre ..	87 0 8		54 7 2	47 5 2	40 9 11	93 13 0	88 2 1	76 13 8	74 4 8
Yield per acre ..	257.5 Mds.		342.1 Mds.	121.4 Mds.	90.8 Mds.	399.4 Mds.	367.0 Mds.	330.0 Mds.	275.6 Mds.
Cost per maund ..	0 5 5		0 2 7	0 8 2	0 8 9	0 3 9	0 3 10	0 3 8-7	0 4 3-75

APPENDIX A.—Continued.
COST OF PRODUCTION OF FODDERS AT THE COLLEGE DAIRY
STATEMENT 33.—In the Years 1933-34 and 1934-35.

Items.	MAIZE.		CHARI.		JAPAN SARSON.		TURNIPS.	
	1933-34.	1934-35.	1933-34.	1934-35.	1933-34.	1934-35.	1933-34.	
	K. M.	K. M.	K. M.	K. M.	K. M.	K. M.	K. M.	
Total Area	118 5	102 10	25 3	43 12	14 18	11 0	16 14	
Total Yield	239,484 lbs.	225,688 lbs.	61,574 lbs.	109,299 lbs.	40,875 lbs.	49,141 lbs.	95,806 lbs.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual Labour	72 9 6	93 12 10	15 11 3	33 6 11	11 10 3	10 5 4	11 0 6	
Bullock Labour	253 2 5	245 12 10	49 15 4	91 10 1	31 13 5	27 11 6	27 3 5	
Seed	31 2 4	24 7 4	7 4 2	12 2 2	0 14 0	0 10 0	3 0 0	
Manure	291 12 10	296 12 10	53 0 0	50 12 10	49 12 10	43 12 10	19 3 2	
Implements	20 2 11	21 5 11	4 6 7	8 0 0	2 11 5	2 7 4	2 6 0	
Water Rate	60 10 0	53 3 7	4 11 5	8 2 10	7 14 8	5 13 6	3 2 1	
Land Revenue and Rent	252 0 10	239 12 3	53 9 9	101 15 10	31 12 2	25 11 8	35 9 6	
<i>Total Cost</i>	<i>981 8 10</i>	<i>975 3 7</i>	<i>188 10 6</i>	<i>306 2 8</i>	<i>136 8 9</i>	<i>116 8 2</i>	<i>101 8 8</i>	
Cost per acre	66 6 6	76 1 10	60 0 2	56 2 10	73 5 0	84 11 9	48 10 3	
Yield per acre	197.6 Mds.	214.8 Mds.	238.8 Mds.	244.6 Mds.	267.6 Mds.	435.8 Mds.	559.7 Mds.	
Cost per maund	0 5 5	0 5 8	0 4 0	0 3 8	0 4 5	0 3 1	0 1 4.6	

(Continued.)

APPENDIX A.—Concluded.
COST OF PRODUCTION OF FODDERS AT THE COLLEGE DAIRY
STATEMENT 33.—In the Years 1933-34 and 1934-35.

(Concluded.)

Items.	TURNIPS.		OATS.		BERSEEM.		ALL GREEN FODDERS.							
	1934-35.		1933-34.		1934-35.		1933-34.		1934-35.					
	K.	M.	K.	M.	K.	M.	K.	M.	K.	M.				
Total Area	11	4	33	10	54	2	26	10	39	10	235	0	261	18
Total Yield	55,865 lbs.		104,942 lbs.		132,601 lbs.		213,574 lbs.		370,114 lbs.		756,255 lbs.		942,708 lbs.	
	Rs. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.	
Manual Labour — ..	7	11 9	30	2 1	36	11 4	32	12 0	51	1 11	173	13 7	233	2 1
Bullock Labour — ..	20	4 3	85	12 8	97	6 4	54	0 9	72	0 5	502	0 0	554	13 5
Seed — ..	2	0 0	9	12 3	11	11 8	19	3 8	21	12 0	71	4 5	72	11 2
Manure — ..	3	9 7	134	3 2	74	9 7	90	6 5	107	0 0	638	6 5	576	9 8
Implements	0	9 11	7	4 11	8	10 7	4	9 8	6	6 7	41	9 6	47	8 4
Water Rate	2	1 7	21	15 9	35	8 1	4	15 6	7	6 6	103	5 5	112	4 1
Land Revenue and Rent ..	26	3 2	71	6 6	126	8 10	56	7 9	92	6 4	500	14 6	612	10 1
<i>Total Cost</i>	<i>63 10 9</i>		<i>360 9 4</i>		<i>391 2 5</i>		<i>263 7 9</i>		<i>334 14 9</i>		<i>2,032 5 10</i>		<i>2,187 10 4</i>	
Cost per acre	45	7 8	86	2 11	57	13 5	79	8 8	67	13 4	69	3 0	66	12 7
Yield per acre	486.6 Mds.		305.6 Mds.		239.1 Mds.		786.3 Mds.		914.1 Mds.		313.96 Mds.		351.2 Mds.	
Cost per maund	0	1 6	0	4 6.09	0	3 10.4	0	1 7.4	0	1 2.24	0	3 6.3	0	3 0.5

APPENDIX B
QUANTITIES AND VALUES OF THE CONCENTRATES USED BY THE GUJARS
STATEMENT 34-A.—Gujar A.

Concentrates.	Year.	Total quantity consumed.	Total cost.	Average price per maund.	Quantity used per 100 lbs. of milk produced.	Cost per 100 lbs. of milk produced.	PERCENTAGE OF TOTAL.	
							Quantity.	Value.
		Mds. S. Ch.	Rs. a. p.	Rs. a. p.	lbs.	Annas.	Per cent.	Per cent.
Wheat bran ..	1932-33	14 12 0	24 0 5	1 10 11	3-90	1-28	7-67	5-93
	1933-34	35 20 7	44 14 9	1 4 3	7-56	1-87	16-63	10-12
	1934-35	22 39 15	29 0 9	1 4 3	5-98	1-47	12-90	8-63
Gram ..	1932-33	133 4 13	309 3 1	2 5 2	36-29	16-44	71-39	76-18
	1933-34	163 37 15	373 0 11	2 4 5	34-92	15-50	76-82	83-88
	1934-35	143 39 13	291 14 0	2 0 5	37-43	14-80	80-77	86-75
Torica cake ..	1932-33	0 21 10	1 0 11	1 15 4	0-15	0-05	0-30	0-23
	1933-34	1 6 9	1 13 7	1 9 6	0-25	0-08	0-55	0-43
	1934-35	0 25 8	0 11 3	1 1 8	0-17	0-04	0-36	0-23
Massar ..	1932-33	9 12 0	16 12 11	1 12 11	2-54	0-88	5-00	4-08
	1933-34	1 25 10	2 7 10	1 8 3	0-35	0-10	0-77	0-54
	1934-35	1 12 9	2 6 5	1 13 3	0-34	0-12	0-73	0-70
Mamni ..	1932-33	7 5 3	11 9 5	1 10 0	1-94	0-65	3-82	3-01
	1933-34	0 20 0	0 13 0	1 10 0	0-11	0-03	0-24	0-16
	1934-35	7 13 7	9 9 9	1 5 0	1-91	0-49	4-14	2-87
Gram husk ..	1932-33	5 30 13	11 4 0	1 15 2	1-57	0-57	3-09	2-64
	1933-34	6 25 5	12 0 2	1 13 0	1-41	0-50	3-10	2-71
	1934-35	1 39 5	2 11 7	1 6 0	0-51	0-14	1-10	0-82
Masar husk ..	1932-33	3 30 0	6 9 9	1 12 2	1-02	0-34	2-01	1-57
Barley ..	1932-33	12 20 13	25 0 6	2 0 0	3-41	1-36	6-71	6-30
	1933-34	4 1 9	9 9 11	2 6 1	0-86	0-40	1-89	2-16
Cotton-seed ..	1932-33	0 2 6	0 2 9	2 13 10	0-01	0-01	0-01	0-06
<i>Total</i> ..	1932-33	186 19 10	405 11 9	2 2 10	50-83	21-58	100-00	100-00
	1933-34	213 17 7	444 12 2	2 1 4	45-46	18-48	100-00	100-00
	1934-35	178 10 9	336 5 9	1 14 2	46-34	17-06	100-00	100-00

APPENDIX B.—Continued.
QUANTITIES AND VALUES OF THE CONCENTRATES USED BY THE GUJARS
STATEMENT 34-B.—Gujar B.

Concentrates.	Year.	Total quantity consumed.	Total cost.	Average price per maund.	Quantity used per 100 lbs. of milk produced.	Cost per 100 lbs. of milk produced.	PERCENTAGE OF TOTAL.		
							Quantity.	Value.	
		Mds. S. Ch.	Rs. a. p.	Rs. a. p.	lbs.	Annas.	Per cent.	Per cent.	
Wheat bran ..	{	1932-33	58 34 0	93 1 10	1 9 4	21-06	6-50	29-18	22-57
		1933-34	21 5 13	31 2 8	1 7 7	8-05	2-32	16-41	10-67
		1934-35	42 3 8	55 13 5	1 5 3	23-49	6-08	30-79	22-50
Gram ..	{	1932-33	115 39 10	270 2 7	2 5 3	41-50	18-86	57-50	65-49
		1933-34	91 29 0	223 6 10	2 7 0	34-93	16-60	71-20	76-36
		1934-35	74 22 11	158 0 6	2 1 11	41-62	17-21	54-55	63-69
Torja cake ..	{	1932-33	6 28 0	12 1 8	1 12 11	2-40	0-85	3-32	2-95
		1933-34	0 6 8	0 3 4	1 4 6	0-06	0-02	0-12	0-09
		1934-35	1 0 0	1 5 3	1 5 3	0-56	0-14	0-73	0-52
Massar ..	{	1932-33	2 35 9	2 11 6	0 15 1	1-03	0-19	1-43	0-66
		1934-35	10 14 5	20 12 11	2 0 2	5-78	2-27	7-58	8-40
Mamni ..	{	1932-33	0 39 10	1 9 9	1 10 0	0-35	0-11	0-48	0-38
		1934-35	2 27 1	4 1 7	1 8 6	1-50	0-45	1-97	1-67
Gram husk ..	{	1933-34	2 12 15	4 3 1	1 12 10	0-89	0-31	1-81	1-43
		1934-35	1 3 9	1 10 1	1 7 11	0-61	0-18	0-80	0-67
Masar husk ..		1934-35	4 35 13	6 4 10	1 4 7	2-73	0-69	3-58	2-55
Barley ..	{	1932-33	16 12 6	32 13 1	2 1 2	5-84	2-29	8-09	7-95
		1933-34	13 18 6	33 8 4	2 7 10	5-13	2-49	10-46	11-45
Total ..	{	1932-33	201 29 3	412 8 5	2 0 9	72-18	28-80	100-00	100-00
		1933-34	128 32 10	292 8 3	2 4 4	49-06	21-74	100-00	100-00
		1934-35	136 26 15	248 0 7	1 13 0	76-29	27-02	100-00	100-00

APPENDIX B.—Concluded.
QUANTITIES AND VALUES OF THE CONCENTRATES USED BY THE GUJARS
STATEMENT 34-C.—Gujar C.

Concentrates.	Year.	Total quantity consumed.	Total cost.	Average price per maund.	Quantity used per 100 lbs. of milk produced.	Cost per 100 lbs. of milk produced.	PERCENTAGE OF TOTAL	
							Quantity.	Value.
		Mds. S. Ch.	Rs. a. p.	Rs. a. p.	lbs.	Annas.	Per cent.	Per cent.
Wheat bran ..	1932-33	63 8 13	102 14 5	1 10 1	16-91	5-37	26-06	20-03
	1933-34	61 30 11	85 5 8	1 6 1	16-72	4-51	28-11	18-79
	1934-35	70 9 3	89 12 3	1 4 5	22-16	5-53	31-83	22-65
Gram ..	1932-33	163 39 3	380 0 7	2 5 1	43-86	19-83	67-58	73-97
	1933-34	148 34 10	353 12 6	2 6 0	40-30	18-69	67-76	77-88
	1934-35	137 24 2	285 5 2	2 1 2	43-42	17-57	62-36	71-98
Toria cake ..	1932-33	10 38 12	21 12 7	1 15 10	2-93	1-14	4-51	4-25
	1933-34	2 13 7	3 6 2	1 7 2	0-63	0-18	1-06	0-75
	1934-35	2 12 7	3 1 2	1 5 3	0-73	0-19	1-05	0-78
Massar ..	1932-33	1 8 6	2 6 4	1 15 9	0-32	0-13	0-49	0-48
	1933-34	6 17 12	11 5 4	1 12 2	1-75	0-59	2-94	2-46
	1934-35	8 26 6	15 14 11	1 13 5	2-73	0-98	3-92	4-02
Gram husk ..	1933-34	0 7 7	0 5 9	1 14 11	0-05	0-02	0-08	0-08
	1934-35	0 2 0	0 1 0	1 4 0	0-02	..	0-02	..
Massar husk ..	1934-35	1 31 11	2 5 2	1 4 9	0-57	0-14	0-82	0-57
Barley ..	1932-33	3 12 0	6 9 9	2 0 5	0-88	0-34	1-36	1-27
	1933-34	0 4 6	0 2 11	1 10 9	0-03	0-01	0-06	0-04
<i>Total</i> ..	1932-33	242 27 2	513 11 8	2 1 10	64-90	26-81	100-00	100-00
	1933-34	219 28 5	454 6 4	2 1 11	59-48	24-00	100-00	100-00
	1934-35	220 25 13	396 7 8	1 12 9	69-63	24-41	100-00	100-00

APPENDIX C

DETAILS OF THE COWS KEPT BY THE GUJARS

STATEMENT 35-A.—Gujar A.

Serial No.	Name of cow.	Date of joining the herd.	Initial value.	MILK YIELDED.			Date of disposal.	How disposed of.	Value realised when disposed.	REMARKS.
				1932-33.	1933-34.	1934-35.				
			Rs.	lbs.	lbs.	lbs.		Rs.		
1	Kabutri ..	10-6-32	80	4348	4622	2728	29-3-35	Sold.	100	
2	Bodan gori	10-6-32	120	3901	5133	2751	29-3-35	Sold.	120	
3	Mehr ..	10-6-32	160	127	..	..	13-6-32	Sold.	160	
4	Mone ..	10-6-32	65	1246	..	..	23-2-33	Sold.	40	
5	Lakhi ..	10-6-32	58	1998	2875	721	24-10-34	Sold.	59*	*Sold on 14-9-34 for Rs. 50, repurchased for Rs. 53, on 15-9-34 and sold on 24-10-34 for Rs. 59.
6	Dabbi chappi	10-6-32	45	86	..	..	16-6-32	Sold.	45	
7	Mahli ..	10-6-32	55	3062	2032	..	23-5-34	Sold.	52	
8	Bodan Pili ..	10-6-32	120	627	..	..	22-11-32	Sold.	120	
9	Makhan ..	10-6-32	90	487	..	..	1-11-32	†	..	
10	Lal ..	23-6-32	95	5071	2285	..	22-3-34	Sold.	75	
11	Chanan ..	17-8-32	60	37	..	..	17-10-32	Sold.	70	
12	Balhi Lakhi	23-8-32	65	2314	731	..	12-1-34	Sold.	25	
13	Begum ..	19-9-32	40	2352	822	..	2-10-33	Died.	..	
14	Pili ..	20-10-32	66	269	..	..	7-11-32	Died.	..	
15	Patoli ..	1-11-32	90	3963	1777	..	22-1-34	Sold.	135	
16	Cow ..	23-8-32	..	122	..	..	31-8-32	Returned.	..	
17	Cow ..	14-1-33	..	35	..	..	17-1-33	Returned.	..	
18	Two cows ..	3-2-33	..	37	..	..	4-2-33	Returned.	..	
19	Bodan Pili II	2-8-33	100	..	4180	667	7-8-34	Sold.	105	
20	Gaddar ..	31-8-33	55	..	1018	..	26-10-33	Died.	..	
21	Sargodha cow	20-9-33	68	..	128	..	8-10-33	Sold.	104	Profits shared equally with another Gujar.

(Continued.)

22	Neel	..	11-10-33	35	..	1713	..	5-3-34	Sold	25	
23	Piyal	..	11-10-33	30	..	759	..	8-12-33	Sold	38	
24	Red cow	..	14-10-33	65	..	..	..	16-10-33	Sold	70	Purchased when in calf.
25	Chappi	..	3-11-33	..	..	876	..	25-5-34	Returned	..	Got free when 2 months in calf to be kept until her next calving.
26	Kunj	..	12-11-33	80	..	2586	2810	..	..	..
27	Makhan	..	8-12-33	60	..	3072	673	28-12-34	Sold	56	
28	Balochi I	..	21-1-34	70	..	1609	366	11-7-34	Sold	50	Returned on 25-5-34 without the calf. Valued at Rs. 50, given in exchange for Balochi II (No. 38) plus Rs. 20.
29	Dabbi	..	7-2-34	25	..	..	..	11-2-34	Sold	22	
30	Cow	..	10-2-34	4/8/-	..	..	..	11-2-34	Sold	5	
31	Sohana	..	10-2-34	64	..	2151	2995	29-3-35	Sold	100	
32	Lal	..	9-4-34	28	..	..	..	29-4-34	Sold	28	Purchased when in calf.
33	Pyari	..	24-4-34	..	..	10	..	27-4-34	Returned	..	
34	Cow	..	7-5-34	70	..	16	..	9-5-34	Sold	75	
35	Sawi	..	11-5-34	30	..	40½	65	8-6-34	Sold	40	Sold on 17-5-34 for Rs. 30, but got back on 24-5-34. Sold again on 8-6-34.
36	Cow	..	25-5-34	50	..	..	..	24-6-34	Sold	50	Sold to money-lender in part-payment of debt.
37	Gori	..	10-7-34	70	..	..	4506	..	..	..
38	Balochi II	..	11-7-34	70	..	..	3566	..	..	..	Paid Rs. 20, and cow Balochi I (No. 28) in exchange.
39	Lal	..	7-8-34	28	..	..	..	8-11-34	Sold	40	Purchased when in calf.
40	Baggi	..	8-8-34	42	..	..	3277	..	..	..
41	Sohni	..	3-10-34	70	..	..	3771	..	..	..
42	Mehr	..	28-12-34	33	..	..	101	9-1-35	Sold	26	
43	Bhag	..	31-12-34	30	..	..	92	11-1-35	Sold	40	
44	Begum II	..	30-3-35	..	..	..	607	..	..	..
45	Sohna II	..	30-3-35	170	..	..	888	..	..	..
46	Bodan II	..	30-3-35	..	..	..	859	16-5-35	Sold	46	
47	Cow	..	9-4-35	..	..	..	..	10-4-35	Returned	..	
48	Cow	..	12-5-35	..	..	..	99	20-5-35	Returned	..	Were giving trouble to their owners in the city and had been brought to be set right.
49	Cow	..	29-5-35	..	..	..	..	..	..	..

APPENDIX C.—Continued.

DETAILS OF THE COWS KEPT BY THE GUJARS

STATEMENT 35-B.—Gujar B.

Serial No.	Name of cow.	Date of joining the herd.	Initial value.	MILK YIELDED.			Date of disposal.	How disposed of.	Value realised when disposed.	REMARKS.
				1932-33.	1933-34.	1934-35.				
			Rs.	lbs.	lbs.	lbs.		Rs.		
1	Kabutri ..	10-6-32	115	78	..	..	13-6-32	Sold	115	
2	Bhag ..	10-6-32	115	70	..	..	13-6-32	Sold	115	
3	Boti ..	10-6-32	100	3080	926	..	6-11-33	Died	..	
4	Fyari ..	10-6-32	100	2690	796	..	30-11-33	Sold	22	Sold on account of sterility.
5	Mahli ..	10-6-32	100	732	..	..	6-12-32	Sold	100	
6	Mehr ..	10-6-32	112	2669	2723	4112	..	..	..
7	Kunj ..	10-6-32	100	3803	2460	..	16-1-35	Sold	16	Sold on account of sterility.
8	Makhan ..	10-6-32	160	3099	3956	3804	..	..	..
9	Bodan ..	26-6-32	68	3450	97	..	14-8-33	Sold	4	Sold on account of prolonged illness.
10	Mem ..	26-6-32	65	2580	3162	..	21-7-34	Sold	90	Sold when in calf to money-lender in part-payment of debt.
11	Kabutri II ..	4-4-33	100	605	2387	2873	..	..	..
12	Bhag II ..	18-5-33	100	61	2890	2163	..	..	..
13	Ballhi Lakhi ..	10-9-33	25	..	..	..	23-12-33	Sold	15	Purchased when in calf.
14	Dabbi ..	3-10-33	65	..	2094	..	21-7-34	Sold	90	Sold when in calf to money-lender in part-payment of debt.
15	Ballhi ..	23-10-33	..	..	2	..	28-10-33	Returned	..*	*Purchased on 23-10-33 but taken back by seller on 28-10-33 as price was not paid.
16	Cow ..	15-12-33	..	..	39	..	18-12-33	Returned	..	
17	Patoli ..	26-2-35	100	..	..	1184	..	..	..
18	Mahli ..	17-4-35	100	..	..	554	..	..	..

APPENDIX C.—Concluded.

DETAILS OF THE COWS KEPT BY THE GUJARS

STATEMENT 35-C.—Gujar C.

Serial No.	Name of cow.	Date of joining the herd.	Initial value.	MILK YIELDED.			Date of disposal.	How disposed of.	Value realised when disposed.	REMARKS.
				1932-33	1933-34.	1934-35				
			Rs.	lbs.	lbs.	lbs.		Rs.		
1	Mehr ..	10-6-32	110	3278	2424	4238	..	..*	*Aborted on 3-11-33.
2	Mahli I ..	10-6-32	90	3294	2942	3770	24-1-35	..		
3	Lakhi ..	10-6-32	100	77	..	..	13-6-32	100	
4	Nil ..	10-6-32	60	878	..	..	18-12-32	5	
5	Mem ..	10-6-32	104	3355	3395	3348	..	..
6	Ballhi ..	10-6-32	50	434	..	..	25-12-32	43	
7	Chanan ..	10-6-32	80	3250	3233	3685	..	..
8	Kunj ..	10-6-32	125	3272	3454	4027	..	..
9	Chappi ..	10-6-32	80	5090	4041	888	17-4-35	48		
10	Pyari ..	10-6-32	75	2927	2285	..	5-2-34	25	Aborted on 25-1-34.	
11	Lall ..	10-6-32	70	3144	2897	388	17-11-34	80		
12	Gori ..	9-9-32	25	1662	2931	2866	..	..
13	Todi ..	25-10-33	21	..	452	..	7-12-33	31		
14	Cow ..	14-11-33	..	..	1	..	15-11-33	..†	†Was giving trouble to her owner in the city and had been brought to be set right.
15	Mahli II ..	15-1-34	100	..	2236	2527	..	..
16	Three cows	6-5-34	..	..	..	..	11-5-34	..‡	‡Belonged to one of his relatives.
17	Cow ..	24-12-34	..	..	..	74	30-12-34	..§	§Was giving trouble to her owner in the city and had been brought to be set right.
18	Sawi ..	6-3-35	40	..	..	168	23-3-35	45	Purchased when in calf.
19	Cow ..	27-5-35	..	..	..	5	29-5-35	..	Same as No. 17.

PUBLICATIONS OF THE BOARD OF ECONOMIC INQUIRY, PUNJAB.

	Rs. s. p.
— 1. An Economic Survey of Bairampur in the Hoshiarpur District, by <i>R. L. Bhalla, M.A.</i>	1 0 0
— 2. The Milk Supply of Lahore in 1921, by <i>Shiva Datta, M.A.</i>	Out of print
— 3. Questionnaire for Economic In- (Ordinary binding	0 4 0
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(GENERAL EDITOR: J. W. THOMAS, B.Sc., B.Com.)

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URBAN WORKING CLASS COST OF LIVING INDEX NUMBERS (1936) IN THE PUNJAB.

Being a Study of the Cost of Living at Sialkot, Ludhiana, Rohtak,
Lahore and Multan during the Year, 1936.

BY

RAM LAL,
DIRECTOR OF INDUSTRIES, PUNJAB.

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

1938.

Some Reports of the Board of Economic Inquiry, Punjab.

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3. Family Budgets of Six Tenant-Cultivators, 1934-5 in the Lyallpur District. (Publication No. 50).
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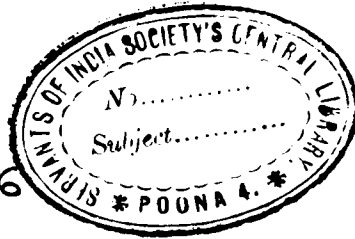
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the end of the book.

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PREFACE

The need has long been felt in the Punjab for some reliable indices of the cost of living of working classes in the towns. The Board of Economic Inquiry are already publishing a series in the Family Budgets of Cultivators and some material is also available in their rural reports such as the Village Surveys, but, excepting the Family Budgets of Low-paid Clerks, published in 1922 and now out of print, and an inquiry into the family budgets of 138 factory workers getting Rs. 50 or less per month in five industries in the Punjab, which was conducted for the Labour Commission in 1930, very little has been done on the urban side.

With the increasing importance of organised industry in cities and suburban areas in the economic structure of the Punjab it is necessary to have more extensive and reliable information regarding the living conditions of industrial workers. This study of the movement of index numbers based upon the cost of living of city workers in five important and representative centres in the Punjab is a move to supply this need, although nearly 88 per cent. of the provincial population in 1931 was classified as rural and in 1936 there were only 802 registered factories in the Punjab with only 63,962 operatives employed.

Yet a steady movement towards the expansion of modern industries is clearly observable. With cheap electric power now being supplied more widely from the Uhl Valley Hydro-Electric Scheme, the speed of expansion is bound to be accelerated. It is necessary to know the purchasing power of the urban workers' money wages but great trouble was experienced in securing a satisfactory base, or normal index number, owing to the scantiness of our records. The period 1931-35 of retail prices at Lahore for the commodities concerned was taken. The need for preserving careful statistics of the wholesale and retail prices in as many centres as possible, is therefore obvious.

The results of the inquiry show clearly a number of things. There was a marked rise especially in the later months of the year in the prices of food stuffs, which raised the general cost of living for workers anywhere from 10 to 20 per cent. Wages in general presumably were stationary. Where the cost rose least,

such as at Sialkot, Ludhiana and Rohtak, were also the areas where the cheaper food grains, i.e., maize, bajra, jowar and masur, were in greater use. Clothing forms a higher percentage of total costs at Lahore and Multan, where the workers are better dressed because of social pressure. Why the change in the House Rent item took place in Ludhiana alone it would be interesting to discover.

We commend this study which is particularly timely and valuable, to employers of labour and to all those interested in the welfare of urban workers. The Director of Industries, an extremely busy officer, is to be congratulated on the results of this work and acknowledgment should be made of his work and that of his staff. The inquiry is being continued for succeeding years and the Board would gladly receive suggestions as to how it may be made still more useful.

J. W. THOMAS.

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**REPORT ON URBAN WORKING CLASS COST OF LIVING
INDEX NUMBERS IN THE PUNJAB
DURING THE YEAR, 1936.**

1. Index Numbers and their uses.

An index number is defined as "a number designed to express the relative change or difference of a group of related variables." In the sphere of economics, index numbers are constructed for a variety of purposes. They are most commonly employed in the study of movements of prices and measurement of price changes over given periods and are brought into service in the comparison of real incomes at different times and places with a view to the readjustment of rates of wages and the fixation of rents or other deferred payments, etc. In the sphere of industry and trade, index numbers are used in the measurement of the effect on industry and commerce of changes in prices and the regulation of the supply of money and credit. In the study of economic history they provide invaluable data for the measurement of general prosperity or poverty and the value of money in different periods, etc. Index numbers thus provide a useful guide for the application of correctives for maladjustments in the various spheres of national economy, and their importance to individuals, governments and spending bodies as well as to trade and industry, cannot be overemphasized.

2. Working Class Cost of Living Index Numbers.

With the growth of organised factory industries in the Punjab in recent years, the industrial workers are becoming increasingly alive to the necessity of correlating wages to the movement of prices. This consciousness has been further strengthened by the organisation of workers in trade unions headed by educated labour leaders, the violent fluctuations in the prices of food grains and other articles of direct consumption and the uncertainty of employment on account of intense foreign competition. It has been observed that one of the main reasons for a number of strikes in recent years has been the reduction in wages of workers quite out of proportion to the fall in the general prices. With a view to make available suitable data to measure price changes, the Board of Economic Inquiry, Punjab, accepted the suggestion of the Director of Industries, Punjab, for the collection of prices of articles entering the family budgets of industrial workers in the Punjab, and for the construction of monthly progressive index numbers, both for their practical utility in case of need and as one method of estimating the economic status and material welfare of industrial labour in the province. The Director of Industries offered to have the

necessary prices collected monthly through the agency of the Superintendents of Industries of his Department at selected stations and the Board accepted the offer. The work of compilation and publication of the index was to be done by the Director of Industries under the auspices of the Board for which the latter provided a grant of Rs. 1,100 to meet the estimated expenditure. It was further decided that the monthly index, with complete statements of prices, be published in the Punjab Government Gazette and that the annual statement should be published in the form of a report as a publication of the Board of Economic Inquiry, Punjab. The publication of the monthly index in the Punjab Government Gazette was delayed considerably owing to the preliminary discussions regarding the settlement of details concerning the commodities and items of expenditure to be included in the list and the collection of prices for the five years average to be used as the base. The index for January 1936 was accordingly published in the issue of the Gazette dated 25th September 1936. To make up for the lost time the index for subsequent months was printed in the two statistical issues of the Gazette printed every month. The monthly index is now being published regularly.

3. Selection of Commodities and other Items of Expenditure for the purposes of the Index.

The list of commodities and other items of expenditure included in the compilation of the index and the qualities or grades in respect of which prices and rates, etc., are collected are shown in the "Form used for reporting Retail Prices" by the Superintendents of Industries appended as an Appendix to the report. The list was approved by a Sub-Committee of the Board and has been made as comprehensive as possible; it is representative of the requirements of the lower ranks of unskilled or skilled labour employed in organised and unorganised industries in the Punjab. The main classifications and groupings adopted in similar indices published by the Bombay and Bihar Governments have been kept in view, so as to facilitate inter-provincial comparisons. Alterations have been made to suit the peculiar conditions of the Punjab.

The major groups under which expenditure has been divided comprise (i) Food articles, (ii) Fuel and lighting, (iii) Clothing, (iv) House rent, and (v) Miscellaneous—including cigarettes and tobacco, soap for washing, and oil of sarson (Indian colza). It was ascertained as the result of an intensive inquiry into the family budgets of a large number of industrial workers in various industries of the Punjab conducted by the Department of Industries in 1930 in connection with the investigations of the

Royal Commission on Labour in India, that the amounts spent on the five groups cited above accounted for 75 per cent. of the total expenditure of the working classes according to the details given below:—

	Per cent.
Food articles	.. 50
Fuel and lighting	.. 6
Clothing	.. 9
House rent	.. 4
Miscellaneous	.. 6
Total	.. <u>75</u>

These percentages of the proportional expenditure have been used in the preparation of the index in this report. The remaining 25 per cent. was spent on education, marriages, interest on debts, travelling, religious performances, etc. The index numbers presented in the report have been compiled only in respect of the items included in the five groups mentioned above and do not take into consideration the remaining expenditure on education, marriages, etc.

4. Selection of Centres for reporting Prices.

The habits, customs and modes of living of industrial workers vary considerably in different parts of the province and the general level of prices and wages in the industrially advanced towns of the central Punjab such as Lahore, Amritsar and Lyallpur are much higher than they are in the smaller towns where industrial activity is confined to small-scale factories and where the supply of unskilled labour exceeds the demand. It was accordingly considered necessary to prepare index numbers in respect of different representative towns to present a complete picture of the trend of prices at various points in the province. Sialkot, the most important industrial town in the north, Ludhiana, the seat of the hosiery and weaving industries in the east, Rohtak, a centre of grain trade in the south, Lahore, the pivot of industrial and commercial activity of the province in the centre and Multan, the home of a number of small-scale industries in the west, were selected for recording prices. A Superintendent of Industries is stationed at each of the three stations, Sialkot, Ludhiana and Lahore, and the prices for Rohtak and Multan are collected by the Superintendents of Industries, Ludhiana and Lahore, respectively. The monthly prices, rates, etc., for the index are recorded on the last date of the month at the headquarters towns of the Superintendents of Industries and the prices current on the last date at Rohtak and Multan are recorded on the first of the following month when

the two Superintendents of Industries concerned are able to reach these centres. The monthly index is published in the Gazette about a fortnight later.

5. Normal and Base Prices.

It is an accepted principle in the construction of index numbers that the normal or base prices should be the average of the prices for a fairly lengthy and continuous period which would include years of scarcity as well as of prosperity. An average thus obtained takes off the keen edge from abnormally high or low prices in individual years and gives a reliable normal base. The determination of the normal or the base prices for the purposes of the index in the present case was attended with considerable practical difficulties owing to the absence of any existing records of prices and rates in respect of a number of the articles included in the list. Thus although the prices of a number of staple food grains, as well as sugar (raw), salt and fuel, were available in Tahsil records for a number of years past, the prices of various articles of clothing, certain commodities included under miscellaneous and other food articles and rates for house rents which accounted for over 20 per cent. of the total expenditure and which are not recorded by any agency in the province, could not be made available for the most generally accepted five-yearly pre-war basic period, viz. 1910-14. Again, although the rates of wholesale prices for the majority of the articles could be obtained for over ten years back, the records of retail prices were not forthcoming for more than five years or so. Accordingly there was no alternative but to adopt the average of prices and rates for the five years, from January 1931 to December 1935, and for which reliable data could be obtained, as the base prices for the progressive index.

6. Weights.

A simple arithmetic average was used in obtaining the average prices for the base. In working out the index, "weights" proportional to the total expenditure under each separate group have been assigned according to the relative importance of the various constituent commodities or items as ascertained by the Superintendents of Industries by personal inquiries. The scale was further considered and finally approved by the Sub-Committee of the Board. In the matter of certain articles of food, particularly cereals and pulses, the relative weights at the five centres for which prices are reported, different weights had to be assigned in accordance with the dietetic preferences in various parts of the province. The importance of various food grains and pulses in the diet of industrial workers in different parts of the Punjab is well illustrated in the statement given on the

next page showing the proportional weights assigned to food grains and pulses. For instance, it will be observed that in the case of bajra (bulrush or spiked millet), which is a staple food grain at Rohtak and accounts for 17 per cent. of the total expenditure on "Food Articles," its consumption does not amount to more than 5 per cent. at Multan, Lahore and Sialkot. Similarly the consumption of jowar (common large millet) at Ludhiana and masur (lentil) at Sialkot provide further outstanding examples of local preferences in food grains. For other items the weightage is the same for all stations and the percentage weights assigned are shown below.

I. *Food Articles.*

	Sialkot.	Ludhiana.	Rohtak.	Lahore.	Multan.
<i>(a). Cereals—</i>					
Rice ..	13	3	10	10	15
Wheat and wheat flour ..	40	30	30	45	41
Maize ..	8	15	8	5	5
Jowar ..	3	8	4	4	3
Bajra ..	5	13	17	5	5
<i>Total "weight" ..</i>	<i>69</i>	<i>69</i>	<i>69</i>	<i>69</i>	<i>69</i>
<i>(b). Pulses—</i>					
Gram ..	4	4	5	4	3
Arhar ..	..	1	3	2	..
Masur ..	7	1	2	2	2
Urd ..	2	4	3	5	4
Mung ..	2	5	2	2	6
<i>Total "weight" ..</i>	<i>15</i>	<i>15</i>	<i>15</i>	<i>15</i>	<i>15</i>
<i>(c). Other items—</i>					
Gur (raw cane-sugar)	2	2	2	2	2
Sugar (refined) ..	1	1	1	1	1
Salt ..	1	1	1	1	1
Goat's meat ..	2	2	2	2	2
Milk ..	4	4	4	4	4
Onion ..	1	1	1	1	1
Chillies (dry) ..	1	1	1	1	1
Ghi (clarified butter)	4	4	4	4	4
<i>Total "weight" ..</i>	<i>16</i>	<i>16</i>	<i>16</i>	<i>16</i>	<i>16</i>
GRAND TOTAL ..	100	100	100	100	100

II. *Fuel and lighting.*

	<i>Weight.</i>
Firewood ..	83
Coal ..	2
Kerosene oil ..	13
Matches ..	2

100

III. <i>Articles of Clothing.</i>				<i>Weight</i>
Chaddar (sheet)	..	..	..	20
Dhoti (loin cloth)	..	..	..	20
Blanket	..	..	..	6
Shirting	..	..	..	25
Longcloth	..	..	..	15
Muslin	..	..	..	14
				<hr/>
				100
				<hr/>
IV. <i>House Rent</i>				100
				<hr/>
V. <i>Miscellaneous.</i>				
Cigarettes	..	..	..	17
Tobacco (for smoking)	..	..	..	60
Soap (for washing)	..	..	..	15
Oil (sarson)	..	..	..	8
				<hr/>
				100
				<hr/>

7. Method of Working the Index.

The index for the individual articles has been obtained by simple arithmetical calculations which are illustrated by a concrete example below:—

	Rs.	a.	p.
Base price (per seer) of rice (common) at Lahore	..	0	1 6-33
Price (per seer) in January 1936	..	0	2 6
Index = Rs. 0-1-6-33 : Rs. 0-2-6 :: 100 : x = 164			

The "group index" under each of the five groups has been obtained by multiplying the index of each item by the weight assigned to it and dividing the total by 100 (the total of the proportional weight under each group). An example is given below:—

Items of clothing.	Base prices for Lahore.	Weight.	Prices for January 1936.	Index.	Index multiplied by weights.
	Rs. a. p.		Rs. a. p.		
1. Chaddar (price per one) ..	1 4 2	20	0 13 0	64	1,280
2. Dhoti (price per pair) ..	2 4 2	20	1 10 0	72	1,440
3. Blanket (price per one) ..	5 0 0	6	4 14 0	98	588
4. Shirting cloth (per yard)	0 1 9	25	0 2 0	114	2,850
5. Longcloth (") ..	0 3 4-8	15	0 2 6	74	1,110
6. Muslin, coarse (") ..	0 3 2-2	14	0 2 0	63	882
Total	..	100	..	..	8,150

Therefore index = 8,150 divided by 100 = 81.5; rounded 82.

The general index for each centre has been obtained by multiplying the "group" indices by the proportional percentage expenditure under each group mentioned in paragraph 3 above and dividing the total by 75 (the total proportion of expenditure on items taken into consideration for the purposes of the index). An example of this is given below:—

Main group.	Index for Lahore for January 1936.	Proportional percentage expenditure on each group item.	Index multiplied by proportional percentage expenditure.
1. Food articles	114	50	5,700
2. Fuel and lighting	94	6	564
3. Clothing	82	9	738
4. House rent	100	4	400
5. Miscellaneous	117	6	702
<i>Total</i> .. ..	..	75	8,104

Therefore general index=8,104 divided by 75=108.

8. General Index for the Province.

No attempt has been made in this report to work out a general index for the province as a whole from the average of the indices of the five towns as it was considered that the resultant index would not be true for every part of the province, or as a general average for the province as a whole. As has been pointed out above the cost of living and standard of wages vary considerably in different parts of the province in accordance with their economic development and the state of organisation of the labour and commodity markets and, as will be seen from a subsequent paragraph, the movement of the monthly indices do not follow the same trend at the five centres. A general index for the province based on such divergent data would, therefore, be of no practical utility. The main function of such indices is to provide a definite basis for the measurement of the money value of wages at different times at a particular place and this data the indices presented in this report purport to supply.

9. Index for 1936.

Statement 3 appended to this report shows the retail prices of the commodities taken for the months of January to December 1936, the movements of the index for each item of expenditure

and the weighted total cost of living index at Sialkot, Ludhiana, Rohtak, Lahore and Multan. Statement 1 shows in an abstract form the monthly weighted index for each group expenditure and the total cost of living index at each centre. Statement 2 shows the relative cost of living index at each centre on the base, Lahore prices for 1931-35 being taken as 100.

Graphs are also appended showing the movement of the index at the five centres in respect of the cost of: 1. Food Articles (Graph I), 2. Fuel and Lighting (Graph II), 3. Clothing (Graph III), 4. Miscellaneous Items (Graph IV), 5. Total Cost of Living Index, and 6. Relative Cost of Living at the five centres on the base Lahore prices for 1931-35=100 (Graph V). Expenditure on house rent being stationary at all centres, except for some variations at Ludhiana, no graph in respect of this item has been prepared.

As will be observed from Statement 1 and its graphical representations (Graph V), the general index shows a pronounced upward trend in the cost of living of working classes at all the five centres and becomes more pronounced towards the end of the year. The highest and lowest points reached are shown below.

	January.	December.	Lowest.	Highest.
Sialkot	110	131	April : 109	October : 124
Ludhiana ..	103	113	March : 98	October : 114
Rohtak ..	101	108	February : 87	December : 108
Lahore ..	108	131	January : 108	December : 131
Multan	113	134	May : 110	December : 134

The most important cause of the upward trend of the General Index curve, occurs in the rise in the index for "Food articles." These account for 50 per cent. of the gross expenditure or 66.6 per cent. of the net expenditure taken into consideration in the construction of the Index. Food articles being the first necessity of life, the increase in the cost of living revealed by it is unavoidable. The highest and lowest points of the index for "Food articles" at the five centres are shown below:—

	January.	December.	Lowest.	Highest.
Sialkot ..	117	133	April : 114	October : 137
Ludhiana ..	103	118	March : 100	October : 128
Rohtak ..	103	116	February : 87	December : 116
Lahore ..	114	143	May, June : 112	December : 143
Multan ..	122	146	May : 114	December : 146

The largest increases have occurred in the prices of wheat and wheat flour, gram and bajra—the staple food grains—and masur and mung pulses, while in most other articles the trend of movement of prices does not exhibit much uniformity.

The indices for “Fuel and lighting” show an appreciation of 20, 5, 6 and 25 points in December as compared with January at Ludhiana, Rohtak, Lahore and Multan respectively, while the index remained unchanged at Sialkot. The increases were caused by the rise in the prices of firewood and coal. The prices of kerosene oil varied within narrow limits, while those of matches increased at Ludhiana and Rohtak and were almost stationary at other centres.

The index for articles of “Clothing” was lower compared with the base period at Sialkot, Ludhiana and Rohtak but somewhat higher at Lahore and Multan, where the working classes are generally better dressed than at the three smaller centres. There is no variation during the year in the index for “House rent” compared with the base period rate, at Sialkot, Rohtak, Lahore and Multan. The index at Ludhiana registered some ups and downs, but, for the majority of months, house rent was at par with the base period.

The index for Miscellaneous items followed an erratic course at Ludhiana, Rohtak and Multan, while at Sialkot and Lahore it maintained an almost steady upward trend. In this group the prices of sarson oil and washing soap increased all round from the base price. The cost of tobacco increased at Ludhiana, Lahore and Multan and fell slightly at Rohtak while remaining stationary at Sialkot. The prices of cigarettes, which have varied very considerably in different months, are responsible to a large extent for disturbing the trend of the index of this group.

According to the figures Multan was the dearest living centre, closely followed by Lahore. In the matter of food articles, which constitute the most important group, Lahore is the most expensive, Multan's higher index being due to the rise in the price of fuel and a progressive increase in house rent. Sialkot, where the index for food articles began to soar in the second half of the year, stands third, while Ludhiana and Rohtak occupy the fourth and fifth places respectively. A similar situation is revealed by Statement 2 which shows the relative cost of living at the five stations on the base, Lahore prices for January 1936=100. While in December 1936 the Lahore index stood at 121, the indices for Multan, Sialkot, Ludhiana and Rohtak stood at 124, 112, 105, and 100 respectively.

10. Expenditure on the Inquiry.

The total expenditure incurred on the compilation and tabulation of the index during 1936 amounted to Rs. 692-10-0 as per details given below:—

		Rs.	a.	p.
Pay	..	659	8	0
Travelling allowance	..	33	2	0
<i>Total</i>	..	<u>692</u>	<u>10</u>	<u>0</u>

This amount was met by the Board of Economic Inquiry Punjab and the amount spent on the travelling allowance of the Superintendents of Industries concerned was defrayed by the Department of Industries, Punjab.

RAM LAL,
Director of Industries, Punjab.

APPENDIX

FORM USED FOR REPORTING RETAIL PRICES.

The following form was used by the Superintendents of Industries for reporting precisely the retail prices of articles at the selected centres on the last date of each month in 1936.

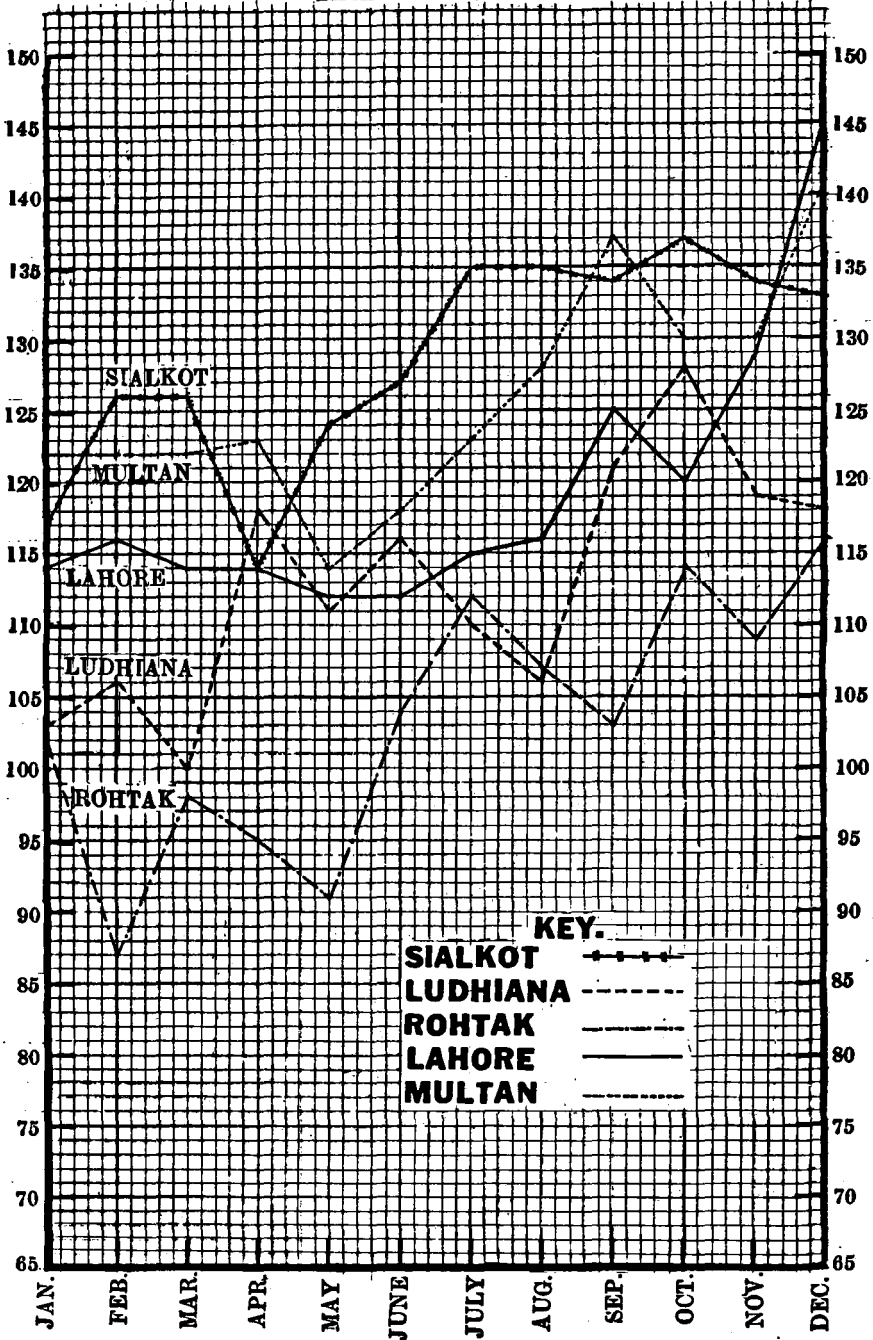
No.	Article.	Quantity.	Value.	Remarks.
	I. FOOD ARTICLES.			
1	Rice (Common)	Per Seer		
2	(a). Wheat ..	..	..
	(b). Wheat flour ..	..	..
3	Maize ..	..	..
4	Jowar ..	..	..
5	Bajra ..	..	..
6	Gram ..	..	..
7	Arhar dal (pulse) ..	..	..
8	Masur dal ( ,, ) ..	..	..
9	Mung dal ( ,, ) ..	..	..
10	Urd dal ( ,, ) ..	..	..
11	Sugar, raw (gur)	..	..
12	Sugar, refined ..	..	..
13	Salt ..	..	..
14	Goat's meat ..	..	..
15	Milk ..	..	..
16	Onions ..	..	..
17	Chillies (dry)	..	..
18	Ghi ..	..	..

No.	Articles.	Quantity.	Value.	Remarks.
2. FUEL AND LIGHTING.				
1	Firewood ..	Per maund		
2	Coal ..	"		
3	Kerosene oil (Elephant brand) ..	Per bottle		
4	Matches (40 splints in a box) ..	Per dozen		
3. CLOTHING.				
1	Chaddar, grey 1½ × 3 yds. (Indian Mill made).	Per chaddar		
2	Dhoti, grey 44" × 5 yds. (Indian Mill made) ..	Per pair		
3	Blankets, Coolie (Indian Mill made)	Per blanket		
4	Shirting, cheapest (Indian Mill made)	Per yard		
5	Long cloth, grey (Indian Mill made) ..	"		
6	Muslin, coarse for pugrees. (Indian Mill made)	"		
4. HOUSE RENT.				
	Common coolies quarters	Per month		
5. MISCELLANEOUS.				
1	Cigarettes, cheapest quality (Indian or imported) ..	Per packet of 10 cigarettes.		
2	Tobacco (smoking) ..	Per seer		
3	Soap, washing (Indian made) ..	"		
4	Oil, sarson ..	"		

GRAPH NO. 1.

THE MOVEMENT OF THE INDEX FOR ARTICLES OF
FOOD AT THE FIVE DIFFERENT CENTRES DURING 1936.

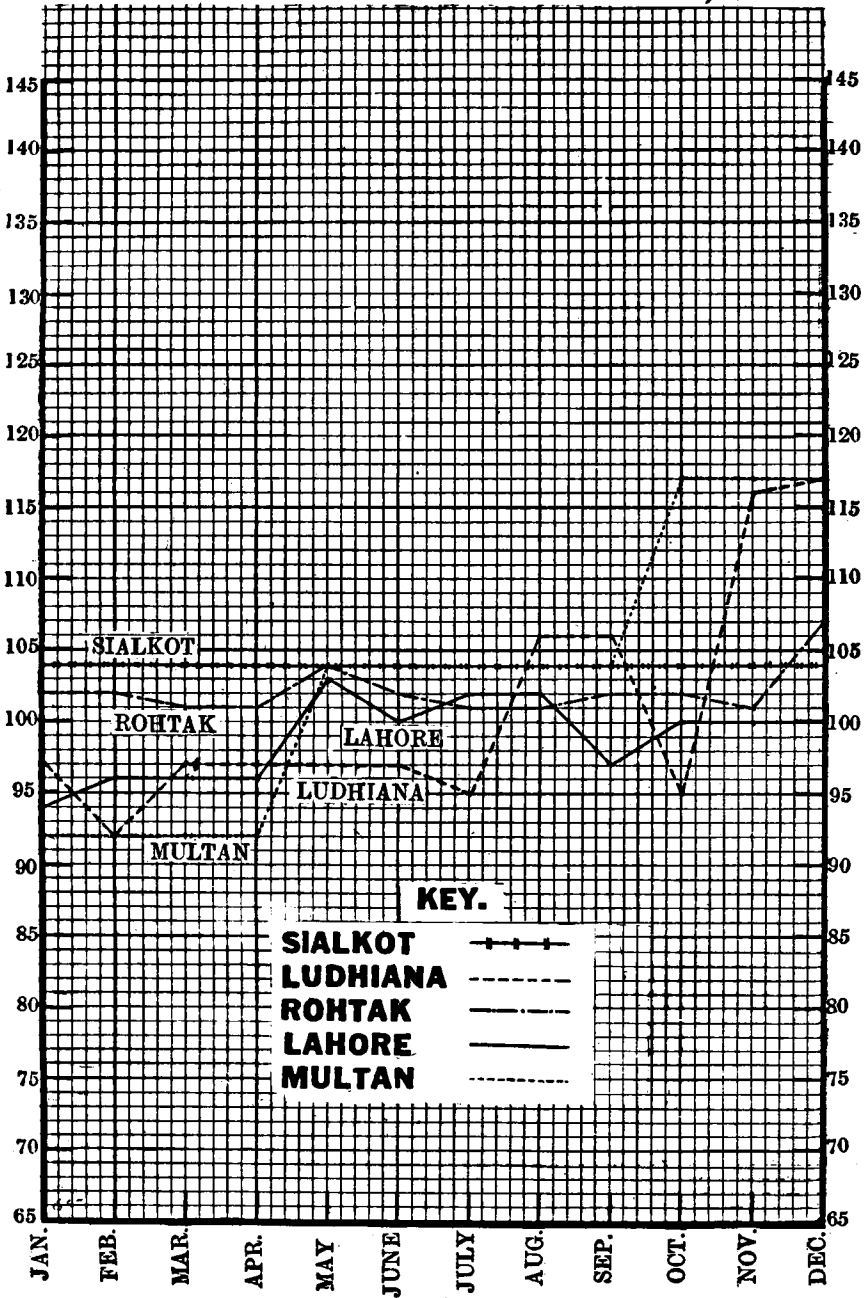
BASE 1931-35 = 100.



GRAPH NO. 2

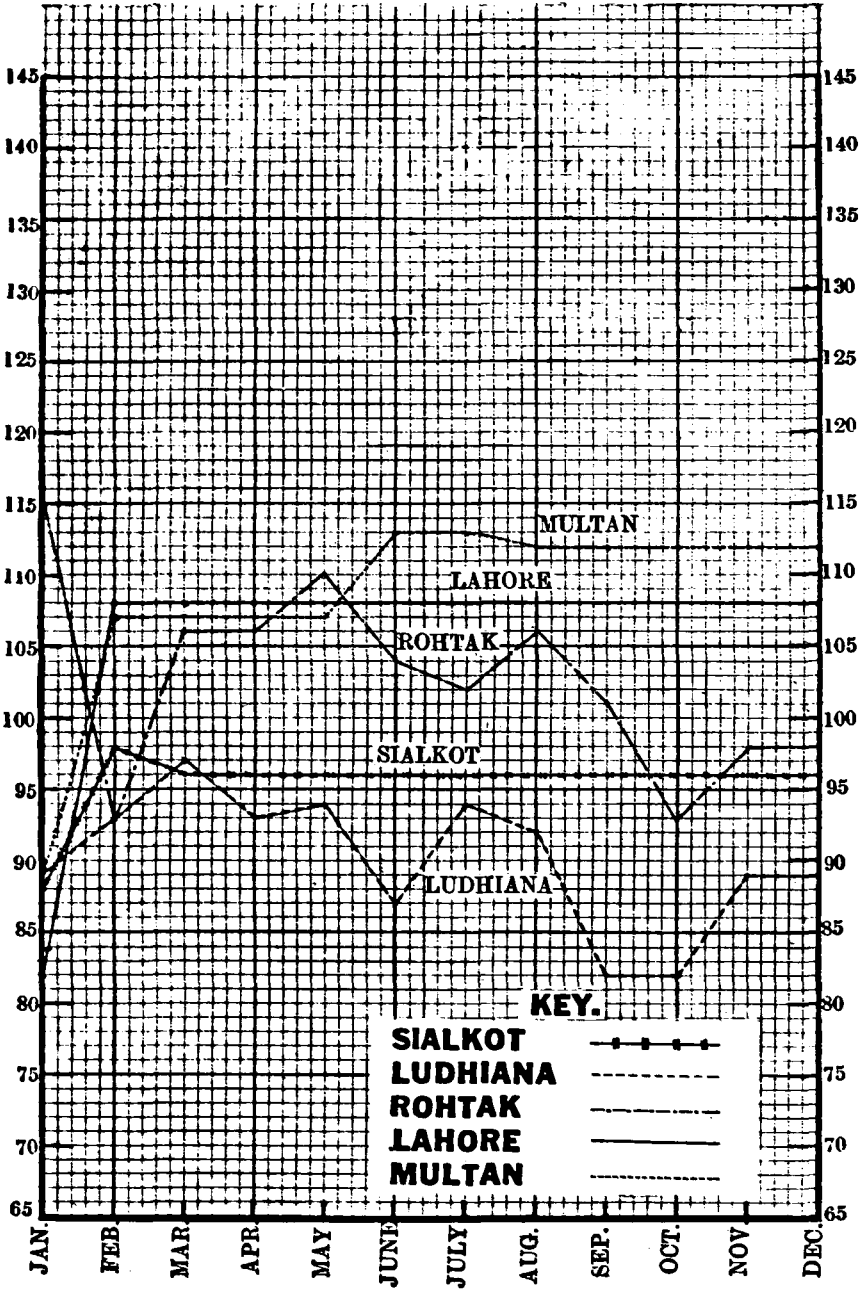
**THE MOVEMENT OF THE INDEX FOR FUEL AND LIGHTING
AT THE FIVE DIFFERENT CENTRES DURING 1936.**

BASE 1931-35 = 100.



GRAPH NO. 3.

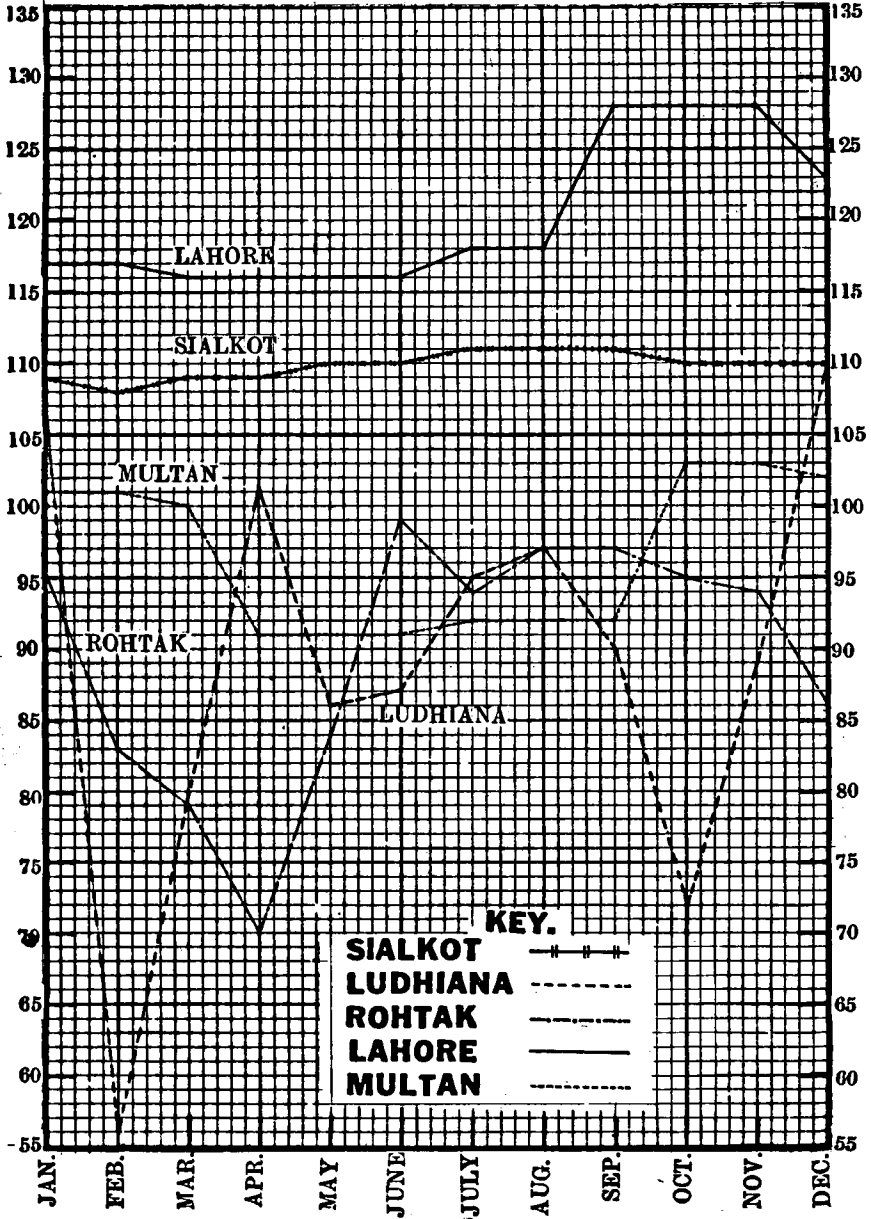
THE MOVEMENT OF THE INDEX FOR ARTICLES OF CLOTHING AT THE FIVE DIFFERENT CENTRES DURING 1936.
BASE 1931-35 = 100.



GRAPH NO. 4.

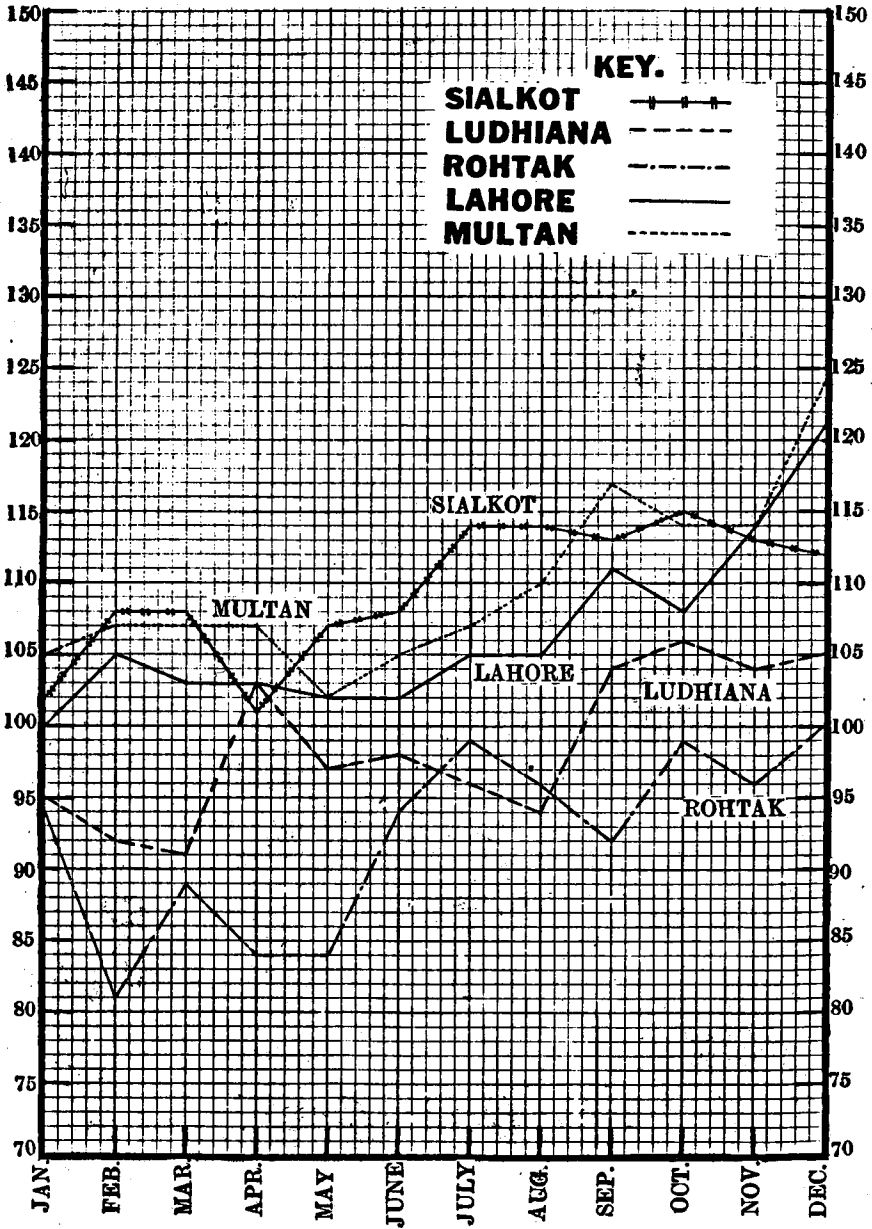
THE MOVEMENT OF THE INDEX FOR MISCELLANEOUS ITEMS OF EXPENDITURE [CIGARETTES, TOBACCO (smoking), SOAP (washing), SARSON-OIL] AT THE FIVE DIFFERENT CENTRES DURING 1936.

BASE 1931-35 = 100.



GRAPH NO. 5.

THE COMPARATIVE COST OF LIVING AT THE FIVE DIFFERENT CENTRES TAKING LAHORE IN JANUARY 1936 AS 100.



STATEMENT 1.
ABSTRACT TABLE

MONTHLY WEIGHTED INDEX FOR EACH GROUP EXPENDITURE AND TOTAL COST OF LIVING INDEX
AT THE FIVE CENTRES.

Centres.	Commodities.	January 1936.	February 1936.	March 1936.	April 1936.	May 1936.	June 1936.	July 1936.	August 1936.	September 1936.	October 1936.	November 1936.	December 1936.
SIALKOT.	Food ..	117	126	126	114	124	127	135	135	134	137	134	133
	Fuel and Lighting ..	104	104	104	104	104	104	104	104	104	104	104	104
	Clothing ..	88	98	96	96	96	96	96	96	96	96	96	96
	House rent ..	77	77	77	77	77	77	77	77	77	77	77	77
	Miscellaneous ..	109	108	109	109	110	110	111	111	111	110	110	110
	<i>Total Cost of Living</i> ..	110	117	117	109	115	117	123	123	122	124	122	121
LUDHIANA.	Food ..	103	106	100	118	111	116	110	106	121	128	119	118
	Fuel and Lighting ..	97	92	97	97	97	97	95	106	106	95	116	117
	Clothing ..	89	93	97	93	94	87	94	92	82	82	89	89
	House rent ..	133	100	100	100	100	70	70	70	100	100	100	100
	Miscellaneous ..	106	56	80	100	86	87	95	97	90	72	89	110
	<i>Total Cost of Living</i> ..	103	99	98	111	105	106	104	102	112	114	112	113
ROHTAK.	Food ..	102	87	97	95	91	103	112	106	103	114	109	116
	Fuel and Lighting ..	102	102	101	101	104	102	101	101	102	102	101	107
	Clothing ..	115	93	106	106	110	104	102	106	101	93	98	98
	House rent ..	70	60	70	70	70	70	70	70	70	70	70	70
	Miscellaneous ..	95	83	79	70	84	99	94	97	97	95	94	86
	<i>Total Cost of Living</i> ..	101	87	96	93	93	102	107	104	100	107	104	108
LAHORE.	Food ..	114	116	114	114	112	112	115	116	125	120	129	143
	Fuel and Lighting ..	94	96	96	96	103	100	102	102	97	100	100	100
	Clothing ..	82	108	108	108	108	108	108	108	108	108	108	108
	House rent ..	100	100	100	100	100	100	100	100	100	100	100	100
	Miscellaneous ..	117	117	116	116	116	116	118	118	128	128	128	123
	<i>Total Cost of Living</i> ..	108	113	111	111	110	110	113	113	120	117	123	131
MULTAN.	Food ..	122	122	122	123	114	118	123	128	137	130	130	146
	Fuel and Lighting ..	92	92	92	92	104	104	104	104	104	117	117	117
	Clothing ..	89	107	107	107	107	113	113	112	112	112	112	112
	House rent ..	100	100	100	100	100	100	100	100	100	100	100	100
	Miscellaneous ..	101	101	100	91	91	91	92	92	92	103	103	102
	<i>Total Cost of Living</i> ..	113	115	115	115	110	113	116	119	126	123	123	134

STATEMENT 2.

COMPARATIVE COST OF LIVING AT THE DIFFERENT CENTRES.

TAKING LAHORE IN JANUARY 1936=100.

Centres.	January 1936.	February 1936.	March 1936.	April 1936.	May 1936.	June 1936.	July 1936.	August 1936.	September 1936.	October 1936.	November 1936.	December 1936.
Sialkot ..	102	108	108	101	107	108	114	114	113	115	113	112
Ludhiana ..	95	92	91	103	97	98	96	94	104	106	104	105
Rohtak ..	94	81	89	84	84	94	99	96	92	99	96	100
Lahore ..	100	105	103	103	102	102	105	105	111	108	114	121
Multan ..	105	107	107	107	102	105	107	110	117	114	114	124

STATEMENT 3.

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RETAIL PRICES AND RATES OF COMMODITIES AND ITEMS OF EXPENDITURE FOR THE MONTHS, JANUARY TO DECEMBER, 1936, AND THE MOVEMENT OF WEIGHTED INDEX.

A.—SIALKOT.

Group and article.	Unit of quantity.	Base prices.	Weight proportional to total expenditure.	JANUARY, 1936.		FEBRUARY, 1936.		MARCH, 1936.		APRIL, 1936.		MAY, 1936.		JUNE, 1936.		JULY, 1936.		AUGUST, 1936.		SEPTEMBER, 1936.		OCTOBER, 1936.		NOVEMBER, 1936.		DECEMBER, 1936.	
				Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.
FOOD ARTICLES.																											
		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.		Rs. a. p.		Rs. a. p.		Rs.	
Rice (common)	Seer	0 1 5-33	13	0 2 3	156	0 2 6	173	0 2 6	173	0 2 6	173	0 2 3	156	0 2 9	190	0 2 9	190	0 2 9	190	0 2 9	190	0 2 9	190	0 2 6	173	0 2 6	173
Wheat	"	0 0 11-125	40	0 1 0	108	0 1 1-5	121	0 1 1-5	121	0 1 0	108	0 1 0	108	0 1 1-5	121	0 1 3	135	0 1 3	135	0 1 3	135	0 1 3	135	0 1 4-5	148	0 1 4-5	148
Wheat flour	"	0 1 2-75	8	0 1 3	102	0 1 4-5	111	0 1 4-5	111	0 1 3	102	0 1 3	102	0 1 3	102	0 1 6	120	0 1 6	120	0 1 6	120	0 1 6	120	0 1 6	120	0 1 6	120
Maize	"	0 0 9-8	3	0 1 0	122	0 1 0	122	0 1 0	122	0 1 0	122	0 1 1-5	138	0 1 3	153	0 1 3	153	0 1 6	184	0 1 3	153	0 1 0	122	0 1 0	122	0 1 0	122
Jowar	"	0 0 11-66	5	0 1 3	129	0 1 3	129	0 1 3	129	0 1 3	129	0 1 3	129	0 1 3	129	0 1 3	129	0 1 3	129	0 1 3	129	0 1 3	129	0 1 3	129	0 1 0	103
Bajra	"	0 0 9-5	4	0 1 0	111	0 1 0	111	0 1 0	111	0 0 10-5	97	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 3	158	0 1 0	103
Gram	"	0 0 10-8	7	0 1 6	138	0 1 6	138	0 1 6	138	0 1 3	115	0 1 4-5	129	0 1 6	139	0 1 6	139	0 1 6	139	0 1 6	139	0 1 6	139	0 1 9	162	0 1 9	162
Masur (pulse)	"	0 1 1	2	0 2 3	114	0 2 3	114	0 2 3	114	0 2 3	114	0 2 3	114	0 2 3	114	0 2 6	122	0 2 3	114	0 2 3	114	0 2 3	114	0 2 6	126	0 2 0	101
Urd (,,)	"	0 1 11-75	2	0 1 9	103	0 1 9	103	0 2 0	118	0 1 9	103	0 2 0	118	0 2 0	118	0 2 3	132	0 2 0	118	0 2 0	118	0 2 0	118	0 2 0	118	0 2 0	118
Mung (,,)	"	0 1 8-4	2	0 2 0	129	0 1 9	113	0 1 9	113	0 1 9	113	0 1 9	113	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129
Sugar, raw (gur)	"	0 1 6-6	1	0 4 3	85	0 4 3	85	0 4 3	85	0 4 3	85	0 4 3	85	0 4 0	81	0 4 0	81	0 4 0	81	0 4 0	81	0 4 0	81	0 4 0	81	0 4 0	81
Sugar, refined	"	0 4 11	1	0 1 1-5	113	0 1 0	100	0 1 1-5	113	0 1 1-5	113	0 1 1-5	113	0 1 3	125	0 1 3	125	0 1 3	125	0 1 3	125	0 1 3	125	0 1 3	125	0 1 3	125
Salt	"	0 1 0	2	0 6 0	95	0 6 0	95	0 6 0	95	0 7 0	111	0 6 0	95	0 6 0	95	0 6 0	95	0 6 0	95	0 6 0	95	0 6 0	95	0 6 0	95	0 6 0	95
Goat's meat	"	0 6 3-6	1	0 1 9	93	0 1 9	93	0 1 9	93	0 1 9	93	0 1 9	93	0 1 9	93	0 1 9	93	0 1 9	93	0 1 9	93	0 1 9	93	0 1 9	93	0 1 9	93
Milk	"	0 1 10-5	1	0 2 0	226	0 1 9	198	0 0 6	57	0 0 6	57	0 0 6	57	0 0 9	85	0 0 9	85	0 0 9	85	0 0 9	85	0 1 6	170	0 1 9	198	0 1 6	170
Onions	"	0 0 10-6	1	0 3 6	74	0 3 6	74	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 4 0	85	0 5 0	106	0 5 0	106
Chillies (dry)	"	0 4 8-4	4	1 1 0	96	1 0 0	90	1 1 0	96	1 0 0	90	1 0 0	90	1 0 0	90	1 1 0	96	1 1 0	96	1 1 0	96	1 2 0	101	1 2 0	101	1 2 0	101
Ghi	"	1 1 9																									
INDEX No.			100		117		126		126		114		124		127		135		135		134		137		134		133
FUEL AND LIGHTING.																											
Firewood	Mauud	0 10 0-8	83	0 10 6	104	0 10 6	104	0 10 6	104	0 10 6	104	0 10 6	104	0 10 6	104	0 10 6	104	0 10 6	104	0 10 6	104	0 10 6	104	0 10 6	104	0 10 6	104
Coal	"	0 14 2-4	2	0 11 0	77	0 11 0	77	0 11 0	77	0 11 0	77	0 11 0	77	0 11 0	77	0 11 0	77	0 11 0	77	0 12 0	85	0 12 0	85	0 12 0	85	0 12 0	85
Kerosene oil	Bottle	0 2 4-2	13	0 2 6	106	0 2 6	106	0 2 6	106	0 2 6	106	0 2 6	106	0 2 6	106	0 2 6	106	0 2 6	106	0 2 6	106	0 2 6	106	0 2 6	106	0 2 6	106
Matches (40)	Per dozen boxes.	0 2 6	2	0 3 0	120	0 2 9	110	0 2 9	110	0 2 9	110	0 2 9	110	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100
INDEX No.			100		104		104		104		104		104		104		104		104		104		104		104		104
CLOTHING.																											
Chaddar	One	0 14 9	20	0 13 0	88	1 3 0	115	1 3 0	115	1 3 0	115	1 3 0	115	1 3 0	115	1 3 0	115	1 3 0	115	1 3 0	115	1 3 0	115	1 3 0	115	1 3 0	115
Dhoti	Pair	1 15 9	20	1 14 0	94	2 2 0	107	2 2 0	107	2 2 0	107	2 1 0	104	2 1 0	104	2 1 0	104	2 1 0	104	2 1 0	104	2 1 0	104	2 1 0	104	2 1 0	104
Blanket	One	3 7 2	6	3 0 0	87	3 0 0	87	3 0 0	87	3 0 0	87	3 0 0	87	3 0 0	87	3 0 0	87	3 0 0	87	3 0 0	87	3 0 0	87	3 0 0	87	3 0 0	87
Shirting	Yard	0 3 6	25	0 3 0	86	0 2 9	79	0 2 6	71	0 2 6	71	0 2 6	71	0 2 6	71	0 2 6	71	0 2 6	71	0 2 6	71	0 2 6	71	0 2 6	71	0 2 6	71
Long cloth	"	0 2 10	15	0 2 6	88	0 3 3	115	0 3 3	115	0 3 3	115	0 3 3	115	0 3 3	115	0 3 3	115	0 3 3	115	0 3 3	115	0 3 3	115	0 3 3	115	0 3 3	115
Muslin, coarse	"	0 2 5-2	14	0 2 0	82	0 2 0	82	0 2 0	82	0 2 0	82	0 2 0	82	0 2 0	82	0 2 0	82	0 2 0	82	0 2 0	82	0 2 0	82	0 2 0	82	0 2 0	82
INDEX No.			100		88		98		96		96		96		96		95		96		96		96		96		96
HOUSE RENT																											
Per month		1 4 9-6	100	1 0 0	77	1 0 0	77	1 0 0	77	1 0 0	77	1 0 0	77	1 0 0	77	1 0 0	77	1 0 0	77	1 0 0	77	1 0 0	77	1 0 0	77	1 0 0	77
MISCELLANEOUS.																											
Cigarettes	Packet of 10	0 0 1	17	0 0 6	150	0 0 6	150	0 0 6	150	0 0 6	150	0 0 6	150	0 0 6	150	0 0 6	150	0 0 6	150	0 0 6	150	0 0 6	150	0 0 6	150	0 0 6	150
Tobacco (smoking)	Seer	0 2 6	60	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100	0 2 6	100
Soap (washing)	"	0 4 0	15	0 4 0	100	0 4 0	100	0 4 0	100	0 4 0	100	0 4 0	100	0 4 0	100	0 4 0	100	0 4 0	100	0 4 0	100	0 4 0	100	0 4 0	100	0 4 0	100
Oil (sarson)	"	0 4 1-75	8	0 4 3	103	0 4 0	97	0 4 6	109	0 4 6	109	0 4 9	115	0 5 0	121	0 5 6	133	0 5 6	133	0 5 6	133	0 5 6	133	0 5 0	121	0 5 0	121
INDEX No.			100		109		108		109		109		110		110		111		111		111		111		110		110
TOTAL COST OF LIVING INDEX NUMBER					110		117		117		109		115		117		123		123		122		124		122		121

RETAIL PRICES AND RATES OF COMMODITIES AND ITEMS OF EXPENDITURE FOR THE MONTHS JANUARY TO DECEMBER, 1936, AND THE MOVEMENT OF WEIGHTED INDEX.

E.—MULTAN.

Group and article.	Unit of quantity	Base prices.	Weight proportional to total expenditure.	JANUARY, 1936.		FEBRUARY, 1936.		MARCH, 1936.		APRIL, 1936.		MAY, 1936.		JUNE, 1936.		JULY, 1936.		AUGUST, 1936.		SEPTEMBER, 1936.		OCTOBER, 1936.		NOVEMBER, 1936.		DECEMBER, 1936.			
				Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.	Price.	Index No.
FOOD ARTICLES.																													
		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.		Rs. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.	
Rice (common)	Seer	0 1 3-5	15	0 2 3	174	0 2 3	174	0 2 3	174	0 2 3	174	0 2 0	155	0 2 3	174	0 2 3	174	0 2 3	174	0 2 0	155	0 1 6	116	0 1 6	116	0 1 6	116	0 1 6	116
Wheat	"	0 0 11-125	41	0 1 0	108	0 1 0	108	0 1 0	108	0 1 0	108	0 1 0	108	0 1 0	108	0 1 0-5	112	0 1 3	135	0 1 6	162	0 1 6	162	0 1 6	162	0 1 6	162	0 1 9	189
Wheat flour	"	0 1 0-5		0 1 3	120	0 1 3	120	0 1 3	120	0 1 3	120	0 1 3	120	0 1 0-5	100	0 1 3	120	0 1 3	120	0 1 6	144	0 1 6	144	0 1 6	144	0 1 6	144	0 2 0	192
Maize	"	0 0 10-8	5	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 3	139	0 1 0	111	0 1 0	111	0 1 0	111
Jowar	"	0 0 9-4	3	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128	0 1 0	128
Bajra	"	0 0 10-5	5	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114	0 1 0	114
Gram	"	0 0 10-8	3	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 0	111	0 1 3	139	0 1 3	139	0 1 3	139	0 1 3	139
Arhar (pulse)	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Masur (,,)	"	0 1 6-6	2	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129	0 1 9	113	0 1 9	113	0 1 9	113	0 1 9	113	0 1 9	113	0 1 9	113	0 1 9	113
Urd (,,)	"	0 2 0	4	0 2 0	100	0 2 0	100	0 2 0	100	0 2 0	100	0 2 0	100	0 2 0	100	0 2 0	100	0 2 0	100	0 2 0	100	0 2 6	125	0 2 0	100	0 2 0	100	0 2 0	100
Mung (,,)	"	0 1 9-6	6	0 1 9	97	0 1 9	97	0 1 9	97	0 1 9	97	0 1 6	83	0 1 9	97	0 1 9	97	0 1 9	97	0 1 9	97	0 2 0	111	0 2 0	111	0 2 0	111	0 2 0	111
Sugar, raw (gur)	"	0 1 7-6	2	0 2 0	122	0 2 0	122	0 2 0	122	0 2 3	138	0 2 3	138	0 2 3	138	0 2 3	138	0 2 3	138	0 1 9	107	0 1 3	77	0 1 3	77	0 1 3	77	0 1 3	77
Sugar, refined	"	0 4 9	1	0 4 3	89	0 4 3	89	0 4 3	89	0 4 3	89	0 4 3	89	0 4 3	89	0 4 3	89	0 4 3	89	0 4 3	89	0 1 0	84	0 1 0	84	0 3 9	79	0 4 0	84
Salt	"	0 1 0-8	1	0 1 3	134	0 1 3	134	0 1 3	134	0 1 3	134	0 1 0	94	0 1 0	94	0 1 0	94	0 1 0	94	0 1 0	94	0 1 0	94	0 1 0	94	0 1 0	94	0 1 0	94
Goat's meat	"	0 5 6	2	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109	0 6 0	109
Milk	"	0 1 4-8	4	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143	0 2 0	143
Onions	"	0 1 6-6	1	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129	0 2 0	129	0 2 6	161	0 2 6	161	0 2 6	161	0 2 0	129	0 2 3	145	0 2 3	145	0 2 3	145
Chillies (dry)	"	0 1 8-4	1	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 3 0	64	0 3 3	69	0 3 0	64	0 3 6	73	0 3 6	73
Ghi	"	1 0 2-7	1	1 1 0	105	1 1 0	105	1 1 0	105	1 1 0	105	1 0 0	99	1 0 0	99	1 0 0	99	1 0 0	99	1 2 0	111	1 1 0	105	1 1 0	105	1 1 0	105	1 1 0	105
INDEX No.			100		122		122		122		123		114		118		123		128		137		130		130		130		146
FUEL AND LIGHTING.																													
Firewood	Maund	0 6 6-6	83	0 6 0	92	0 6 0	92	0 6 0	92	0 6 0	92	0 7 0	107	0 7 0	107	0 7 0	107	0 7 0	107	0 7 0	107	0 8 0	122	0 8 0	122	0 8 0	122	0 8 0	122
Coal	"	0 12 11	2	0 13 0	101	0 13 0	101	0 13 0	101	0 11 0	85	0 11 0	85	0 11 0	85	0 11 0	85	0 11 0	85	0 13 6	105	0 12 6	97	0 12 6	97	0 12 6	97	0 12 6	97
Kerosene oil	Bottle	0 2 9-5	13	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90	0 2 6	90
Matches (40)	Per dozen boxes.	0 2 4-8	2	0 2 9	115	0 2 9	115	0 2 9	115	0 2 9	115	0 2 3	94	0 2 3	94	0 2 3	94	0 2 3	94	0 2 3	94	0 2 3	94	0 2 3	94	0 2 3	94	0 2 3	94
INDEX No.			100		92		92		92		92		104		104		104		104		104		117		117		117		117
CLOTHING.																													
Chaddar	One	0 13 0	20	0 11 6	88	0 10 0	77	0 10 0	77	0 10 0	77	0 10 0	77	0 10 0	77	0 10 0	77	0 10 0	77	0 10 0	77	0 10 0	77	0 10 0	77	0 10 0	77	0 10 0	77
Dhoti	Pair	2 4 7-2	20	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104	2 6 0	104
Blanket	One	5 0 0	6	4 0 0	80	4 14 0	98	4 14 0	98	4 14 0	98	4 14 0	98	4 14 0	98	4 14 0	98	4 14 0	98	4 14 0	98	4 14 0	98	4 14 0	98	4 14 0	98	4 14 0	98
Shirting	Yard	0 2 0-6	25	0 2 0	98	0 3 6	170	0 3 6	170	0 3 6	170	0 3 6	170	0 3 6	170	0 3 6	170	0 3 6	170	0 3 6	170	0 3 6	170	0 3 6	170	0 3 6	170	0 3 6	170
Long cloth	"	0 3 2-4	15	0 2 3	70	0 3 3	102	0 3 3	102	0 3 3	102	0 3 3	102	0 3 3	102	0 3 3	102	0 3 3	102	0 3 3	102	0 3 3	102	0 3 3	102	0 3 3	102	0 3 3	102
Muslin, coarse	"	0 2 7-6	14	0 2 0	76	0 2 3	85	0 2 3	85	0 2 3	85	0 2 3	85	0 2 3	85	0 2 3	85	0 2 3	85	0 2 3	85	0 2 3	85	0 2 3	85	0 2 3	85	0 2 3	85
INDEX No.			100		89		107		107		107		107		113		113		112		112		112		112		112		112
HOUSE RENT																													
HOUSE RENT	Per month	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100	1 0 0	100
MISCELLANEOUS.																													
Cigarettes	Packet of 10	0 1 0	17	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50	0 0 6	50
Tobacco (smoking)	Seer	0 3 6	60	0 1 0	114	0 1 0	114	0 1 0	114	0 3 6	100	0 3 6	100	0 3 6	100	0 3 6	100	0 3 6	100	0 3 6	100	0 4 0	114	0 4 0	114	0 4 0	114	0 4 0	114
Soap (washing)	"	0 3 0	15	0 3 0	100	0 3 0	100	0 3 0	100	0 3 0	100	0 3 0	100	0 3 0	100	0 3 0	100	0 3 0	100	0 3 0	100	0 3 6	117	0 3 6	117	0 3 6	117	0 3 6	117
Oil (sarson)	"	0 5 1-2	8	0 6 0	112	0 6 0	112	0 5 3	98	0 5 3	98	0 5 3	98	0 5 3	98	0 6 0	112	0 6 0	112	0 5 6	103	0 5 6	103	0 5 6	103	0 5 6	103	0 5 6	103
INDEX No.			100		101		101		100		91		91		91		92		92		92		103		103		103		102
TOTAL COST OF LIVING INDEX NUMBER																													
TOTAL COST OF LIVING INDEX NUMBER					113		115		115		115		110		113		116		119		123		123		123		123		134

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SALES OF LAND IN SOUTH-WEST PUNJAB,

1931-32 TO 1933-34.

Being an examination of the sales in Dera Ghazi Khan, Muzaffargarh
and Jhang Districts.

BY

CYRIL P. K. FAZAL, M.A.,

ASSISTANT SECRETARY.

BOARD OF ECONOMIC INQUIRY, PUNJAB.

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

1938.

Some Reports of the Board of Economic Inquiry, Punjab.

REPORTS DEALING WITH SOUTH-WEST PUNJAB.

1. Punjab Village Surveys No. 8.—Bhambu Sandila in the Muzaffargath District. (Publication No. 45.)
 2. Punjab Village Surveys No. 11.—Durrana Langan in the Multan District. (Publication No. 54.)
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REPORTS DEALING WITH LAND PROBLEMS.

3. A Note on Sales of Land between the Notified Agricultural Tribes in the Punjab during the Quinquennium, 1922-23 to 1926-27. (Publication No. 23.)
 4. An Inquiry into Mortgages of Agricultural Land in the Kot Kapura Utar Assessment Circle of the Ferozepore District. (Publication No. 5.)
 5. An Inquiry into Mortgages of Agricultural Land in the Pothwar Assessment Circle of the Rawalpindi District. (Publication No. 14.)
 6. The Size and Distribution of Agricultural Holdings in the Punjab. (Publication No. 4.)
 7. The Size and Distribution of Cultivators' Holdings in the Punjab. (Publication No. 11.)
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A complete list of the Board's Publications is given at the end of this book.

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PREFACE

This Report follows on the one issued by the Board as publication No. 23—"A Note on Sales of Land between the Notified Agricultural Tribes in the Punjab, 1922-23 to 1926-27"—which dealt with only those tribes notified as "Agricultural" under the Punjab Alienation of Land Act. As mentioned in the foreword of that Report, the original inquiry was conducted because "of the many controversial statements made by those who disapproved of the policy underlying the Act, one is that large owners are buying up smaller owners; 'swallowing up' is the more popular phrase." That Report showed that generally the small landowners sold to small landowners and the large to large, but "there was reason to believe that small owners were being bought out in the south-west districts." A further inquiry was therefore conducted embracing all sales of land, whether by agriculturists or non-agriculturists, in the Jhang, Muzaffargarh and Dera Ghazi Khan Districts, in the three years, 1931-32 to 1933-34, and the results are presented in this Report. A summary is also added at the end of the text.

Two main facts are brought out in the present inquiry, namely, that large owners sold to large owners and the small to small; and that probably nearly a quarter of all vendors became landless. Transactions among the small owners predominated; they accounted for 96 per cent. of the total number of sales examined and involved 86 per cent. of the total acreage sold. These small owners also got the best price when they sold in their own group, although, for the cultivated portion, the large owners got the highest price when selling to small owners.

Transactions among small agriculturist owners formed 70 per cent. of the total cases examined; the area involved was 59 per cent. of the total area transferred (cultivated area, 57 per cent.). The small non-agriculturists sold among themselves in 21 per cent. of the cases and the land transferred formed 22 per cent. of the total land sold (cultivated 26 per cent.).

Extra-tribal transactions, i.e., between agriculturists and non-agriculturists, and extra-class transactions, i.e., between large and small owners, formed a very small portion of the cases examined, about 4 per cent. in each case. The agriculturists, however, bought more from the non-agriculturists than they sold to them; and large owners obtained some land from small owners, but not much.

Land transactions by small owners, agriculturists and non-agriculturists, to large owners were made by only a small number of people, actually 3 per cent. of the total cases examined: in Jhang 2, in Muzaffargarh 3 and in Dera Ghazi Khan 4 per cent.

The persons who sold all their land (2,260) formed 21 per cent. of the total cases examined, the land disposed of being 26 per cent. of the total acreage sold (cultivated 24 per cent.). Nearly half of such men were childless and only 57 of the men who became landless sold to large owners. Among agriculturists 17 per cent. became landless, selling 23 per cent. of the land sold in their class (cultivated 21 per cent.).

It would appear, therefore, from this inquiry that although big men do buy from small owners the transactions represent only a small fraction of all land transfers, and particularly so when only the notified agricultural tribes are taken into account.

It is of course possible that different results might be obtained by taking a longer period, or by taking another definition for "large owners" and so on, and therefore the results may be taken as indicating a general tendency only; but once again: "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."

J. W. THOMAS.

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**SALES OF LAND IN THE DERA GHAZI KHAN,
MUZAFFARGARH AND JHANG DISTRICTS,
1931-32 to 1933-34.**

1. *Introductory.*—In 1931 the Board of Economic Inquiry, Punjab, published a monograph entitled, “A Note on Sales of Land between the Notified Agricultural Tribes in the Punjab during the quinquennium, 1922-3 to 1926-7” (Publication No. 23.) Figures of sales of land for this period were collected through the revenue staff of the province, separately for two classes of vendees who, according to the list of voters prepared in 1927 for the Provincial Legislative Council elections, paid (a) land revenue between Rs. 100 and Rs. 500; and (b) over Rs. 500; the former class however included those who, although they came below the minimum limit, were known to be frequently acquiring land. The inquiry related to the ‘notified’ agricultural tribes only.* The report indicated that generally large owners were buying land from large owners, and the small from small. In the south-western parts of the province, however, this tendency was comparatively less pronounced, and to get further information Government issued orders that in the Dera Ghazi Khan, Muzaffargarh and Jhang Districts, whenever a mutation of sale of land was entered in the records, the patwari (village accountant) was to fill up one of the special forms prepared for the purposes of this Note (copy reproduced in Appendix F.); the kanungo,† when checking the correctness of the mutation entries, was to endeavour to check the correctness of the entries in these forms also and the same was to be done by the tahsildar‡ or the naib-tahsildar§ at the time of attesting the mutation. Thus all sales, whether by Agricultural or Non-agricultural tribes were included; the inquiry started on 16th June 1931.

This Note embodies the results for the three years, 1931-2 to 1933-4, based on the forms received from the Deputy Commissioners of the three districts. In all nearly 16,000 forms were received but about one third of them contained inaccurate, incomplete or doubtful entries, and had to be discarded; further all the sales were probably not reported, since the total number of transactions in these districts in the three years, as given in the Land Revenue Administration Reports, was 23 462.

*According to the Punjab Alienation of Land Act (XIII. of 1900), each tribe in the Punjab has been notified as ‘Agricultural’ or ‘Non-agricultural’.

† A junior revenue official.

‡ In charge of a Tahsil, a division of the district for administrative purposes. There are 29 districts in the Punjab, each under a Deputy Commissioner, and about 115 tahsils.

§ Junior to tahsildar.

2. *The Land Revenue Administration Reports.*—For purposes of comparison, and to get the proper perspective of the data dealt with, relevant figures have been taken from the Land Revenue Administration Reports for the three years, 1931-2 to 1933-4. It should, however, be mentioned at the outset that the periods in the Reports and this Note do not coincide, as the former deal with the year ending 30th September while in this Note the year is taken from 16th June. The following table shows acres transferred in the three years in the three districts classified according to the tribes of the buyers and the sellers.

TABLE 1.
Areas Transferred according to the Tribe of Vendors and Vendees.
(Statement XXV., Cols. 7 to 10 of the Revenue Reports.)

District and Year.	SALES—			
	By—		To—	
	Agricultural tribes.	Others.	Agricultural tribes.	Others.
	Acres.	Acres.	Acres.	Acres.
JHANG—				
1931-2	2,979	4,786	4,991	2,774
1932-3	3,170	4,566	4,322	3,414
1933-4	3,557	2,712	3,757	2,512
<i>Total</i>	<i>9,706</i>	<i>12,064</i>	<i>13,070</i>	<i>8,700</i>
MUZAFFARGARH—				
1931-2	13,048	7,515	12,667	7,896
1932-3	11,392	6,033	10,618	6,807
1933-4	14,998	6,287	9,869	11,416
<i>Total</i>	<i>39,438</i>	<i>19,835</i>	<i>33,154</i>	<i>26,119</i>
DERA GHAZI KHAN—				
1931-2	9,247	2,071	8,927	2,391
1932-3	15,148	3,754	14,797	4,105
1933-4	14,024	3,340	13,932	3,432
<i>Total</i>	<i>38,419</i>	<i>9,165</i>	<i>37,656</i>	<i>9,928</i>
GRAND TOTAL—				
1931-2	25,274	14,372	26,585	13,061
1932-3	29,710	14,353	29,737	14,326
1933-4	32,579	12,339	27,558	17,366
<i>Total</i>	<i>87,563</i>	<i>41,064</i>	<i>83,880</i>	<i>44,749</i>

The following table shows the number of sales and permanent transfers of land, the areas involved (total and cultivated) and the price.

TABLE 2.
Sale and Permanent Transfers for Value.
(Statement XXIV., Cols. 17-19 and 21 of the Revenue Reports).

District and Year.	No. of transactions.	AREA TRANSFERRED.		Price.
		Total.	Cultivated.	
		Acres.	Acres.	Rs.
JHANG—				
1931-2	1,151	7,757	4,587	17,43,979
1932-3	1,484	7,729	4,446	17,86,198
1933-4	1,318	6,236	3,557	14,66,985
<i>Total</i>	<i>3,953</i>	<i>21,722</i>	<i>12,590</i>	<i>49,97,162</i>
MUZAFFARGARH—				
1931-2	2,896	18,169	3,567	8,95,644
1932-3	3,784	15,698	5,396	12,58,360
1933-4	3,209	17,782	5,138	11,53,794
<i>Total</i>	<i>9,889</i>	<i>51,649</i>	<i>14,101</i>	<i>33,07,798</i>
DERA GHAZI KHAN—				
1931-2	2,556	11,144	3,924	6,02,937
1932-3	3,575	18,653	6,637	9,61,141
1933-4	3,489	16,890	5,933	8,22,598
<i>Total</i>	<i>9,620</i>	<i>46,687</i>	<i>16,494</i>	<i>23,86,676</i>
GRAND TOTAL—				
1931-2	6,603	37,070	12,078	32,42,560
1932-3	8,843	42,080	16,479	40,05,699
1933-4	8,016	40,908	14,628	34,43,377
<i>Total</i>	<i>23,462</i>	<i>120,058</i>	<i>43,185</i>	<i>106,91,636</i>

The next table shows the total number of owners and shareholders in the three districts and the total and cultivated acreages in their possession.

2. *The Land Revenue Administration Reports.*—For purposes of comparison, and to get the proper perspective of the data dealt with, relevant figures have been taken from the Land Revenue Administration Reports for the three years, 1931-2 to 1933-4. It should, however, be mentioned at the outset that the periods in the Reports and this Note do not coincide, as the former deal with the year ending 30th September while in this Note the year is taken from 16th June. The following table shows acres transferred in the three years in the three districts classified according to the tribes of the buyers and the sellers.

TABLE 1.

Areas Transferred according to the Tribe of Vendors and Vendees.
(Statement XXV., Cols. 7 to 10 of the Revenue Reports.)

District and Year.	SALES—			
	By—		To—	
	Agricultural tribes.	Others.	Agricultural tribes.	Others.
	Acres.	Acres.	Acres.	Acres.
JHANG—				
1931-2	2,979	4,786	4,991	2,774
1932-3	3,170	4,566	4,322	3,414
1933-4	3,557	2,712	3,757	2,512
<i>Total</i>	<i>9,706</i>	<i>12,064</i>	<i>13,070</i>	<i>8,700</i>
MUZAFFARGARH—				
1931-2	13,048	7,515	12,667	7,896
1932-3	11,392	6,033	10,618	6,807
1933-4	14,998	6,287	9,869	11,416
<i>Total</i>	<i>39,438</i>	<i>19,835</i>	<i>33,154</i>	<i>26,119</i>
DERA GHAZI KHAN—				
1931-2	9,247	2,071	8,927	2,391
1932-3	15,148	3,754	14,797	4,105
1933-4	14,024	3,340	13,932	3,432
<i>Total</i>	<i>38,419</i>	<i>9,165</i>	<i>37,656</i>	<i>9,928</i>
GRAND TOTAL—				
1931-2	25,274	14,372	26,585	13,061
1932-3	29,710	14,353	29,737	14,326
1933-4	32,579	12,339	27,558	17,360
<i>Total</i>	<i>87,563</i>	<i>41,064</i>	<i>83,880</i>	<i>44,747</i>

The following table shows the number of sales and permanent transfers of land, the areas involved (total and cultivated) and the price.

TABLE 2.
Sale and Permanent Transfers for Value.
(Statement XXIV., Cols. 17-19 and 21 of the Revenue Reports).

District and Year.	No. of transactions.	AREA TRANSFERRED.		Price.
		Total.	Cultivated.	
		Acres.	Acres.	Rs.
JHANG—				
1931-2	1,151	7,757	4,587	17,43,979
1932-3	1,484	7,729	4,446	17,86,198
1933-4	1,318	6,236	3,557	14,66,985
<i>Total</i>	<i>3,953</i>	<i>21,722</i>	<i>12,590</i>	<i>49,97,162</i>
MUZAFFARGARH—				
1931-2	2,896	18,169	3,567	8,95,644
1932-3	3,784	15,698	5,396	12,58,360
1933-4	3,209	17,782	5,138	11,53,794
<i>Total</i>	<i>9,889</i>	<i>51,649</i>	<i>14,101</i>	<i>33,07,798</i>
DERA GHAZI KHAN—				
1931-2	2,556	11,144	3,924	6,02,937
1932-3	3,575	18,653	6,637	9,61,141
1933-4	3,489	16,890	5,933	8,22,598
<i>Total</i>	<i>9,620</i>	<i>46,687</i>	<i>16,494</i>	<i>23,86,676</i>
GRAND TOTAL—				
1931-2	6,603	37,070	12,078	32,42,560
1932-3	8,843	42,080	16,479	40,05,699
1933-4	8,016	40,908	14,628	34,43,377
<i>Total</i>	<i>23,462</i>	<i>120,058</i>	<i>43,185</i>	<i>106,91,636</i>

The next table shows the total number of owners and shareholders in the three districts and the total and cultivated acreages in their possession.

TABLE 3.

*Number of Owners and Acreage Owned.**(Statement III., Cols. 5-7 of the Revenue Reports; percentages added.)*

Class of owners.	OWNERS AND SHAREHOLDERS.		AREA OWNED.			
	Number.	Per cent.	Total.		Cultivated.	
			Acres.	Per cent.	Acres.	Per cent.
1931-2—						
Agriculturist ..	436,343	74·0	5,817,027	85·0	1,934,419	81·1
Others ..	153,204	26·0	1,037,451	15·0	447,149	18·9
<i>Total</i> ..	<i>589,547</i>	<i>100·0</i>	<i>6,854,478</i>	<i>100·0</i>	<i>2,381,568</i>	<i>100·0</i>
1932-3—						
Agriculturist ..	444,839	74·9	5,829,695	85·1	1,965,883	81·4
Others ..	155,539	25·1	1,023,643	14·9	450,156	18·6
<i>Total</i> ..	<i>600,378</i>	<i>100·0</i>	<i>6,853,338</i>	<i>100·0</i>	<i>2,416,039</i>	<i>100·0</i>
1933-4—						
Agriculturist ..	450,288	74·2	5,782,001	84·9	1,969,854	81·5
Others ..	156,788	25·8	1,024,433	15·1	447,473	18·5
<i>Total</i> ..	<i>607,076</i>	<i>100·0</i>	<i>6,806,434</i>	<i>100·0</i>	<i>2,417,327</i>	<i>100·0</i>
AVERAGE—						
Agriculturist ..	443,823	74·1	5,809,574	85·0	1,956,719	81·4
Others ..	155,177	25·9	1,028,509	15·0	448,259	18·6
<i>Total</i> ..	<i>599,000</i>	<i>100·0</i>	<i>6,838,083</i>	<i>100·0</i>	<i>2,404,978</i>	<i>100·0</i>

3. *Number of Transactions.*—The number of forms received from the three districts for the three years totalled 15,850, but some forms had to be discarded, as follows:—

Year.	No. of forms received.	No. of forms discarded.	No. of forms retained.
1931-2 ..	3,881	866	3,015
1932-3 ..	6,883	2,785	4,098
1933-4 ..	5,086	1,594	3,492
<i>Total</i> ..	<i>15,850</i>	<i>5,245</i>	<i>10,605</i>

Thus 33 per cent. of the forms had to be discarded. The number of cases dealt with in the following pages is 10,605, and this represents 45 per cent. of the figure (23,462) recorded in the Revenue Reports—(see Table 2, col. 2).

The following table classifies the 10,605 transactions according to the tribes of the vendors and vendees and by district and year :—

TABLE 4.
Tribes of Vendors and Vendees.

District and Year.	Total	NUMBER OF TRANSFERS BY—			
		Agriculturists to—		Non-agriculturists to—	
		Agriculturists.	Non-agriculturists.	Agriculturists.	Non-agriculturists.
JHANG—					
1931-2 ..	151	105	3	4	39
1932-3 ..	304	199	4	13	88
1933-4 ..	460	295	22	28	115
<i>Total</i> ..	<i>915</i>	<i>599</i>	<i>29</i>	<i>45</i>	<i>242</i>
<i>Percentage</i> ..	<i>100.0</i>	<i>66</i>	<i>3</i>	<i>5</i>	<i>26</i>
DERA GHAZI KHAN					
1931-2 ..	1,251	996	9	34	212
1932-3 ..	2,069	1,682	17	49	321
1933-4 ..	1,207	991	5	30	181
<i>Total</i> ..	<i>4,527</i>	<i>3,669</i>	<i>31</i>	<i>113</i>	<i>714</i>
<i>Percentage</i> ..	<i>100.0</i>	<i>81</i>	<i>0.5</i>	<i>2.5</i>	<i>16</i>
MUZAFFARGARH—					
1931-2 ..	1,613	1,148	13	53	399
1932-3 ..	1,725	1,166	19	70	470
1933-4 ..	1,825	1,242	17	67	499
<i>Total</i> ..	<i>5,163</i>	<i>3,556</i>	<i>49</i>	<i>190</i>	<i>1,368</i>
<i>Percentage</i> ..	<i>100.0</i>	<i>69</i>	<i>1</i>	<i>4</i>	<i>26</i>
GRAND TOTAL					
1931-2 ..	3,015	2,249	25	91	650
1932-3 ..	4,098	3,047	40	132	879
1933-4 ..	3,492	2,528	44	125	795
<i>Total</i> ..	<i>10,605</i>	<i>7,824</i>	<i>109</i>	<i>348</i>	<i>2,324</i>
<i>Percentage</i> ..	<i>100.0</i>	<i>74</i>	<i>1</i>	<i>3</i>	<i>22</i>

The above table shows that 74 per cent. of the transfers were among agriculturists, 22 per cent. among non-agriculturists, and in the remaining 4 per cent. cases the two classes entered into contracts with each other. Assuming that these 10,605 transfers were by distinct individuals, as also the average number of owners and shareholders (599,000) shown in col. 2 of Table 3, the former figure represents about 2 per cent. of the latter.

4. *Transfers and Acreage.*—Table 5 on pages 8-9 summarises the information collected in this inquiry and shows according to classes (*i.e.*, large owners selling to large or small owners, and small owners selling to small or large owners) the number of transactions, the acreages sold (according to the tribes of vendors or vendees, *i.e.*, agriculturists and non-agriculturists), the acreage owned before sale, and the total price realised; the details of each district and each year are given in Appendices B to E. In this Note a 'Large' owner has been taken as one who owned, before sale or purchase, 300 acres or more. This limit may be open to criticism as the districts under reference are among the poorest in the province, and a lower limit might perhaps have been more suitable; on the other hand landlordism is common in the Indus tract,—Mr. Darling estimates that about 40 per cent. of the cultivated area is in the hands of owners of over 50 acres.* Further it was difficult for the patwaris when filling in the forms to find out accurately the total areas owned by the vendors, and vendees, particularly the acreage owned beyond the village or tract; consequently such entries have been made by them as 'No land in the ilaqa (tract)' or 'Plenty of land elsewhere'. Forms with such entries have been discarded but it should be noted that figures, where given, for the areas owned outside the village cannot but be approximate. It is, therefore, probable that a few of the owners have been taken as 'small' who should actually have come in the 'large' group.

This table confirms the previous table in that in the majority of cases the agriculturists and the non-agriculturists sold land to people of their own class. The following is a summary:—

<i>Vendors and vendees.</i>	CASES—		TOTAL LAND—		CULTIVATED LAND—	
	<i>Number.</i>	<i>Per cent.</i>	<i>Acres.</i>	<i>Per cent.</i>	<i>Acres.</i>	<i>Per cent.</i>
Agriculturists to—						
Agriculturists	.. 7,824	74	35,745	70	14,674	64
Non-agriculturists	.. 109	3	833	3	466	2
Non-agriculturists to—						
Non-agriculturists	.. 2,324	22	13,114	26	7,094	31
Agriculturists	.. 348	1	1,498	1	660	3
<i>Total</i>	.. 10,605	100	51,190	100	22,894	100

* M. L. Darling, "The Punjab Peasant in Prosperity and Debt," 1932 edition, pages 102-105.

Classifying the information according to "large" and "small" owners we get the following result :—

	CASES—		TOTAL LAND—		CULTIVATED LAND—	
	Number.	Per cent.	Acres.	Per cent.	Acres.	Per cent.
<i>Vendors and Vendees.</i>						
Small owners to—						
Small owners	..	10,123	96	43,823	86	20,234 88
Large ,,	..	351	3	3,281	6	1,183 5
Large owners to—						
Large owners	..	33	} 1	2,730	5	1,078 5
Small ,,	..	98		1,356	3	399 2
<i>Total</i>	..	<i>10,605</i>	<i>100</i>	<i>51,190</i>	<i>100</i>	<i>22,894 100</i>

It has already been stated that the land is sold predominantly among the agriculturists. Out of the 35,745 acres (14,674 cultivated) sold in their own class, 30,423 acres (85 per cent.) were transferred by small men to small men: the cultivated area was 13,106 acres (90 per cent.). The area which large owners bought from the small came second in order of importance: the large bought from the small 2,151 acres (814 cultivated) which is 6 per cent. of the land sold among the agriculturists; but this area is only 7 per cent. (6 per cent. for cultivated) of the total area that changed hands between small agriculturists. Moreover the small men got back 1,043 acres (278 cultivated) from the large owners and thus the *net* loss to the former was of 1,108 acres (536 acres cultivated).

According to this Note the vendors, who, it has already been stated, sold 51,190 acres (22,894 cultivated), owned before they entered into these sales contracts, 317,213 acres, and thus the area left with them was 266,023 acres; or 84 per cent. of the area they owned. The total value realised was Rs. 42,96,380 or an average price in the three districts of Rs. 84 per acre and Rs. 188 per cultivated acre.

5. *Transactions among Agriculturists.*—Table 6 on page 10 classifies the 7,824 transactions among agriculturists only, according to districts and the class of sellers and buyers.

TABLE

Results of the Inquiry into Sales of Land in the Jhang, Dera Ghazi Khan

Class of sellers and Years.	Agriculturists to—				Non-agriculturists to—			
	Agriculturists.		Non-agriculturists.		Agriculturists.		Non-agriculturists.	
	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.
No. OF TRANSACTIONS—								
1931-2 ..	2,249		25		91		650	
1932-3 ..	3,047		40		132		879	
1933-4 ..	2,528		44		125		795	
<i>Total</i> ..	<i>7,824</i>		<i>109</i>		<i>348</i>		<i>2,324</i>	
SALES BY—								
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
LARGE TO LARGE—								
1931-2 ..	458	113	..	..	..	..	2	2
1932-3 ..	95	39	..	..	..	..	600	600
1933-4 ..	1,575	324	..	..	..	..	..	..
<i>Total</i> ..	<i>2,128</i>	<i>476</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>602</i>	<i>602</i>
LARGE TO SMALL—								
1931-2 ..	351	85	7	..	..	..	6	2
1932-3 ..	345	56	..	..	..	..	104	30
1933-4 ..	347	137	120	72	63	12	13	5
<i>Total</i> ..	<i>1,043</i>	<i>278</i>	<i>127</i>	<i>72</i>	<i>63</i>	<i>12</i>	<i>123</i>	<i>37</i>
SMALL TO LARGE—								
1931-2 ..	638	192	1	..	95	32	280	48
1932-3 ..	898	313	..	..	75	23	361	129
1933-4 ..	615	309	..	..	14	11	304	126
<i>Total</i> ..	<i>2,151</i>	<i>814</i>	<i>1</i>	<i>..</i>	<i>184</i>	<i>66</i>	<i>945</i>	<i>303</i>
SMALL TO SMALL—								
1931-2 ..	8,113	3,294	177	94	352	132	3,302	1,473
1932-3 ..	12,087	5,412	250	163	454	228	4,066	2,241
1933-4 ..	10,223	4,400	278	137	445	222	4,076	2,438
<i>Total</i> ..	<i>30,423</i>	<i>13,106</i>	<i>705</i>	<i>394</i>	<i>1,251</i>	<i>582</i>	<i>11,444</i>	<i>6,152</i>
TOTAL—								
1931-2 ..	9,560	3,684	185	94	447	164	3,590	1,525
1932-3 ..	3,425	5,820	250	163	529	251	5,131	3,000
1933-4 ..	12,760	5,170	398	209	522	245	4,393	2,569
<i>Total</i> ..	<i>35,745</i>	<i>14,674</i>	<i>833</i>	<i>466</i>	<i>1,498</i>	<i>660</i>	<i>13,114</i>	<i>7,094</i>

5.

and Muzaffargarh Districts in the Years, 1931-2 to 1933-4.

				TOTAL LAND OWNED		Area left as a percent- age of area owned before sale.	Sale Price.
GRAND TOTAL.				Before sale.	After sale.		
3,015 4,098 3,492 <hr/> 10,605							
Total	Per cent.	Culti- vated.	Per cent.				
Acres.		Acres.		Acres.	Acres.		Rs.
460	3.3	115	2.1	13,043	12,583	96.5	30,885
695	3.6	639	6.9	9,403	8,708	92.6	13,325
1,575	8.7	324	4.0	7,761	6,186	79.7	34,475
2,730	5.3	1,078	4.7	30,207	27,477	90.1	78,685
364	2.6	87	1.6	22,575	22,211	98.2	30,402
449	2.3	86	0.9	21,367	20,918	97.9	20,652
543	3.0	226	2.8	22,516	21,973	97.6	69,744
1,356	2.7	399	1.7	66,458	65,102	98.4	1,20,798
1,014	7.4	272	5.0	4,297	3,283	76.4	47,141
1,334	6.9	465	5.1	4,881	3,547	72.7	47,735
933	5.2	446	5.4	4,252	3,319	79.0	59,946
3,281	6.4	1,183	5.2	13,430	10,149	75.6	1,54,822
11,944	86.7	4,993	91.3	50,709	38,765	76.7	10,99,406
16,857	87.2	8,044	87.1	83,355	66,498	79.8	16,06,660
15,022	83.1	7,197	87.8	73,054	58,032	79.4	12,36,009
43,823	85.6	20,234	88.4	207,118	163,295	78.8	39,42,175
13,782	100.0	5,467	100.0	90,624	76,842	83.8	12,07,834
19,335	100.0	9,234	100.0	119,006	99,671	83.7	16,88,372
18,073	100.0	8,193	100.0	107,583	89,510	83.2	14,00,174
51,190	100.0	22,894	100.0	317,213	266,023	83.6	42,96,330

TABLE 6.

Transaction among Agriculturists.

District.	LARGE OWNERS TO—		SMALL OWNERS TO—		Total.
	Large owners.	Small owners.	Large owners.	Small owners.	
JHANG—					
1931-2 ..	4	1	1	99	105
1932-3 ..	1	..	..	198	199
1933-4 ..	..	2	10	283	295
<i>Total</i> ..	5	3	11	580	599
MUZAFFARGARH—					
1931-2 ..	3	16	38	1,091	1,148
1932-3 ..	2	18	24	1,122	1,166
1933-4 ..	4	18	44	1,176	1,242
<i>Total</i> ..	9	52	106	3,389	3,556
DERA GHAZI KHAN—					
1931-2 ..	7	8	33	948	996
1932-3 ..	6	3	77	1,596	1,682
1933-4 ..	3	10	38	940	991
<i>Total</i> ..	16	21	148	3,484	3,669
GRAND TOTAL—					
1931-2 ..	14	25	72	2,138	2,249
1932-3 ..	9	21	101	2,916	3,047
1933-4 ..	7	30	92	2,399	2,528
<i>Total</i> ..	30	76	265	7,453	7,824
Percentages ..	0.4	1.0	3.4	95.2	100.0

In 7,453 cases (95 per cent.) the small agriculturists parted with their land in favour of other small agriculturists and in 265 cases (a little more than 3 per cent.) in favour of large owners. The latter sold to their own class in 30 cases and to small owners in 76 cases.

Taking the number of transactions only, irrespective of the area involved, it will be seen that the small owners sold to large owners in 265 cases and bought land from them in 76 cases ;

in other words there was an excess of 189 cases where the small sold to the large owners: in Jhang this net gain in the number of transactions by the large owners was 8, in Dera Ghazi Khan 127, and in Muzaffargarh 54.

6. *Total and Cultivated Areas Transferred.*—The total area transferred in the three years was 51,190 acres, of which 4,769 acres (9 per cent.) were in Jhang, 21,895 acres (43 per cent.) in Dera Ghazi Khan, and 24,526 acres (48 per cent.) in Muzaffargarh. The cultivated area was 22,894 acres, *i.e.*, 45 per cent. of the total area transferred: 2,434 acres in Jhang (11 per cent. of total cultivated area transferred), 9,266 acres (40 per cent.) in Dera Ghazi Khan, and 11,194 acres (49 per cent.) in Muzaffargarh. When compared with the figures of the areas transferred in these three years, as given in the Land Revenue Administration Report, the total area represent 43 per cent. and the cultivated area 53 per cent. of the Revenue Report figures. The following table shows, according to districts and years, the areas which changed hands:—

TABLE 7.
Areas Transferred.

District and years.	Total Area.		Cultivated Area.	
	Acres.	Per cent.	Acres.	Per cent.
JHANG—				
1931-2 ..	632	4.6	347	6.3
1932-3 ..	1,470	7.6	779	8.4
1933-4 ..	2,667	14.8	1,308	16.0
<i>Total</i> ..	<i>4,769</i>	<i>9.3</i>	<i>2,434</i>	<i>10.7</i>
DERA GHAZI KHAN—				
1931-2 ..	6,375	46.2	2,537	46.4
1932-3 ..	9,659	42.4	4,366	47.3
1933-4 ..	5,861	32.4	2,363	28.8
<i>Total</i> ..	<i>21,895</i>	<i>42.8</i>	<i>9,266</i>	<i>40.5</i>
MUZAFFARGARH—				
1931-2 ..	6,775	49.2	2,583	47.3
1932-3 ..	8,206	50.0	4,029	44.3
1933-4 ..	9,545	52.8	4,522	55.2
<i>Total</i> ..	<i>24,526</i>	<i>47.9</i>	<i>11,194</i>	<i>48.8</i>
GRAND TOTAL—				
1931-2 ..	13,782	26.9	5,467	23.9
1932-3 ..	19,335	37.8	9,234	40.3
1933-4 ..	18,073	35.3	8,193	35.8
<i>Total</i> ..	<i>51,190</i>	<i>100.0</i>	<i>22,894</i>	<i>100.0</i>

7. *Area Transferred in each District.*—Details are now given for each district separately of the land sold according to tribes (agriculturists and non-agriculturists) and classes of buyers and sellers (small or large owners).

JHANG.

TABLE 8.

Acreege Transferred in Jhang District.

Class of owners.	AGRICULTURISTS TO—				NON-AGRICULTURISTS TO—				GRAND TOTAL.	
	Agriculturists.		Non-agriculturists.		Agriculturists.		Non-agriculturists.		Total.	Culti- vated.
	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.		
LARGE TO LARGE—										
1931-2 ..	57	22	..	..	..	..	..	..	57	22
1932-3 ..	23	20	..	..	..	..	..	..	23	20
1933-4 ..	..	..	..	..	..	..	..	..	..	..
<i>Total</i> ..	80	42	..	..	..	..	..	..	80	42
LARGE TO SMALL—										
1931-2 ..	1	1	..	..	..	..	..	..	1	1
1932-3 ..	..	..	..	..	..	..	20	..	20	..
1933-4 ..	10	10	120	72	..	..	..	..	130	82
<i>Total</i> ..	11	11	120	72	..	..	20	..	151	83
SMALL TO LARGE—										
1931-2 ..	1	..	..	..	..	..	..	..	1	..
1932-3 ..	..	..	..	..	..	..	..	..	..	..
1933-4 ..	73	23	..	..	5	3	38	21	116	47
<i>Total</i> ..	74	23	..	..	5	3	38	21	117	47
SMALL TO SMALL—										
1931-2 ..	394	205	4	4	25	13	150	102	573	324
1932-3 ..	879	449	77	37	56	41	415	232	1,427	759
1933-4 ..	1,500	710	163	80	124	63	634	326	2,421	1,179
<i>Total</i> ..	2,773	1,364	244	121	205	117	1,199	660	4,421	2,262
GRAND TOTAL—										
1931-2 ..	453	228	4	4	25	13	150	102	632	347
1932-3 ..	902	469	77	37	56	41	435	232	1,470	779
1933-4 ..	1,583	743	283	152	129	66	672	347	2,667	1,308
<i>Total</i> ..	2,938	1,440	364	193	210	120	1,257	681	4,769	2,434

It will be seen from this table that the total area transferred in Jhang District in the three years was 4,769 acres, of which 2,434 acres (51 per cent.) were cultivated. The small men sold to small owners 4,421 acres (93 per cent.), of which the cultivated area was 2,262 acres (93 per cent.). The large owners sold to large owners 80 acres (42 acres cultivated), large to small 151 acres (82 cultivated), and small to large 117 acres (47 cultivated).

The agriculturists got from agriculturists 2,938 acres (61 per cent. of total area) of which 1,440 acres were cultivated (59 per cent. of total cultivated area). The non-agriculturists got from others of their class 1,257 acres (26 per cent.): cultivated 681 acres (28 per cent.). The extra-class transfers were only 574 acres (12 per cent.) or for cultivated area, 313 acres (13 per cent.).

A few points deserve special attention. Firstly that among large land owners during the three years there was not a single transaction among the non-agriculturists or between agriculturists and non-agriculturists. The land alienated by the small to large, or vice versa, forms a very low proportion of the total area sold in this district: 268 acres in all—151 acres large to small and 117 acres small to large. This, however, shows that the net gain to the small was of 34 acres. Sales in the first two years between large and small owners were very low—22 acres (1 acre cultivated) as against 246 (129 cultivated) in 1933-4.

In Dera Ghazi Khan the total area transferred was 21,895 acres of which 9,266 acres (42 per cent.) were cultivated land. The largest area was bought by the small owners from small owners—19,409 acres or 88 per cent. of the total land sold in this district: the cultivated portion was 8,530 acres (92 per cent. of the total cultivated land). According to tribes the small agriculturists got the largest area mostly from other small agriculturists,—15,184 acres (6,323 acres cultivated) from small agriculturists, and 390 acres (169 cultivated) from small non-agriculturists. In the same class non-agriculturists obtained from other non-agriculturists 3,515 acres (1,847 acres cultivated).

Second in importance were the small men selling to large men to whom they transferred 1,398 acres (512 acres cultivated), *i.e.*, 6·4 per cent. (5·5 per cent. in the case of cultivated) of the total acreage involved; thus most of the land sold was by agriculturists to agriculturists.

The small agriculturists sold no land to large non-agriculturists, but bought from them 8 acres (5 acres cultivated); the small non-agriculturists however sold to large agriculturists 173 acres (58 cultivated) against 181 acres (57 cultivated) to large men of their own tribes.

DERA GHAZI KHAN.

TABLE 9.

Acreege Transferred in Dera Ghazi Khan District.

Class of owners.	AGRICULTURISTS TO--				NON-AGRICULTURISTS TO--				TOTAL.	
	Agriculturists.		Non-agri- culturists.		Agricul- turists.		Non-agri- culturists.		Total.	Culti- vated.
	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.		
LARGE TO LARGE--										
1931-2 ..	380	87	..	..	..	..	2	2	382	89
1932-3 ..	68	17	..	..	..	..	2	2	70	19
1933-4 ..	9	..	..	..	..	..	..	..	9	..
<i>Total</i> ..	<i>457</i>	<i>104</i>	..	..	..	..	<i>4</i>	<i>4</i>	<i>461</i>	<i>108</i>
LARGE TO SMALL--										
1931-2 ..	275	38	7	..	..	..	6	2	289	40
1932-3 ..	81	17	..	..	..	..	38	7	119	24
1933-4 ..	211	47	..	..	8	5	1	..	220	52
<i>Total</i> ..	<i>567</i>	<i>102</i>	<i>7</i>	..	<i>8</i>	<i>5</i>	<i>45</i>	<i>9</i>	<i>627</i>	<i>116</i>
SMALL TO LARGE--										
1931-2 ..	219	76	..	..	95	32	3	2	317	110
1932-3 ..	607	239	..	..	72	21	90	34	769	294
1933-4 ..	218	82	..	..	6	5	88	21	312	108
<i>Total</i> ..	<i>1,044</i>	<i>397</i>	..	..	<i>173</i>	<i>58</i>	<i>181</i>	<i>57</i>	<i>1,398</i>	<i>512</i>
SMALL TO SMALL--										
1931-2 ..	4,094	1,681	148	69	80	20	1,066	528	5,388	2,298
1932-3 ..	6,723	2,896	142	107	175	91	1,661	935	8,701	4,029
1933-4 ..	4,367	1,746	30	15	135	58	788	384	5,320	2,203
<i>Total</i> ..	<i>15,184</i>	<i>6,323</i>	<i>320</i>	<i>191</i>	<i>390</i>	<i>169</i>	<i>3,515</i>	<i>1,847</i>	<i>19,409</i>	<i>8,530</i>
GRAND TOTAL--										
1931-2 ..	4,968	1,882	155	69	175	52	1,077	534	6,375	2,537
1932-3 ..	7,479	3,169	142	107	247	112	1,791	978	9,659	4,366
1933-4 ..	4,805	1,875	30	15	149	68	877	405	5,861	2,363
<i>Total</i> ..	<i>17,252</i>	<i>6,926</i>	<i>327</i>	<i>191</i>	<i>571</i>	<i>232</i>	<i>3,745</i>	<i>1,917</i>	<i>21,895</i>	<i>9,268</i>

Large owners sold almost entirely within their own tribe and class; there were no sales between large agriculturists and large non-agriculturists, and only an insignificant area passed from large men of one class to small men of the other class.

Taking the net gain made by all large owners when selling to small, *i.e.*, the excess of area bought by them over area sold by them, the figures are 771 acres (396 cultivated); by large agriculturists from small agriculturists 477 acres (295 cultivated), and by large non-agriculturists from small non-agriculturists 136 acres (48 cultivated).

MUZAFFARGARH.

TABLE 10.

Acreege Transferred in Muzaffargarh District.

Class of owners.	AGRICULTURISTS TO—				NON-AGRICULTURISTS TO—				TOTAL.		
	Agriculturists.		Non-agri- culturists.		Agricul- turists.		Non-agri- culturists.		Total.	Culti- vated.	
	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.			
LARGE TO LARGE—											
1931-2 ..	21	4	..	..	..	..	..	..	21	4
1932-3 ..	4	2	..	..	..	..	..	598	602	600
1933-4 ..	1,566	324	..	..	..	..	..	..	1,566	324
<i>Total</i> ..	<i>1,591</i>	<i>330</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>598</i>	<i>598</i>	<i>2,189</i>	<i>928</i>
LARGE TO SMALL—											
1931-2 ..	75	46	..	..	..	..	..	..	75	46
1932-3 ..	264	39	46	23	310	62
1933-4 ..	126	80	..	..	55	7	12	5	193	92
<i>Total</i> ..	<i>465</i>	<i>165</i>	<i>..</i>	<i>..</i>	<i>55</i>	<i>7</i>	<i>58</i>	<i>28</i>	<i>578</i>	<i>200</i>	
SMALL TO LARGE—											
1931-2 ..	418	116	1	..	..	..	277	46	696	162
1932-3 ..	291	74	..	..	3	2	271	95	565	171
1933-4 ..	324	204	..	..	3	3	178	84	505	291
<i>Total</i> ..	<i>1,033</i>	<i>394</i>	<i>1</i>	<i>..</i>	<i>6</i>	<i>5</i>	<i>726</i>	<i>225</i>	<i>1,766</i>	<i>624</i>	
SMALL TO SMALL—											
1931-2 ..	3,625	1,408	25	21	247	99	2,086	843	5,983	2,371	
1932-3 ..	4,485	2,067	31	19	223	96	1,990	1,074	6,729	3,256	
1933-4 ..	4,356	1,944	85	42	186	101	2,654	1,728	7,281	3,815	
<i>Total</i> ..	<i>12,466</i>	<i>5,419</i>	<i>141</i>	<i>82</i>	<i>656</i>	<i>296</i>	<i>6,730</i>	<i>3,645</i>	<i>19,993</i>	<i>9,442</i>	
GRAND TOTAL—											
1931-2 ..	4,139	1,574	26	21	247	99	2,363	889	6,775	2,583	
1932-3 ..	5,044	2,182	31	19	226	98	2,905	1,790	8,206	4,089	
1933-4 ..	6,372	2,552	85	42	244	111	2,844	1,817	9,545	4,522	
<i>Total</i> ..	<i>15,555</i>	<i>6,308</i>	<i>142</i>	<i>82</i>	<i>717</i>	<i>308</i>	<i>8,112</i>	<i>4,496</i>	<i>24,522</i>	<i>11,194</i>	

Of the 24,526 acres sold, 11,194 acres (46 per cent.) were cultivated. In this district also the large sold to large and the small to small and the transactions were mostly among agriculturists and non-agriculturists separately in their own class.

The large agriculturists sold to small agriculturists 465 acres (165 cultivated) and bought from them 1,033 acres (394 cultivated). Thus there was a net gain to the large of 568 acres (229

cultivated). Among non-agriculturists the large owners made a net gain of 668 acres (197 cultivated). Taking all the area transferred, the net gain to the large owners was of 1,188 acres (424 cultivated), or an annual average of 396 acres (141 acres cultivated).

8. *Sale Price.*—The following table shows the price realised by sale of land :—

TABLE 11.
Sale Price in Rupees.

District and Year.	AGRICULTURISTS FROM—		NON-AGRICULTURISTS FROM—		TOTAL.
	Agri- culturists.	Non-agri- culturists.	Agricul- turists.	Non-agri- culturists.	
JHANG—					
1931-2 ..	92,902	1,525	4,396	42,079	1,40,902
1932-3 ..	1,40,171	11,680	12,620	1,56,577	3,21,048
1933-4 ..	2,44,173	93,087	25,227	1,67,676	5,30,163
<i>Total</i> ..	<i>4,77,246</i>	<i>1,06,292</i>	<i>42,243</i>	<i>3,66,332</i>	<i>9,92,113</i>
DERA GHAZI KHAN—					
1931-2 ..	2,08,567	23,770	7,978	1,31,043	3,71,358
1932-3 ..	3,50,676	62,787	11,061	1,93,588	6,18,112
1933-4 ..	1,85,279	4,522	8,896	24,974	2,23,671
<i>Total</i> ..	<i>7,44,522</i>	<i>91,079</i>	<i>27,935</i>	<i>3,49,605</i>	<i>12,13,141</i>
MUZAFFARGARH—					
1931-2 ..	2,78,026	8,524	1,20,859	2,88,165	6,95,574
1932-3 ..	3,79,183	13,813	31,434	3,24,782	7,49,212
1933-4 ..	3,08,400	18,966	18,462	3,00,512	6,46,340
<i>Total</i> ..	<i>9,65,609</i>	<i>41,303</i>	<i>1,70,755</i>	<i>9,13,459</i>	<i>20,91,126</i>
GRAND TOTAL—					
1931-2 ..	5,79,495	33,819	1,33,233	4,61,287	12,07,834
1932-3 ..	8,70,030	88,280	55,115	6,74,947	16,88,372
1933-4 ..	7,37,852	1,16,575	52,585	4,93,162	14,00,174
<i>Total</i> ..	<i>21,87,377</i>	<i>2,38,674</i>	<i>2,40,933</i>	<i>16,29,396</i>	<i>42,96,380</i>

The total area sold in the three districts during these years was 51,190 acres, of which 22,894 acres were cultivated—(see Table 7). The price realised, as shown above, was Rs. 42,96,380

which gives an average price of Rs. 84 per acre and Rs. 188 per cultivated acre. The following table shows the average price for each district in each year.

TABLE 12.

Average Sale Price (in Rupees) Per Acre and Per Cultivated Acre.

Year.	JHANG.		DERA GHAZI KHAN.		MUZAFFARGARH.		AVERAGE.	
	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.
INQUIRY.								
1931-2 ..	223	406	58	146	103	269	87	221
1932-3 ..	218	412	64	141	91	183	87	183
1933-4 ..	192	405	38	95	68	143	77	171
<i>Average</i> ..	<i>208</i>	<i>408</i>	<i>55</i>	<i>131</i>	<i>85</i>	<i>187</i>	<i>84</i>	<i>188</i>
LAND REVENUE REPORTS.								
1931-2 ..	225	380	54	154	49	251	87	267
1932-3 ..	231	402	52	145	80	233	95	243
1933-4 ..	235	412	49	139	65	224	84	235
<i>Average</i> ..	<i>230</i>	<i>397</i>	<i>51</i>	<i>145</i>	<i>64</i>	<i>235</i>	<i>89</i>	<i>248</i>

It will be seen that the price of land was the highest in Jhang, followed by Muzaffargarh; Dera Ghazi Khan came last. The total average price was lower for the inquiry than for the Revenue Reports, although Dera Ghazi Khan and Muzaffargarh showed a higher figure for total land, and Jhang for cultivated land.

The next table shows the price per acre and per cultivated acre when the large and small owners sold land to each other or among themselves,

TABLE 13.

*Price of Land when Sold among different Classes.
(Per Acre and Per Cultivated Acre)
(All Districts Combined.)*

Year.	LARGE OWNERS SOLD TO—				SMALL OWNERS SOLD TO—			
	Large owners.		Small owners.		Large owners.		Small owners.	
	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1931-2 ..	67	269	84	349	46	174	92	221
1932-3 ..	19	21	46	240	36	103	95	199
1933-4 ..	21	106	128	309	64	134	82	172
<i>Average</i> ..	<i>29</i>	<i>73</i>	<i>89</i>	<i>303</i>	<i>47</i>	<i>131</i>	<i>90</i>	<i>195</i>

It will be seen from this table that the price realised per acre was lowest for the cultivated as well as for the uncultivated land when the large landlords sold to other large landlords. The small peasants got the highest price for total area sold when they sold to other small men, although the price per cultivated acre was much the highest when large owners sold to small owners.

Next, the prices are classified according to transactions by tribes, *i.e.*, agriculturist or non-agriculturist owners selling to each other or among themselves:—

TABLE 14.

Price when Transactions are among Agriculturists and Non-agriculturists.

Year.	AGRICULTURISTS SOLD TO—				NON-AGRICULTURISTS SOLD TO—			
	Agriculturists		Non-agri- culturists.		Agriculturists		Non-agri- culturists.	
	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1931-2 ..	61	157	183	360	298	813	129	302
1932-3 ..	65	150	353	542	104	220	132	225
1933-4 ..	58	143	293	558	101	215	112	153
<i>Average</i> ..	<i>61</i>	<i>149</i>	<i>287</i>	<i>512</i>	<i>161</i>	<i>365</i>	<i>124</i>	<i>230</i>

This classification shows that the agriculturists sold to agriculturists at the lowest price per acre, both for total land and for cultivated area; they, however, got the highest price when selling to non-agriculturists, although the latter when selling to the former got the next highest.

9. *Areas Owned before and after Sales.*—The table below shows the areas owned before sale and the balance left after sale :

TABLE 15.

Areas (in Acres) Sold and Retained.

District and Year.	AGRICULTURISTS.				NON-AGRICULTURISTS.			
	Owued before sale.	Sold.	Left.	Percentage sold to total.	Owued before sale.	Sold.	Left.	Percentage sold to total.
JHANG—								
1931-2 ..	7,179	457	6,722	6·0	624	175	449	28·0
1932-3 ..	6,505	979	5,526	15·0	2,300	491	1,809	21·4
1933-4 ..	16,986	1,866	15,120	11·0	3,117	801	2,316	25·7
<i>Total</i> ..	<i>30,670</i>	<i>3,302</i>	<i>27,368</i>	<i>10·1</i>	<i>6,041</i>	<i>1,467</i>	<i>4,574</i>	<i>24·3</i>
DERA GHAZI KHAN—								
1931-2 ..	25,848	5,123	20,725	20·0	10,198	1,252	8,946	12·0
1932-3 ..	45,888	7,621	38,267	16·6	13,215	2,038	11,177	15·4
1933-4 ..	26,765	4,835	21,930	18·1	4,463	1,026	3,437	23·0
<i>Total</i> ..	<i>98,501</i>	<i>17,579</i>	<i>80,922</i>	<i>17·9</i>	<i>27,876</i>	<i>4,316</i>	<i>23,560</i>	<i>15·5</i>
MUZAFFARGARH								
1931-2 ..	40,124	4,165	35,959	10·0	6,651	2,610	4,041	39·0
1932-3 ..	41,323	5,075	36,248	12·3	9,775	3,131	6,644	32·0
1933-4 ..	43,493	6,457	37,036	13·2	12,759	3,088	9,671	24·2
<i>Total</i> ..	<i>124,940</i>	<i>15,697</i>	<i>109,243</i>	<i>12·6</i>	<i>29,185</i>	<i>8,829</i>	<i>20,356</i>	<i>30·2</i>
GRAND TOTAL—								
1931-2 ..	73,151	9,745	63,406	13·0	17,473	4,037	13,436	23·0
1932-3 ..	93,716	13,675	80,041	14·6	25,290	5,660	19,630	22·4
1933-4 ..	87,244	13,158	74,086	15·1	20,339	4,915	15,424	24·2
<i>Total</i> ..	<i>254,111</i>	<i>36,578</i>	<i>217,533</i>	<i>14·4</i>	<i>63,102</i>	<i>14,612</i>	<i>48,490</i>	<i>23·1</i>
Percentages ..	100·0	<u>14·4</u>	85·6	..	100·0	23·1	76·9	..

It will be seen that the agriculturists retained 217,533 acres after selling 36,578 acres, i.e., in the three years they sold nearly one-seventh of the land they possessed; similarly the non-agriculturists lost the ownership of 23·1 per cent. of the area they possessed before the sales took place. It may, however, be mentioned that the land owned or retained is arrived at on the

assumption that every vendor, whether agriculturist or non-agriculturist, entered into a sale transaction only once during this time; in other words all the transactions were by different persons. Actually this would not be true since an owner may sell land more than once in the same year or twice or more times in the years under examination. It is however not possible to find out such persons as the names of the vendor and vendee are not given in the Inquiry forms, only their tribes and castes being stated. Consequently there will be some duplication in the figures shown; and it would require a separate inquiry to find out how many times and how much on an average, an ordinary owner sells over a period of years. In this table, as well as the next, only one side of the picture is given, viz., the land sold, while nothing has been said of the land that may have been bought by the sellers later on; if the latter figures were available it would be possible to work out the *net* loss to the owners.

A few points brought out in the above table may be noted:—

- (1). On an average agriculturists sold 14 per cent. of the land owned before sale while the non-agriculturists sold 23 per cent.
- (2). The percentage of land sold by agriculturists was the highest in Dera Ghazi Khan (17·9); Muzaffargarh came next (12·6) and Jhang last (10·1).
- (3). The percentage of land sold by non-agriculturists was the highest in Muzaffargarh (30·2), the next highest in Jhang (24·3) and the least in Dera Ghazi Khan (15·5).
- (4). Progressive increase since 1931-2 in the percentage in Muzaffargarh for agriculturists (10 : 12 : 13) and in Dera Ghazi Khan for non-agriculturists (12 : 15 : 23); also for all agriculturists (13 : 14·6 : 15).
- (5). Progressive decline since 1931-2 in the percentage in Muzaffargarh for non-agriculturists (39 : 32 : 24).

The next table gives information similar to the previous table regarding sales of land by small agriculturists to large agriculturists. The figures are significant as the main purpose of this Note is to find out to what extent the small owners are being expropriated by the large owners.

The percentage of land sold to owned (22) is higher than the figure given in column 5 of the previous table (14·4). In Muzaffargarh it is as high as 28 per cent., but there is a progressive decrease in the years under examination (32 : 26 : 25); in the

previous table there is a progressive increase (10 : 12 : 13). In Jhang very little land was sold (one acre in 1931-2, none in the next and 73 acres in the last).

TABLE 16.

Areas Sold and Retained by Small Agriculturist Owners in Sales to Large Agriculturist Owners only.

District and Year.	AREA—			Area sold as a percentage of area owned before sale.
	Owned before sale.	Sold.	Retained.	
JHANG—				
1931-2	10	1	9	10.0
1932-3 .. ..	..	..	..	..
1933-4	293	73	220	24.9
<i>Total</i> ..	<i>303</i>	<i>74</i>	<i>229</i>	<i>24.4</i>
DERA GHAZI KHAN—				
1931-2	1,526	219	1,307	14.0
1932-3	2,870	607	2,263	21.1
1933-4	1,374	218	1,156	15.9
<i>Total</i> ..	<i>5,770</i>	<i>1,044</i>	<i>4,726</i>	<i>18.1</i>
MUZAFFARGARH—				
1931-2	1,315	418	897	32.0
1932-3	1,102	291	811	26.4
1933-4	1,267	324	943	25.6
<i>Total</i> ..	<i>3,684</i>	<i>1,033</i>	<i>2,651</i>	<i>28.0</i>
GRAND TOTAL—				
1931-2	2,851	638	2,213	22.0
1932-3	3,972	898	3,074	22.5
1933-4	2,934	615	2,319	20.6
<i>Total</i> ..	<i>9,757</i>	<i>2,151</i>	<i>7,606</i>	<i>22.0</i>

10. *Owners who became Landless.*—The following table shows the cases where the vendors became landless.

TABLE 17.
Vendors who became Landless.

Class and Year.	TRANSACTIONS.		AREA SOLD.				SALE PRICE.	
	Number.	Per cent.	Total.		Cultivated.		Amount.	Per cent.
			Acres.	Per cent.	Acres.	Per cent.		
<i>Agriculturists to—</i>							Rs.	
(a) <i>Agriculturists.</i>								
1931-2 ..	395	30.5	2,529	30.7	802	25.7	1,19,986	29.4
1932-3 ..	459	35.4	2,124	25.8	991	31.8	1,18,173	28.9
1933-4 ..	443	34.1	3,586	43.5	1,324	42.5	1,70,403	41.7
<i>Total ..</i>	<i>1,297</i>	<i>57.4</i>	<i>8,239</i>	<i>61.4</i>	<i>3,117</i>	<i>56.4</i>	<i>4,08,562</i>	<i>37.3</i>
(b) <i>Non-agriculturists.</i>								
1931-2 ..	8	30.8	21	15.4	16	18.2	4,740	15.8
1932-3 ..	8	30.8	52	38.3	40	45.4	10,285	34.0
1933-4 ..	10	38.4	63	46.3	32	36.4	15,156	50.2
<i>Total ..</i>	<i>26</i>	<i>1.2</i>	<i>136</i>	<i>1.0</i>	<i>88</i>	<i>1.6</i>	<i>30,181</i>	<i>2.7</i>
<i>Non-agriculturists to—</i>								
(c) <i>Agriculturists.</i>								
1931-2 ..	41	33.9	186	36.9	76	29.0	14,357	23.0
1932-3 ..	45	37.2	202	40.1	114	43.5	28,750	45.8
1933-4 ..	35	28.9	116	23.0	72	27.5	19,587	31.2
<i>Total ..</i>	<i>121</i>	<i>5.3</i>	<i>504</i>	<i>3.8</i>	<i>262</i>	<i>4.7</i>	<i>62,694</i>	<i>5.7</i>
(d) <i>Non-agriculturists.</i>								
1931-2 ..	238	29.2	1,222	26.9	544	26.4	1,54,607	26.0
1932-3 ..	298	36.5	1,515	33.5	800	38.9	2,59,428	43.5
1933-4 ..	280	34.3	1,794	39.6	714	34.7	1,81,538	30.5
<i>Total ..</i>	<i>816</i>	<i>36.1</i>	<i>4,531</i>	<i>33.8</i>	<i>2,058</i>	<i>37.3</i>	<i>5,95,573</i>	<i>54.3</i>
GRAND TOTAL—								
1931-2 ..	682	30.2	3,958	29.5	1,438	26.0	2,93,690	26.8
1932-3 ..	810	35.8	3,893	29.0	1,945	35.2	4,16,636	38.0
1933-4 ..	768	35.0	5,559	41.5	2,142	38.8	3,86,684	35.2
<i>Total ..</i>	<i>2,260</i>	<i>100.0</i>	<i>13,410</i>	<i>100.0</i>	<i>5,525</i>	<i>100.0</i>	<i>10,97,010</i>	<i>100.0</i>

Thus in 2,260 cases the vendors sold all their land, and this represents 21 per cent. of the cases (10,605) dealt with in this Note. The total acreage was 13,410 or 26 per cent. of the area under consideration (51,190 acres); the cultivated area was 5,525 acres or 24 per cent. of the total cultivated area (22,894 acres) under consideration.

Out of these 2,260 transactions, in 57 cases only (2·5 per cent.) the small vendors sold land to large vendees, as shown in the following table:—

TABLE 18.

Transactions in which Small Vendors became Landless after Selling to Large Vendees.

<i>Vendors and vendees.</i>				<i>Number who sold to large owners.</i>
<i>Agriculturists selling to—</i>				
<i>(a). Agriculturists.</i>				
1931-2	..	..	..	8
1932-3	..	..	..	12
1933-4	..	..	..	23
<i>Total</i>				<u>43</u>
<i>(b). Non-agriculturists.</i>				
1931-2	..	..	..	..
1932-3	..	..	..	..
1933-4	..	..	..	..
<i>Total</i>				<u>..</u>
<i>Non-agriculturists selling to—</i>				
<i>(c). Agriculturists.</i>				
1931-2	..	..	..	1
1932-3	..	..	..	1
1933-4	..	..	..	1
<i>Total</i>				<u>3</u>
<i>(d). Non-agriculturists.</i>				
1931-2	..	..	..	4
1932-3	..	..	..	2
1933-4	..	..	..	5
<i>Total</i>				<u>11</u>
GRAND TOTAL—				
1931-2	..	..	..	13
1932-3	..	..	..	15
1933-4	..	..	..	29
<i>Total</i>				<u>57</u>

The next table shows the number of transactions in which the vendors, who sold all their land, were without issue.

TABLE 19.

Childless Vendors who became Landless after Sales.

<i>Vendors and vendees.</i>				<i>Childless vendors.</i>
<i>Agriculturists selling to—</i>				
(a). <i>Agriculturists.</i>				
1931-2	..	..	..	231
1932-3	..	..	..	222
1933-4	..	..	..	203
<i>Total</i>	..	..	..	<u>656</u>
(b). <i>Non-agriculturists.</i>				
1931-2	..	..	..	4
1932-3	..	..	..	1
1933-4	..	..	..	1
<i>Total</i>	..	..	..	<u>5</u>
<i>Non-agriculturists selling to—</i>				
(c). <i>Agriculturists.</i>				
1931-2	..	..	..	24
1932-3	..	..	..	15
1933-4	..	..	..	18
<i>Total</i>	..	..	..	<u>57</u>
(d). <i>Non-agriculturists.</i>				
1931-2	..	..	..	130
1932-3	..	..	..	130
1933-4	..	..	..	112
<i>Total</i>	..	..	..	<u>372</u>
GRAND TOTAL—				
1931-2	..	..	..	389
1932-3	..	..	..	367
1933-4	..	..	..	334
<i>Total</i>	..	..	..	<u>1,090</u>

Thus very few of the sales were to large owners, and at the same time the majority of the transactions were by agriculturists and non-agriculturists separately in their own class. The reasons for the mutations may be the same as those mentioned in the Board's Publication No. 5*, where nearly half the mortgages were by sonless proprietors who were frequently gamblers and wastrels and were compelled by the relatives to transfer a portion at least of the land to their wives or others in order to keep the property within the family.

11. *Reasons for Sale.*—In a previous note submitted to Government in January, 1935, and covering the year 1931-2, the following reasons, arrived at after a somewhat cursory examination of the Forms, were given in the approximate order of their importance:—

- (a). Payment of debt.
- (b). Agricultural expenses.
- (c). Family maintenance.
- (d). Payment of land revenue and taccavi.
- (e). Redemption of land.

In the Forms for 1932-3 and 1933-4 every tenth was selected, in order to find out the reasons for sale and the sources from which the consideration money (*i.e.*, the sale price) was obtained. Payment of debt still appeared to be the chief cause for the sale of land, 41 per cent. of the cases examined giving this reason. The second most important reason was family expenses (34 per cent.); next came land revenue (about 8 per cent.). Other important reasons were purchase of livestock, marriage expenses, and redemption, or purchase, of land. Generally these were found in the same order in the three districts examined. It may, however, be noted that usually there are a number of reasons which compel a man to sell his land, and of these perhaps only the most important is given; sometimes the real reasons may be suppressed altogether and fictitious ones given instead.

The next table classifies the sales according to the reasons stated by the sellers.

* "An Inquiry into Mortgages of Agricultural Land in the Kot Kapura Utar Assessment Circle of the Ferozepore District in the Punjab," 1925, page 25.

TABLE 20

Reasons for Sales of Land.

Causes of sales.	JHANG.		DERA GHAZI KHAN.		MUZAPPARGARH		TOTAL.	
	No. of cases.	Per cent.	No. of cases.	Per cent.	No. of cases.	Per cent.	No. of cases.	Per cent.
1. Debt ..	42	55.0	119	36.3	153	43.0	314	<u>41.3</u>
2. Family expenses ..	18	24.0	147	44.9	95	26.7	260	<u>34.2</u>
3. Land revenue ..	2	3.0	22	6.7	36	10.1	60	7.9
4. Purchase of live-stock.	2	3.0	15	4.6	23	6.4	40	5.3
5. Marriage expenses	2	3.0	6	2.1	19	5.3	27	3.6
6. Purchase of land	4	5.0	7	1.8	6	1.7	17	2.2
7. Redemption of land	4	5.0	3	0.9	9	2.5	16	<u>2.1</u>
8. Agricultural ex-penses.	1	1.0	2	0.6	6	1.7	9	1.2
9. Land Revenue, tac-cavi* and debt.	1	1.0	2	0.6	3	0.8	6	0.8
10. Pre-emption ..	..	..	2	0.6	2	0.6	4	0.5
11. Land improvement	..	..	3	0.9	..	..	3	0.4
12. Litigation ..	..	..	..	..	2	0.6	2	0.3
13. No need for the land	..	..	..	..	1	0.3	1	0.1
14. Business ..	..	..	..	..	1	0.3	1	0.1
<i>Total</i> ..	76	100.0	328	100.0	356	100.0	760	100.0

* Loan from Government for agricultural improvements.

12. *Sources of Consideration Money.*—The next table lists the sources from which the money for purchasing land was procured by the vendees. By far the most important source was profits of agriculture, mentioned in 67 per cent. of the cases examined. The next two sources were money-lending and service (8.5 per cent. each); business such as shopkeeping, working as contractor, etc., came next, followed by sale of livestock. Among other sources were: savings, labour, redemption or sale of land, sale of ornaments, *piri muridi* and borrowings.

TABLE 21.
Sources of Consideration Money.

Sources of consideration money.	JHANG.		D. G. KHAN.		MUZAFFARGARH		TOTAL.	
	No. of cases.	Per cent.	No. of cases.	Per cent.	No. of cases.	Per cent.	No. of cases.	Per cent.
1. Agriculture ..	46	60.5	227	69.4	234	65.5	507	66.7
2. Money-lending ..	16	21.1	16	5.0	33	9.2	65	8.6
3. Service ..	5	6.6	34	10.4	25	7.0	64	8.4
4. Business ..	2	2.6	15	4.6	14	3.9	31	4.1
5. Sale of livestock ..	2	2.6	17	5.0	8	2.2	27	3.6
6. Savings ..	3	4.0	6	2.0	16	4.5	25	3.3
7. Labour ..	2	2.6	4	1.2	9	2.5	15	2.0
8. Various earnings ..	..	..	1	0.3	6*	1.7	7	1.0
9. Realization of debt ..	..	..	1	0.3	3	0.8	4	0.6
10. In lieu of debt from vendor.	..	..	1	0.3	2	0.6	3	0.4
11. Borrowings ..	..	..	2	0.6	1	0.3	3	0.4
12. Rent ..	..	..	1	0.3	..	..	1	0.1
13. Mortgage of land ..	..	..	..	..	1	0.3	1	0.1
14. Begging ..	..	..	..	..	1	0.3	1	0.1
15. Tumandari allowance†	..	..	1	0.3	..	..	1	0.1
16. Redemption of land ..	..	..	..	..	1	0.3	1	0.1
17. Sale of land ..	..	..	1	0.3	1‡	0.3	2‡	0.2
18. Sale of ornaments ..	..	..	..	..	1	0.3	1	0.1
19. Piri-muridi § ..	..	..	..	..	1	0.3	1	0.1
Total ..	76	100.0	327	100.0	357	100.0	760	100.0

* One sunar (goldsmith), one lohar (blacksmith), one camelman, two hakims (local physicians), and one petition writer.

† Government allowance to petty chiefs to keep control over their tribes.

‡ One case each: land sold to government for site of canal.

§ "Tribute" paid to family *pir* (a holy man or his descendants).

13. *Reasons for Sale and Sources of Consideration Money where Small Agriculturists sold to Large Agriculturists.*—All cases in which the small agriculturists sold land to large agriculturists were examined to find out the reasons why the former parted with their lands and the sources from which the latter secured the money to buy the land. The following table shows the reasons for sale:—

TABLE 22.

Reasons for Sale when Small Agriculturists sold to Large Agriculturists.

Causes of Sales.	JHANG.		D. G. KHAN.		MUZAFFARGARH		TOTAL.	
	No. of cases.	Per cent.	No. of cases.	Per cent.	No. of cases.	Per cent.	No. of cases.	Per cent.
1. Debt ..	5	50.0	55	48.0	30	44.1	90	46.6
2. Family expenses ..	2	20.0	40	34.7	18	26.5	60	31.1
3. Land revenue ..	2	20.0	13	11.0	4	5.9	19	9.8
4. Purchase of bullocks ..	..	..	2	1.7	4	5.9	6	3.1
5. Purchase of land ..	..	..	1	0.8	4	5.9	5	2.6
6. Debt and family expenses ..	1	10.0	1	0.8	3	4.4	5	2.6
7. Redemption of land ..	..	..	3	3.0	1	1.4	4	2.1
8. Marriage ..	..	..	..	..	4	5.9	4	2.1
<i>Total</i> ..	<i>10</i>	<i>100.0</i>	<i>115</i>	<i>100.0</i>	<i>68</i>	<i>100.0</i>	<i>193</i>	<i>100.0</i>

Here again repayment of debt was the chief cause, followed by family expenses, payment of revenue dues, purchase of livestock, purchase or redemption of land and marriage expenses.

The next table shows the sources from which the consideration money was procured by the large agriculturists. Owing to lack of time such information was not collected where the small men bought from the large men.

TABLE 23.

Sources of Consideration Money when Large Agriculturists bought from Small Agriculturists.

Sources of consideration money.	JHANG.		DERA GHAZI KHAN.		MUZAFFARGARH.		TOTAL.	
	No. of cases.	Per cent.	No. of cases.	Per cent.	No. of cases.	Per cent.	No. of cases.	Per cent.
1. Agriculture ..	10	100.0	104	90.4	62	91.1	176	91.2
2. Agriculture and service ..	..	..	8	6.9	4	5.9	12	6.2
3. Agriculture and business ..	..	..	1	0.9	..	..	1	0.5
4. Sale of grain ..	..	..	1	0.9	..	..	1	0.5
5. In lieu of debt ..	..	..	1	0.9	1	1.5	2	1.1
6. Miscellaneous ..	..	..	..	..	1	1.5	1	0.5
<i>Total</i> ..	<i>10</i>	<i>100.0</i>	<i>115</i>	<i>100.0</i>	<i>69</i>	<i>100.0</i>	<i>193</i>	<i>100.0</i>

It will be seen that in 91 per cent. of the cases savings from agriculture provided the consideration money, and in another 6 per cent. agriculture combined with business or service. In two cases the land was taken in lieu of debt.

SUMMARY

No. of Transactions.—These numbered 10,605, *i.e.* 45 per cent. of the number of sales (23,462) given in the Land Revenue Administration Reports for these districts for the three years 1931-2 to 1933-4. These sales, arranged according to tribes, *i.e.*, agriculturists and non-agriculturists, were as follows:—

<i>Tribe.</i>	<i>Total.</i>	<i>Average per year.</i>	
	<i>Number.</i>	<i>Number.</i>	<i>Per cent.</i>
<i>Agriculturists selling to—</i>			
Agriculturists ..	7,824	2,608	74
Non-agriculturists ..	109	36	
<i>Non-agriculturists selling to—</i>		} 152	4
Agriculturists ..	348	116	
Non-agriculturists ..	2,324	775	22
<i>Total</i> ..	<u>10,605</u>	<u>3,535</u>	<u>100</u>

Thus nearly three-quarters of the sales were among agriculturists; non-agriculturists sold in their own class in 22 per cent. of the cases; extra-class transactions formed only 4 per cent., the agriculturists selling to non-agriculturists on an average in 36 cases and buying from them in 116 cases: a net gain to the former of 80 cases per annum.

If classified according to vendors and vendees, (*i.e.*, whether "Large" owners or "Small"), the transactions were divided as follows:—

<i>Class.</i>	<i>Total.</i>	<i>Average per year.</i>	
	<i>No.</i>	<i>No.</i>	<i>Per cent.</i>
<i>Small owners selling to—</i>			
Small owners ..	10,123	3,374	96
Large ,, ..	351	117	3
<i>Large owners selling to—</i>			
Small owners ..	33	11	
Large ,, ..	98	33	1
<i>Total</i> ..	<u>10,605</u>	<u>3,535</u>	<u>100</u>

Except for 4 per cent., the cases were of sales by small owners to small owners; the transactions by large owners were only one per cent. of all transactions. The large sold to small owners in 11 cases and bought from them in 117 cases; a net gain to them of 106 cases per annum.

Acreege Sold.—This was 51,190 acres, or 43 per cent. of the total acreage (120,058) shown in the Land Revenue Reports. The cultivated area was 22,894 acres or 53 per cent. of the Revenue Reports figure (43,185). The following table summarises the *annual average* acreage sold by large and small agriculturist and non-agriculturist owners:—

Annual Average Acreage of Land Sold

Class of owners.	LARGE OWNERS SELLING TO—		SMALL OWNERS SELLING TO—		TOTAL.	
	Large.	Small.	Large.	Small.	Acre.	Per centage.
TOTAL ACRES.						
<i>Agriculturists to—</i>						
Agriculturists ..	709	348	717	10,141	11,915	70
Non-agriculturists ..	..	42	(0·3)	235	277	..
<i>Non-agriculturist to—</i>						
Agriculturists ..	..	21	61	417	499	4
Non-agriculturists	201	41	315	3,815	4,372	26
<i>Total</i> ..	910	452	1,093	14,608	17,063	100
<i>Percentage</i> ..	5	3	6	86	100	..
CULTIVATED ACRES.						
<i>Agriculturists to—</i>						
Agriculturists ..	158	93	271	4,369	4,891	64
Non-agriculturists ..	..	24	..	131	155	..
<i>Non-agriculturist to—</i>						
Agriculturists ..	..	4	22	194	220	5
Non-agriculturists	201	12	101	2,051	2,365	31
<i>Total</i> ..	359	133	394	6,745	7,631	100
<i>Percentage</i> ..	5	2	5	88	100	..

Thus, on an average 17,063 acres were sold annually: 70 per cent. among agriculturists, 26 per cent. among non-agriculturists, and only 4 per cent. between the two. Eighty-six per cent. of the area was sold by small men to small men: 10,141 acres among agriculturists, 3,815 among non-agriculturists, and only 652 acres between the two. The small sold to large 1,093 acres and bought from them 452 acres, a net loss to the former of 641 acres; among agriculturists small owners sold to large 717 acres and bought from them 348 acres, a loss of 369 acres; among non-agriculturists the small lost to large 274 acres.

Of the above land sold, 7,631 acres were cultivated (45 per cent.); among agriculturists the cultivated portion of the total land sold by them was 41 per cent., and among non-agriculturists 54 per cent., i.e., the latter sold a larger proportion of cultivated land. Sixty-four per cent. of the total cultivated land was disposed of among agriculturists, 31 per cent. among non-agriculturists and only 5 per cent. between the two. Eighty-eight

per cent. of the acreage was in sales among small men only. The small sold to large 394 acres and bought from them 133 acres, a loss of 261 acres; the small agriculturists lost to their richer brethren 178 acres and the small non-agriculturists 89 acres. Large agriculturists or non-agriculturists did not sell to large men of their opposite class.

Area Left.—The patwaris have given only approximately the area owned by the vendors before sale, and the figures in this Note have been worked out on the assumption that the 10,605 transactions were by so many distinct individuals. The following is an estimate of the percentage area left with the large and small owners after sales:—

<i>Area left as a percentage of area owned before sale.</i>		
Left with large owners when selling to—		
Large owners	..	90.1
Small	..	98.4
Left with small owners when selling to—		
Large owners	..	75.6
Small	..	78.8
<i>All transactions</i>	..	83.6

It thus appears that the small vendors in transactions with large vendees sold about one-quarter of their land; when selling to other small owners they alienated about 21 per cent. of their land; the large owners suffered more when selling to large than when selling to small; only about 2 per cent. in the latter case against 10 per cent. in the former.

Classified according to the tribes of the vendors, *i.e.*, agriculturists or non-agriculturists, the position was as follows:—

<i>District.</i>	<i>Area sold as a percentage of area owned before sale.</i>		
	Agricultu- rists.	Non-agri- culturists.	Total.
Dera Ghazi Khan	.. 17.9	15.5	32.5
Muzaffargarh	.. 12.6	30.2	15.9
Jhang	.. 10.1	24.3	13.0
<i>Average</i>	.. 14.4	23.1	16.1

On an average the vendors sold 16 per cent. of the land they owned before the sales; the agriculturists sold over 14 per cent. and the non-agriculturists 23 per cent.; among agriculturists the vendors alienated the largest proportion in the Dera Ghazi Khan District and the smallest in Jhang; among non-agriculturists Muzaffargarh came first and Dera Ghazi Khan last.

Taking the case of the small agriculturists selling to large agriculturists, the following was the position:—

<i>District.</i>	<i>Area sold as a percentage of area owned before sale.</i>	
Muzaffargarh	28.0
Jhang	24.4
Dera Ghazi Khan	18.1
<i>Average</i>	<u>22.0</u>

The highest percentage of land was sold in the Muzaffargarh District and the lowest in Dera Ghazi Khan; the total for all the districts was 22 per cent. against 14 per cent. for the agriculturists, as shown previously.

Price of Land.—The average sale price per acre and per cultivated acre was as follows:—

<i>District.</i>		<i>Per acre.</i>	<i>Per cultivated acre.</i>
		Rs.	Rs.
Jhang .. ..	..	208	408
Muzaffargarh .. ..	..	85	187
Dera Ghazi Khan .. ..	..	55	131
<i>Average</i> .. ..	..	<u>84</u>	<u>188</u>

The average price as worked out from the Revenue Reports came to Rs. 89 per acre and Rs. 248 per cultivated acre. The price was highest in Jhang and lowest in Dera Ghazi Khan. The following table shows the price (per acre) according to large and small owners in the inquiry:—

	<i>Total.</i>	<i>Cultivated.</i>
	Rs.	Rs.
Large owners selling to—		
Large owners	29	73
Small „	89	303
Small owners selling to—		
Large owners	47	131
Small „	90	195

The large owners got the best price when they sold to the small men, and the latter when they sold to other small men; the large got for cultivated land the smallest price of all when they sold to other large owners, and the highest price when selling to small owners,

The following shows the price (per acre) according to tribes;

	<i>Total.</i> Rs.	<i>Cultivated.</i> Rs.
<i>Agriculturists selling to—</i>		
Agriculturists ..	61	149
Non-agriculturists ..	287	512
<i>Non-agriculturists selling to—</i>		
Agriculturists ..	161	365
Non-agriculturists ..	124	230

The agriculturists sold to agriculturists at the lowest rates. The agriculturists got a better price when they sold to non-agriculturists than the latter did when they sold to the former; the agriculturists got the highest price recorded in the inquiry when selling to the non-agriculturists.

Where Vendors became Landless.—The following table gives the details of persons who sold all their land :—

Tribe.	Transactions.		AREA SOLD.				Price.	
			Total.		Cultivated.			
	No.	Per cent.	Area.	Per cent.	Area.	Per cent.	Amount.	Per cent.
AGRICULTURISTS TO— Agriculturists.	1,297	57.4	8,239	61.4	3,117	56.4	4,08,562	37.3
	26	1.2	136	1.0	88	1.6	30,181	2.7
NON-AGRICULTURISTS TO— Agriculturists	121	5.3	504	3.8	262	4.7	62,694	5.7
	816	3.1	4,531	33.8	2,058	37.3	5,95,573	54.3
<i>Total</i> ..	<i>2,260</i>	<i>100.0</i>	<i>13,410</i>	<i>100.0</i>	<i>5,525</i>	<i>100.0</i>	<i>10,97,010</i>	<i>100.0</i>

Thus of the 10,605 cases dealt with in this Note, 2,260, *i.e.*: 21.3 per cent., were by persons who became landless after sale. The land sold by them (13,410 acres) was 26.2 per cent. of the total land sold (51,190 acres), and the cultivated portion (5,525 acres) 24.1 per cent. of the total cultivated area sold (22,894 acres).

The average area sold per transaction came to 5.9 acres and the average price Rs. 81.8 per acre. The respective figures for transactions among agriculturists were 6.4 acres and Rs. 49.6, and for non-agriculturists 5.6 acres and Rs. 131.4. The non-agriculturists paid a higher price per acre, but the agriculturists sold a larger amount of land per transaction. Extra-tribal sales totalled only 147 cases involving 640 acres (350 cultivated):

the agriculturists bought more from the non-agriculturists than they sold to them—(a net gain of 368 acres).

Of these 2,260 transactions in 1,090 cases (48 per cent.) the vendors were childless. In 57 only of these latter cases the small owners sold land to the large owners and became landless, as follows :—

<i>Transactions where Vendors became Landless.</i>		
	<i>Total childless owners.</i>	<i>Number who sold to large.</i>
<i>Agriculturists selling to—</i>		
Agriculturists ..	656	43
Non-agriculturist ..	5	..
<i>Non-agriculturists selling to—</i>		
Agriculturists ..	57	3
Non-agriculturists ..	372	11
<i>Total</i> ..	<i>1,090</i>	<i>57</i>

Thus very few childless vendors sold to large owners: the majority of the transactions were by agriculturists and non-agriculturists within their own class.

Reasons for Sale.—Every tenth form was selected for the two years, 1932-3 and 1933-4, in order to find out the reasons which led to sale. Repayment of debt appeared to be the chief cause and family expenses next; together they accounted for nearly 76 per cent. of the cases: in Dera Ghazi Khan family expenses, however, came first (45 per cent.) and debt next (36 per cent.). Other important reasons were payment of land revenue, purchase of livestock, marriage expenses, and purchase and redemption of land.

Sources of Consideration Money.—The sampling method was followed here also and it was found that in 67 per cent. of the cases the purchase money was met from the income derived from agriculture. Money-lending and service each accounted for about 8.5 per cent., and the other important sources were business, sale of livestock, savings and labour.

Where the small agriculturists sold to large agriculturists, the reasons for sale and the sources of consideration money were also examined separately. The important causes of sales were repayment of debt (47 per cent.), family expenses (31 per cent.), land revenue (10 per cent.), and purchase of bullocks (3 per cent.). The large agriculturists when buying from small men of their own class paid the consideration money mostly from income derived from agriculture, or this source combined with service or business; in all, these were responsible for over 98 per cent. of such cases examined.

APPENDIX A
EXPROPRIATION OF SMALL OWNERS BY
LARGE OWNERS

From the figures given in the Note an attempt is made below to work out the number of years in which the small owners will be "swallowed up" by the large owners, on the assumption that the small owners do not buy any land during the period. The speed of expropriation is arrived at by taking the excess in acres bought by large owners from small over what they themselves sold to the latter.

(a). *All three districts and all classes of vendors.*

(Reference : Table 5 of Text.)

	Acres.
Land sold in the three years by—	
Small owners to Large owners	3,281
Large " " Small "	1,356
	1,925
Net loss to Small owners	1,925
Average <i>annual</i> loss	642
Land owned by Small owners before sale—	
When selling to Small owners	207,118
" " " Large "	13,430
Total ..	220,548*

∴ Time taken to expropriate at the rate of 642 acres per annum=344 years.

(b). *All three districts (Agriculturists only.)*

(Reference : Table 5 of Text.)

Land sold in the three years by—	
Small owners to Large owners	2,151
Large " " Small "	1,043
	1,108
Net loss to Small owners	1,108
Average <i>annual</i> loss	369
Land owned by Small owners before sale—	
When selling to Small owners	162,438
" " " Large "	9,757
Total ..	172,195

∴ Time taken to expropriate at the rate of 369 acres per annum=467 years.

* This figure excludes the area owned by the small vendees when buying from large, so that the total area owned by all small vendors would be more than this.

(c). *Jhang District (Agriculturists only).*

(Reference : Appendix B.)

Land sold in the three years by—	Acres.
Small owners to Large owners	74
Large ,, ,, Small ,,	11
Net loss to Small owners	63
Average annual loss	21
Land owned by Small owners before sale—	
When selling to Small owners	15,543
,, ,, ,, Large ,,	303
<i>Total</i>	15,846

∴ Time taken to expropriate at the rate of 21 acres per annum = 753 years.

(d). *Dera Ghazi Khan District (Agriculturists only).*

(Reference : Appendix B.)

Land sold in the three years by—	Acres.
Small owners to Large owners	1,044
Large ,, ,, Small ,,	567
Net loss to Small owners	477
Average annual loss	159
Land owned by Small owners before sale—	
When selling to Small owners	67,264
,, ,, ,, Large ,,	5,770
<i>Total</i>	73,034

∴ Time taken to expropriate at the rate of 159 acres per annum = 459 years.

(e). *Muzaffargarh District (Agriculturists only).*

(Reference : Appendix B.)

Land sold in the three years by—	Acres.
Small owners to Large owners	1,033
Large ,, ,, Small ,,	465
Net loss to Small owners	568
Average annual loss	156
Land owned by Small owners before sale—	
When selling to Small owners	79,631
,, ,, ,, Large ,,	3,684
<i>Total</i>	83,315

∴ Time taken to expropriate at the rate of 156 acres per annum = 534 years.

Thus the small owners who deal with large owners will lose their lands to the latter as follows :—

	<i>Years.</i>
(a). Inquiry (Agriculturists and non-agriculturists) ..	344
(b). " (Agriculturists only) ..	467
(c). Jhang (" ") ..	753
(d). Dera Ghazi Khan (" ") ..	459
(e). Muzaffargarh (" ") ..	534

The small men who deal with large men, however, form a small proportion of the total transactions examined, as follows :—

District.	Total transactions.	TRANSACTIONS BY—			
		All small men.		Small men who sold to large.	
		No.	Per cent.*	No.	Per cent.*
Jhang ..	915	900	98	17	2
Muzaffargarh ..	5,163	5,093	99	155	3
Dera Ghazi Khan ..	4,527	4,481	99	179	4
<i>Total</i> ..	<i>10,605</i>	<i>10,474</i>	<i>99</i>	<i>351</i>	<i>3</i>

(* Percentages are to " Total transactions "—Col 2.)

It will be seen that transactions by small men formed from 98 to 99 per cent. of all transactions examined ; taking only those cases where small men dealt with large men the percentages to the total transactions examined were from 2 to 4.

On the assumption that the percentage of small owners who sold to large owners in the various districts is a true index of their proportion to the total population, the following would be the numbers affected :—

District.	Average No. of owners and shareholders.*	Small owners who sell to large owners—	
		Percentage	Number.
Jhang (Agriculturists only)	90,000	2	1,800
Muzaffargarh (" ")	148,000	3	4,440
Dera Ghazi Khan (" ")	206,000	4	8,240
Total (Agriculturists and Non-agriculturists)	.. 600,000	3	18,000

(* From Revenue Reports—round numbers.)

We saw that the number of forms examined (10,605) formed 45 per cent. of the number of sales mentioned in the Revenue Reports (23,462). The number of small owners who dealt with large in the inquiry was 351. Applying the above percentage to this figure also, the number of such men in the three districts would come to 510 every three years, or an average per annum of 170. Thus every year 170 of the 18,000 small owners would be selling to the large and they would be distributed as follows:—

<i>District.</i>	<i>Estimated No. of small owners who sell annually to large owners.</i>
Jhang	8
Muzaffargarh	75
Dera Ghazi Khan	87

Taking the case of the owners who sold all their land, we have seen that they were 2,260 (21 per cent. of 10,605 cases examined), *i.e.*, an average of 753 per annum. This means that in 14 years all the 10,605 owners would become landless, but we have seen that 96 per cent. of the cases are of transactions among small men only, so that most of the men who sell all their land would probably be doing so to other small men. This may not in itself be bad, as is remarked in the Board's Muzaffargarh Village Survey (Publication No. 45):

“ Very small holdings do not provide a living and their alienation by sale may not be a substantial loss to the owners. In fact it may free them for employment elsewhere, although the opportunity to move out of the District is seldom taken. Those who remain tied to extremely uneconomic holdings only add to their debts and misery.”
(Page 96.)

Further the Note gives only one side of the picture, *viz.*, only land sold has been taken into account; and the number of transactions examined have been taken as being by so many different persons, since no names are given in the forms, only the castes and tribes of the sellers and buyers being mentioned. It would, therefore, be advantageous if all the land transactions of all the owners in a very few selected villages in the three districts were examined for the previous ten or fifteen years. This will show the rate at which owners enter into sale transactions, and it would then be possible to work out with some exactitude the speed of expropriation of small owners by large owners.

APPENDIX B

SALES BY AGRICULTURISTS TO AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultivated.	Before sale.	After sale.	
		Acres.	Acres.	Acres.	Acres.	Rs.
1931-2.						
<i>A. Large selling to large.</i>						
Jhang ..	4	57	22	4,026	3,969	21,890
Dera Ghazi Khan ..	7	380	87	5,067	4,687	4,717
Muzaffargarh ..	3	21	4	2,950	2,929	2,278
<i>Total ..</i>	<i>14</i>	<i>458</i>	<i>113</i>	<i>12,043</i>	<i>11,585</i>	<i>28,885</i>
<i>B. Large selling to small.</i>						
Jhang ..	1	1	1	340	339	550
Dera Ghazi Khan ..	8	275	38	5,278	5,003	5,441
Muzaffargarh ..	16	75	46	11,074	10,999	8,301
<i>Total ..</i>	<i>25</i>	<i>351</i>	<i>85</i>	<i>16,692</i>	<i>16,341</i>	<i>14,292</i>
<i>C. Small selling to large.</i>						
Jhang ..	1	1	..	10	9	98
Dera Ghazi Khan ..	33	219	76	1,526	1,307	18,088
Muzaffargarh ..	38	418	116	1,315	897	16,186
<i>Total ..</i>	<i>72</i>	<i>638</i>	<i>192</i>	<i>2,851</i>	<i>2,213</i>	<i>34,372</i>
<i>D. Small selling to small.</i>						
Jhang ..	99	394	205	2,771	2,377	70,364
Dera Ghazi Khan ..	948	4,094	1,681	12,689	8,595	1,80,321
Muzaffargarh ..	1,091	3,625	1,408	24,738	21,113	2,51,261
<i>Total ..</i>	<i>2,138</i>	<i>8,113</i>	<i>3,294</i>	<i>40,198</i>	<i>32,085</i>	<i>5,01,946</i>
E. GRAND TOTAL.						
Jhang ..	105	453	228	7,147	6,694	92,902
Dera Ghazi Khan ..	996	4,968	1,882	24,560	19,592	2,08,567
Muzaffargarh ..	1,148	4,139	1,574	40,077	35,938	2,78,026
<i>Total ..</i>	<i>2,249</i>	<i>9,560</i>	<i>3,684</i>	<i>71,784</i>	<i>62,224</i>	<i>5,79,495</i>

APPENDIX B.—(Continued).

SALES BY AGRICULTURISTS TO AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultivated.	Before sale.	After sale.	
1932-3.		Acres.	Acres.	Acres.	Acres.	Rs.
<i>A. Large selling to large.</i>						
Jhang ..	1	23	20	1,000	977	10,280
Dera Ghazi Khan ..	6	68	17	5,788	5,720	1,370
Muzaffargarh ..	2	4	2	1,331	1,327	475
<i>Total ..</i>	<i>9</i>	<i>95</i>	<i>39</i>	<i>8,119</i>	<i>8,024</i>	<i>12,125</i>
<i>B. Large selling to small.</i>						
Jhang ..	3	81	17	1,688	1,607	1,532
Dera Ghazi Khan ..	18	264	39	11,336	11,072	10,100
<i>Total ..</i>	<i>21</i>	<i>345</i>	<i>56</i>	<i>13,024</i>	<i>12,679</i>	<i>11,632</i>
<i>C. Small selling to large.</i>						
Jhang ..	77	607	239	2,870	2,263	22,020
Dera Ghazi Khan ..	24	291	74	1,102	811	11,917
<i>Total ..</i>	<i>101</i>	<i>898</i>	<i>313</i>	<i>3,972</i>	<i>3,074</i>	<i>33,937</i>
<i>D. Small selling to small.</i>						
Jhang ..	198	879	449	5,361	4,482	129,891
Dera Ghazi Khan ..	1,596	6,723	2,896	34,972	28,249	325,754
Muzaffargarh ..	1,122	4,485	2,067	27,491	23,006	356,691
<i>Total ..</i>	<i>2,916</i>	<i>12,087</i>	<i>5,412</i>	<i>67,824</i>	<i>55,737</i>	<i>812,336</i>
E. GRAND TOTAL.						
Jhang ..	199	902	469	6,361	5,459	140,171
Dera Ghazi Khan ..	1,682	7,479	3,169	45,318	37,839	350,676
Muzaffargarh ..	1,166	5,044	2,182	41,260	36,216	379,183
<i>Total ..</i>	<i>3,047</i>	<i>13,425</i>	<i>5,820</i>	<i>92,939</i>	<i>79,514</i>	<i>870,030</i>

APPENDIX B.—(Concluded).

SALES BY AGRICULTURISTS TO AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultivated.	Before sale.	After sale.	
1933-4.		Acres.	Acres.	Acres.	Acres.	Rs.
<i>A. Large selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	3	9	..	1,030	1,021	288
Muzaffargarh ..	4	1,566	324	6,731	5,165	34,187
<i>Total</i> ..	7	1,575	324	7,761	6,186	34,475
<i>B. Large selling to small.</i>						
Jhang ..	2	10	10	1,772	1,762	10,214
Dera Ghazi Khan ..	10	211	47	4,403	4,192	5,369
Muzaffargarh ..	18	126	80	7,381	7,255	8,061
<i>Total</i> ..	30	347	137	13,556	13,209	23,644
<i>C. Small selling to large.</i>						
Jhang ..	10	73	23	293	220	17,760
Dera Ghazi Khan ..	38	218	82	1,374	1,156	7,226
Muzaffargarh ..	44	324	204	1,267	943	11,985
<i>Total</i> ..	92	615	309	2,934	2,319	36,971
<i>D. Small selling to small.</i>						
Jhang ..	283	1,500	710	7,411	5,911	216,199
Dera Ghazi Khan ..	940	4,367	1,746	19,603	15,236	172,396
Muzaffargarh ..	1,176	4,356	1,944	27,402	23,046	254,167
<i>Total</i> ..	2,399	10,223	4,400	54,416	44,193	642,762
<i>E. GRAND TOTAL.</i>						
Jhang ..	295	1,583	743	9,476	7,893	244,173
Dera Ghazi Khan ..	991	4,805	1,875	26,410	21,605	185,279
Muzaffargarh ..	1,242	6,372	2,552	42,781	36,409	308,400
<i>Total</i> ..	2,528	12,760	5,170	78,667	65,907	737,852

APPENDIX C

SALES BY AGRICULTURISTS TO NON-AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultivated.	Before sale.	After sale.	
1931-2.		Acres.	Acres.	Acres.	Acres.	Rs.
<i>A. Large selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
<i>B. Large selling to small.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	1	7	..	987	980	15,460
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	1	7	..	987	980	15,460
<i>C. Small selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	1	1	..	1	..	90
<i>Total</i> ..	1	1	..	1	..	90
<i>D. Small selling to small.</i>						
Jhang ..	3	4	4	32	28	1,525
Dera Ghazi Khan ..	8	148	69	301	153	8,310
Muzaffargarh ..	12	25	21	46	21	8,434
<i>Total</i> ..	23	177	94	379	202	18,269
E. GRAND TOTAL.						
Jhang ..	3	4	4	32	28	1,525
Dera Ghazi Khan ..	9	155	69	1,288	1,133	23,770
Muzaffargarh ..	13	26	21	47	21	8,524
<i>Total</i> ..	25	185	94	1,367	1,182	33,819

APPENDIX C₂—(Continued).

SALES BY AGRICULTURISTS TO NON-AGRICULTURISTS.

Class of Sellers and District.	No. of transac- tions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultiva- ted.	Before sale.	After sale.	
1932-3.		Acres.	Acres.	Acres.	Acres.	Rs.
<i>A. Large selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
<i>B. Large selling to small.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
<i>C. Small selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
<i>D. Small selling to small.</i>						
Jhang ..	4	77	37	144	67	11,680
Dera Ghazi Khan ..	17	142	107	570	428	62,787
Muzaffargarh ..	19	31	19	63	32	13,813
<i>Total</i> ..	40	250	163	777	527	88,280
E. GRAND TOTAL.						
Jhang ..	4	77	37	144	67	11,680
Dera Ghazi Khan ..	17	142	107	570	428	62,787
Muzaffargarh ..	19	31	19	63	32	13,813
<i>Total</i> ..	40	250	163	777	527	88,280

APPENDIX C.—(Concluded).

SALES BY AGRICULTURISTS TO NON-AGRICULTURISTS.

Class of Sellers and District.	No. of transac- tions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultiva- ted.	Before sale.	After sale.	
1933-4.		Acres.	Acres.	Acres.	Acres.	Rs.
A. Large selling to large.						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
B. Large selling to small.						
Jhang ..	6	120	72	5,944	5,824	43,452
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	6	120	72	5,944	5,824	43,452
C. Small selling to large.						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
D. Small selling to small.						
Jhang ..	16	163	80	1,566	1,403	49,635
Dera Ghazi Khan ..	5	30	15	355	325	4,522
Muzaffargarh ..	17	85	42	712	627	18,966
<i>Total</i> ..	38	278	137	2,633	2,355	73,123
E. GRAND TOTAL.						
Jhang ..	22	283	152	7,510	7,227	93,087
Dera Ghazi Khan ..	5	30	15	355	325	4,522
Muzaffargarh ..	17	85	42	712	627	18,966
<i>Total</i> ..	44	398	209	8,577	8,179	116,575

APPENDIX D

SALES BY NON-AGRICULTURISTS TO AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultivated.	Before sale.	After sale.	
1931-2.		Acres.	Acres.	Acres.	Acres.	Rs.
<i>A. Large selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
<i>B. Large selling to small.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
<i>C. Small selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	14	95	32	858	763	4,216
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	14	95	32	858	763	4,216
<i>D. Small selling to small.</i>						
Jhang ..	4	25	13	117	92	4,396
Dera Ghazi Khan ..	20	80	20	333	253	3,762
Muzaffargarh ..	53	247	99	508	261	120,859
<i>Total</i> ..	77	352	132	958	606	129,017
E. GRAND TOTAL.						
Jhang ..	4	25	13	117	92	4,396
Dera Ghazi Khan ..	34	175	52	1,191	1,016	7,978
Muzaffargarh ..	53	247	99	508	261	120,859
<i>Total</i> ..	91	447	164	1,816	1,369	133,233

APPENDIX D.—(Continued).

SALES BY NON-AGRICULTURISTS TO AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultivated.	Before sale.	After sale.	
1932-3.		Acres.	Acres.	Acres.	Acres.	Rs.
A. Large selling to large						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
B. Large selling to small.						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
C. Small selling to large.						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	1	72	21	90	18	775
Muzaffargarh ..	1	3	2	3	..	260
<i>Total</i> ..	2	75	23	93	18	1,035
D. Small selling to small.						
Jhang ..	13	56	41	222	166	12,620
Dera Ghazi Khan ..	48	175	91	911	736	10,286
Muzaffargarh ..	69	223	96	859	636	31,174
<i>Total</i> ..	130	454	228	1,992	1,538	54,080
E. GRAND TOTAL						
Jhang ..	13	56	41	222	166	12,620
Dera Ghazi Khan ..	49	247	112	1,001	754	11,061
Muzaffargarh ..	70	226	98	862	636	31,434
<i>Total</i> ..	132	529	251	2,085	1,556	55,115

APPENDIX D.—(Concluded).

SALES BY NON-AGRICULTURISTS TO AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultivated.	Before sale.	After sale.	
1933-4.		Acres.	Acres.	Acres.	Acres.	Rs.
<i>A. Large selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
<i>B. Large selling to small.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	1	8	5	400	392	850
Muzaffargarh ..	2	55	7	1,804	1,749	1,155
<i>Total</i> ..	3	63	12	2,204	2,141	2,005
<i>C. Small selling to large.</i>						
Jhang ..	2	5	3	43	38	1,947
Dera Ghazi Khan ..	2	6	5	14	8	198
Muzaffargarh ..	1	3	3	3	..	62
<i>Total</i> ..	5	14	11	60	46	2,207
<i>D. Small selling to small.</i>						
Jhang ..	26	124	63	795	671	23,280
Dera Ghazi Khan ..	27	135	58	401	266	7,848
Muzaffargarh ..	64	186	101	1,358	1,172	17,245
<i>Total</i> ..	117	445	222	2,554	2,109	48,373
E. GRAND TOTAL						
Jhang ..	28	129	66	838	709	25,227
Dera Ghazi Khan ..	30	149	68	815	666	8,896
Muzaffargarh ..	67	244	111	3,165	2,921	18,462
<i>Total</i> ..	125	522	245	4,818	4,296	52,585

APPENDIX E

SALES BY NON-AGRICULTURISTS TO NON-AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Cultivated.	Before sale.	After sale.	
1931-2.		Acres.	Acres.	Acres.	Acres.	Ru.
A. Large selling to large.						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	1	2	2	1,000	998	2,000
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	<i>1</i>	<i>2</i>	<i>2</i>	<i>1,000</i>	<i>998</i>	<i>2,000</i>
B. Large selling to small.						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	1	6	2	4,896	4,890	650
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	<i>1</i>	<i>6</i>	<i>2</i>	<i>4,896</i>	<i>4,890</i>	<i>650</i>
C. Small selling to large.						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	2	3	2	28	25	550
Muzaffargarh ..	12	277	46	559	282	7,913
<i>Total</i> ..	<i>14</i>	<i>280</i>	<i>48</i>	<i>587</i>	<i>307</i>	<i>8,463</i>
D. Small selling to small.						
Jhang ..	39	150	102	507	357	42,079
Dera Ghazi Khan ..	208	1,066	528	3,083	2,017	127,843
Muzaffargarh ..	387	2,086	843	5,584	3,498	280,252
<i>Total</i> ..	<i>634</i>	<i>3,302</i>	<i>1,473</i>	<i>9,174</i>	<i>5,872</i>	<i>450,174</i>
E. GRAND TOTAL.						
Jhang ..	39	150	102	507	357	42,079
Dera Ghazi Khan ..	212	1,077	534	9,007	7,930	131,043
Muzaffargarh ..	399	2,363	889	6,143	3,780	288,165
<i>Total</i> ..	<i>650</i>	<i>3,590</i>	<i>1,525</i>	<i>15,657</i>	<i>12,067</i>	<i>461,287</i>

APPENDIX E.—(Continued).

SALES BY NON-AGRICULTURISTS TO NON-AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Culti-vated.	Before sale.	After sale.	
1932-3.		Acres.	Acres.	Acres.	Acres.	Rs.
<i>A. Large selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	1	2	2	610	608	200
Muzaffargarh ..	1	598	598	674	76	1,000
<i>Total ..</i>	<i>2</i>	<i>600</i>	<i>600</i>	<i>1,284</i>	<i>684</i>	<i>1,200</i>
<i>B. Large selling to small.</i>						
Jhang ..	1	20	..	350	330	1,558
Dera Ghazi Khan ..	3	38	7	5,600	5,562	3,155
Muzaffargarh ..	5	46	23	2,393	2,347	4,307
<i>Total ..</i>	<i>9</i>	<i>104</i>	<i>30</i>	<i>8,343</i>	<i>8,239</i>	<i>9,020</i>
<i>C. Small selling to large.</i>						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	5	90	34	369	279	4,488
Muzaffargarh ..	16	271	95	447	176	8,275
<i>Total ..</i>	<i>21</i>	<i>361</i>	<i>129</i>	<i>816</i>	<i>455</i>	<i>12,763</i>
<i>D. Small selling to small.</i>						
Jhang ..	87	415	232	1,728	1,313	155,019
Dera Ghazi Khan ..	312	1,661	935	5,635	3,974	185,745
Muzaffargarh ..	448	1,990	1,074	5,399	3,409	311,200
<i>Total ..</i>	<i>847</i>	<i>4,066</i>	<i>2,241</i>	<i>12,762</i>	<i>8,696</i>	<i>651,964</i>
E. GRAND TOTAL.						
Jhang ..	88	435	232	2,078	1,643	156,577
Dera Ghazi Khan ..	321	1,791	978	12,214	10,423	193,588
Muzaffargarh ..	470	2,905	1,790	8,913	6,008	324,782
<i>Total ..</i>	<i>879</i>	<i>5,131</i>	<i>3,000</i>	<i>23,205</i>	<i>18,074</i>	<i>674,947</i>

APPENDIX E.—(Concluded).

SALE BY NON-AGRICULTURISTS TO NON-AGRICULTURISTS.

Class of Sellers and District.	No. of transactions.	AREA SOLD.		AREA OWNED.		Sale price.
		Total.	Culti- vated.	Before sale.	After sale.	
1933-4.		Acres.	Acres.	Acres.	Acres.	Rs.
A. Large selling to large						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	..	..	..	..	..	..
Muzaffargarh ..	..	..	..	..	..	..
<i>Total</i> ..	..	..	..	..	..	..
B. Large selling to small.						
Jhang ..	..	..	..	..	..	..
Dera Ghazi Khan ..	1	1	..	62	61	300
Muzaffargarh ..	1	12	5	750	738	343
<i>Total</i> ..	2	13	5	812	799	643
C. Small selling to large.						
Jhang ..	4	38	21	322	284	7,440
Dera Ghazi Khan ..	7	88	21	320	232	6,076
Muzaffargarh ..	18	178	84	616	438	7,252
<i>Total</i> ..	29	304	126	1,258	954	20,768
D. Small selling to small.						
Jhang ..	111	634	326	1,957	1,323	160,236
Dera Ghazi Khan ..	173	788	384	3,266	2,478	18,598
Muzaffargarh ..	480	2,654	1,728	8,228	5,574	292,917
<i>Total</i> ..	764	4,076	2,438	13,451	9,375	471,751
E. GRAND TOTAL.						
Jhang ..	115	672	347	2,279	1,607	167,676
Dera Ghazi Khan ..	181	877	405	3,648	2,771	24,974
Muzaffargarh ..	499	2,844	1,817	9,594	6,750	300,512
<i>Total</i> ..	795	4,393	2,569	15,521	11,128	493,162

APPENDIX F

QUESTIONNAIRE USED IN THE INQUIRY

For each sale.

- (1). Give caste or tribe of—
 - (a). vendor, noting whether he is—
 - (i). a member of a notified agricultural tribe in the district; or
 - (ii). not a member of such a tribe;
 - (b). vendee, noting whether he is—
 - (i). a member of a notified agricultural tribe, or
 - (ii). not a member of such a tribe.
- (2). Is the sale embodied in a—
 - (a). registered deed, or an
 - (b). unregistered deed, or
 - (c). only in the mutation register and *jamabandi*?
- (3). Give the particulars of the sale—
 - (a). date;
 - (b). area sold, in acres;
 - (i). uncultivated;
 - (ii). cultivated *barani*;
 - (iii). cultivated *nahri*;
 - (iv). cultivated *chahi*;
 - (v). is a share in the *shamilat* expressly included;
 - (c). any additional property sold, such as houses, trees, etc.;
 - (d). sum inserted in the sale agreement as consideration, with any additional details given therein.
- (4). Trace the history of the transaction as far back as you can.

Give particulars of—

 - (i). any previous mortgage deeds;
 - (ii). consideration;
 - (iii). area;
 - (iv). amounts of principal and interest;
 - (v). any payment towards redemption or reduction of the debt;
 - (vi). purpose given for further borrowing.
- (5). Ascertain as far as you can from what source the vendee obtained the purchase money, *i.e.*, whether he borrowed from a money-lender, saved it from agricultural income, or from pay in civil or military service, or from remittance from abroad, etc.
- (6). For what purpose did the vendor require the money ?

To pay off a mortgage, repay an old debt or what ?
- (7). Note whether the vendor has any sons to inherit from him; if so, whether minor or adult.
- (8). What was the amount of the land owned before the transaction by (a) the vendor, and (b) the vendee.

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**The Board of Economic Inquiry,
Punjab**

PUBLICATION No. 59

630

[GENERAL EDITOR : J. W. THOMAS, B.Sc., B.Com.]

**FAMILY BUDGETS, 1935-36,
OF
SIX TENANT-CULTIVATORS
IN THE
LYALLPUR DISTRICT**

**Being the Fourth Year's Accounts of some Tenants on the Risalewala Farm
near Lyallpur**

BY

**LABH SINGH, S.S., B.Sc. (AGRI.), L.Ag., P.A.S.,
PROFESSOR OF AGRICULTURE,**

AND

**AJAIB SINGH, B.Sc. (AGRI.),
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LYALLPUR**

[The Board of Economic Inquiry, Punjab, does not hold itself responsible for any
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1938

Some Reports of the Board of Economic Inquiry, Punjab.

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2. Family Budgets of Six Tenant-Cultivators, 1933-4
in the Lyallpur District. (Publication No. 44.)
3. Family Budgets of Six Tenant-Cultivators, 1934-5
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4. Family Budgets of Six Tenant-Cultivators, 1935-6
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(Publication No. 58.)

A complete list of the Board's Publications is given at
the end of this book.

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PREFACE

This is the fourth publication in this series which was started in 1932-33. All information concerning family budgets of the people is of special importance in these days. On the one hand prices of agricultural produce continue at a low level bringing little to the coffers of the cultivators; on the other hand births have risen to a record level—an average of over a million a year while the death-rate is steadily going down. Since the census of 1931 there has been an increase in the population of 2,641,326 (not allowing for migration in or out), an average annual increase of about 4,38,000 and in 1936 and 1937 the natural annual increase ran up to over five lakhs. With such a rapid rise in population the economic position is deteriorating since the development of the resources of the province is not commensurate with these growing numbers.

The present report gives the fourth year's budgets of four families whose accounts appeared in the first report of the series, and the third year's budgets for two families which were added a year later. These families belong to the tenant-cultivator class and as they work on a Government controlled farm under the supervision of the Agricultural Department their condition may be taken as above that of the average cultivator of the province. The inquiry is now being extended to rural families in other parts of the province and the data then will be more representative.

This year, as last, one family has worked at a loss; the year before that all the six families had a deficit and in 1932-33 two out of the four were in that condition. The average income is higher than for last year (Rs. 575 against Rs. 421) but the expenses have also gone up (Rs. 445 against Rs. 360). In the case of income the returns from cultivation (which form 88 per cent. of the total income) and from milk production have been larger than last year, but less from labour, such as cotton picking by women or field labour and the plying of bullock carts on hire by men. Interest and depreciation on the principal invested in cattle and implements have also been included under income beginning from this year and these were estimated to have been larger last year than this year.

In the case of expenditure the cost on food, dress, travelling, religion and social ceremonies were higher this year, while the expense on lighting, medicine, luxuries and miscellaneous have remained about the same, only a slight decrease being shown in the cost on the repair of houses. On a percentage basis however food forms

a lower proportion than last year—60 per cent. against 65 per cent.; dress, travelling, religion and social expenses are each up by about two per cent. This increase in the relatively less essential items is significant as showing that the incomes had expanded beyond the mere subsistence level.

It will thus be seen that the financial position of these families is slowly improving. Their joint net balance of income over expenditure was Rs. 661 last year and this year it is Rs. 779; on the average of four years the net balance is Rs. 666. With a larger number of cases it would be possible to form an idea as to how the cultivators as a whole have weathered the storm of low prices and in what ways they have been able to make adjustments in their domestic budgets to conform to a lower level of income; the cases shown however give us some useful information in this line.

The thanks of the Board are due to S. Labh Singh and S. Ajaib Singh for again giving us this very valuable report.

E. D. L.

June, 1938.

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INTRODUCTION

The importance of finding out the cost of living of urban labourers seems to have been realised in this country some fifteen years ago. Since then, several inquiries on this subject have been made in India, and the "Cost of Living Index Numbers" of various groups of city labourers have been published at regular intervals. So far as agricultural workers are concerned, however, little effort seems to have been made and inquiries relating to rural areas have dealt only with the economics of farming and other sources of income. Information regarding both the income and expenditure of the peasants, although of immense importance, especially in regard to measures for the economic and social betterment of the countryside, was not available before the publication of the "Family Budgets" series by the Board.

Work in connection with the present series of publications was started in the year 1932 at the Risalewala Government Seed Farm near Lyallpur. The main objects of this study have been to find out the following—

1. Various sources of income of the family.
2. Cost of various items of household expenditure.
3. Extent to which the goods consumed by the families are produced on the farm, or bought from outside.
4. Employment, extent and kind, of the members of the family.

The figures of income from cultivation are taken from the "Farm Accounts" series of the Board. The records of income from other sources, household expenditure and non-cultivation labour performed by members of the family, have been recorded by an investigator who lived on the farm. He went round to the families each day, and kept himself in close touch with them. The milk yield of milch animals was recorded each Wednesday.

The present publication is the fourth of the series. It deals with six families of the tenants on the farm. These tenants fall, with respect to their income and social status, midway between ordinary tenants and the peasant proprietors in the Canal Colonies; but

compared with the Punjab farmers as a whole, they may be assumed to be a little above the average.

Tenants A, B, C, D, E and F this year are the same as Nos. 6, 8, 9, 12, 5 and 29, respectively, given in Holding C of Part VIII of the "Farm Accounts" for 1935-36. All the families are the same as those dealt with in the previous year's report.

LABH SINGH.
AJAIB SINGH

FAMILY BUDGETS (1935-6) OF SIX TENANT-CULTIVATORS

1. General.

This is the fourth publication in the series of "Family Budgets of Tenant-Cultivators in the Lyallpur District,"* and deals with the income and expenditure of six families for the year 1st June, 1935, to 31st May, 1936.

2. Particulars of the Families.

The caste, number and ages of family members are shown in Statement 1 on page 22 of the statistical portion of the report. For the purpose of comparison, the number of members in each family has been reduced to adult male units on the basis of Atwater's Scale.† All families are joint and married sons, and their wives, live and work with the parents. Thus families A, B and C consist of more than one married couple; in family D, one of the married sons and his wife live in a separate house, but as the work of farm cultivation is carried on jointly, they are not considered as a separate family. Similarly families E and F include relatives who stayed and worked as full members of these families.

3. Income.

The income dealt with in this report is drawn by the families from the following sources:—

- (i) Farm cultivation.
- (ii) Milk production.
- (iii) Wages of labour done outside, by family members, in their spare time.
- (iv) Interest on capital invested in implements, bullocks and milch cattle.

The income derived from the rent of land, which some families own in their native villages, is mentioned separately but has not been

* For the previous issues in this series, see Publication Nos. 40, 44 and 50 of the Board.
 † The following is Atwater's Scale of Adult Male Units, as given in "Chinese Farm Economy" by Buck, page 17:—

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

included in the income dealt with in these pages. In the present publication interest on capital invested in implements, bullocks and milch cattle has been taken as income, because it is debited to expenditure in the "Farm Accounts" and "Family Budgets" series. Details of the different sources of income, mentioned above, are given below:

(i) **Farm Cultivation.**—The areas held, and income of the families from cultivation, during the year 1935-6 are shown below. The figures have been taken from Statement VI, Holding C, Part VIII of the "Farm Accounts in the Punjab, 1935-36."*

Family.	Area held.	TOTAL (TENANT'S SHARE)		
		Gross income.	Expenditure.	Net income.
	Acres.	Rs.	Rs.	Rs.
6 A ..	27·81	877·19	414·98	462·21
9 B ..	27·66	794·28	424·35	369·93
7 C ..	27·59	1,061·28	382·18	679·10
1 D ..	26·86	1,448·45	483·97	964·48
5 E ..	27·82	943·49	595·55	347·94
29 F ..	13·69	458·19	237·58	220·61
<i>Total</i> ..	<i>151·43</i>	<i>5,582·88</i>	<i>2,538·61</i>	<i>3,044·27</i>
Per Family ..	25·24	930·48	423·10	507·38

(ii) **Milk Production.**—The production and disposal of milk is dealt with in Section 8 and Statement 8 (pages 29-30); the income of the six families from this source was as follows:—

Family.		Gross income.	Expenditure.	Net income.
		Rs.	Rs.	Rs.
A ..	..	152·49	139·12	13·37
B ..	..	272·12	191·06	81·06
C ..	..	73·03	67·47	5·56
D ..	..	132·89	128·84	4·05
E ..	..	159·07	133·92	25·15
F ..	..	74·31	74·31	..
<i>Total</i> ..	..	<i>863·91</i>	<i>734·72</i>	<i>129·19</i>
Per Family ..	..	143·98	122·45	21·53

* Publication No. 59 of the Board.

(iii) **Wages for Labour done Outside.**—This head includes the following items:—

- (a) Value of wages in kind received by the women for picking cotton.
 (b) Wages of men for work outside the farm.
 (c) Receipts from plying carts for hire.

The income of the various families from these sources was as follows:—

Family.		Value of wages in kind for picking cotton (Women).	Wages for labour outside (Men).	Wages earned by plying carts (Men).	Total.
		Rs.	Rs.	Rs.	Rs.
A	..	34.36	10.00	..	44.36
B	..	24.00	..	..	24.00
C	..	13.08	..	..	13.08
D	..	26.47	..	..	26.47
E	..	4.76	..	16.00	20.76
F	..	11.76	..	16.00	27.76
<i>Total</i>		<i>114.43</i>	<i>10.00</i>	<i>32.00</i>	<i>156.43</i>
Per Family		19.07	1.67	5.33	26.07

(iv) **Capital Invested in Agricultural Implements, Bullocks and Milch Cattle.**—Since in the "Farm Accounts" and "Family Budgets" interest on the capital invested in these items is debited to expenditure, it forms a means of income to the families and should be included therein. The amounts from this source were as follows:—

Family.	Implements.	Bullocks.	MILCH CATTLE.		Total.	
			Cows.	She-buffaloes.		
		Rs.	Rs.	Rs.	Rs.	Rs.
A	..	2.24	7.33	2.18	5.47	17.22
B	..	3.25	15.40	2.40	6.60	27.65
C	..	3.84	10.00	1.60	2.40	17.84
D	..	1.96	14.00	..	7.65	23.61
E	..	3.00	9.73	2.33	4.93	19.99
F	..	4.12	4.04	..	4.16	12.32
<i>Total</i>		<i>18.41</i>	<i>60.50</i>	<i>8.51</i>	<i>31.21</i>	<i>118.63</i>
Per Family		3.07	10.08	1.42	5.20	19.77

(v) **Total Income.**—The total income of the families from the four sources mentioned above was as follows:—

Family.	Farm cultivation.	Milk production.	Wages of labour.	Interest on capital.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.
A ..	462.21	13.37	44.36	17.22	537.16
B ..	369.93	81.06	24.00	27.65	502.64
C ..	679.10	5.56	13.08	17.84	715.58
D ..	964.48	4.05	26.47	23.61	1,018.61
E ..	347.94	25.15	20.76	19.99	413.84
F ..	220.61	..	27.76	12.32	260.69
<i>Total</i> ..	<i>3,944.27</i>	<i>129.19</i>	<i>156.43</i>	<i>118.63</i>	<i>3,448.52</i>
Per Family ..	507.38	21.53	26.07	19.77	574.75

In addition to the above, some families received rent for land owned in their native villages in other districts, as follows: Family A, Rs. 23; B, Rs. 100 and E, Rs. 7; a total of Rs. 130.

4. Expenditure.

The expenditure of the families has been studied under the following heads:—

- | | |
|-------------|------------------------------|
| 1. Food | 7. Travelling |
| 2. Fuel | 8. Education |
| 3. Dress | 9. Religion |
| 4. Housing | 10. Social |
| 5. Lighting | 11. Amusements and luxuries. |
| 6. Medicine | 12. Miscellaneous. |

Statement 2 on page 23 gives the household expenditure under these heads during the year. The item of Food has been examined in detail in Section 6 below. The Fuel used by the families consisted of cotton sticks, dung cakes and occasionally loppings from trees which the families are allowed to use, as well as the landlord's share of cotton sticks, free of charge. There is practically no purchase or sale of these articles by the families and the price of fuel is, therefore, uncertain and the cost has not been worked out. "Dress" includes clothing and shoes.

The tenants live in low-roofed, mud-walled houses, which are provided free of charge by the landlord and hence "Housing" does not include any item on account of rent, or interest and depreciation on the value of the house. The tenants repair the houses themselves, and only the out-of-pocket expenses incurred by them in this connection have been taken into account. Expenditure relating to repairs and replacements of furniture, such as charpoys, "piris" (low stools), etc., has also been included under this head.

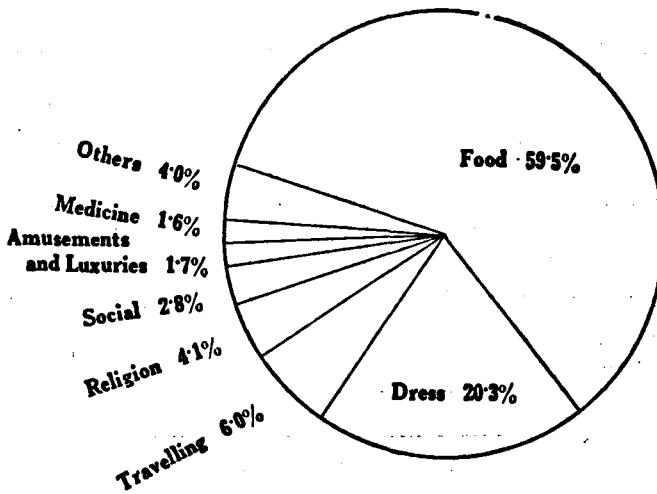
Religion includes expenses on account of offerings made to religious institutions and priests, animals sacrificed at the time of "Id" (Muslim festivals), etc. Social expenditure comprises expenses incurred on social occasions, such as celebrations connected with births, circumcision, etc. Amusements and luxuries include expenditure on tobacco, cinema, theatres and other entertainments. The "Miscellaneous" item comprises expenditure on things not included under any other group.

The maximum, minimum and average expenditure per family and per adult male unit on the various items are shown in the following table:—

Items of expenditure.	PER FAMILY.			PER ADULT MALE UNIT.		
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Food ..	353.61	149.97	264.50	79.12	29.05	45.21
Fuel ..	..	..	..	..	..	..
Dress ..	113.56	70.91	90.44	29.54	10.96	15.46
Housing ..	2.56	..	1.22	0.31	..	0.21
Lighting ..	5.96	1.70	4.21	1.66	0.46	0.72
Medicine ..	19.98	..	7.19	5.55	..	1.23
Travelling ..	47.44	6.50	26.83	9.49	1.87	4.58
Education ..	12.11	..	2.04	1.57	..	0.35
Religion ..	38.43	3.01	18.08	7.69	1.25	3.09
Social ..	40.55	..	12.64	11.26	..	2.16
Amusements and luxuries ..	14.06	2.56	7.55	4.32	0.49	1.29
Miscellaneous ..	20.53	5.58	10.22	5.70	0.94	1.75
<i>Total</i> ..	<i>531.94</i>	<i>252.03</i>	<i>444.92</i>	<i>139.22</i>	<i>49.17</i>	<i>76.05</i>

The following diagram illustrates the importance of the various items of expenditure on a percentage basis:—

CHART I
Items of Expenditure



The table below compares the items of expenditure for the years 1932-3, 1933-4, 1934-5 and the year under review (1935-6).

Items.	AVERAGE PER FAMILY.				PER ADULT MALE UNIT.			
	1932-3	1933-4	1934-5	1935-6	1932-3	1933-4	1934-5	1935-6
Food ..	Rs. 302.12	Rs. 313.50	Rs. 234.57	Rs. 264.50	Rs. 45.92	Rs. 52.69	Rs. 40.68	Rs. 45.21
Fuel ..	..	..	..	..	..	..	..	..
Dress ..	97.14	75.67	65.24	90.44	14.76	12.72	11.31	15.46
Housing ..	2.62	1.39	2.91	1.22	0.40	0.23	0.50	0.21
Lighting ..	6.10	5.53	3.70	4.21	0.93	0.93	0.64	0.72
Medicine ..	4.70	4.63	7.42	7.19	0.71	0.78	1.29	1.23
Travelling ..	28.00	27.12	14.96	26.83	4.25	4.56	2.59	4.58
Education ..	0.65	1.24	0.39	2.04	0.10	0.21	0.07	0.35
Religion ..	6.72	11.29	9.09	18.08	1.02	1.90	1.58	3.09
Social ..	5.25	9.03	5.40	12.64	0.80	1.52	0.94	2.16
Amusements and luxuries..	7.63	3.84	6.64	7.55	1.16	0.64	1.15	1.29
Miscellaneous ..	8.73	8.52	9.98	10.22	1.33	1.43	1.73	1.75
Total ..	469.66	461.76	360.30	444.92	71.38	77.61	62.48	76.05

The expenditure in 1935-6 has increased as compared with the previous year, but it is lower than that of 1933-4. The increase in the present year is mostly under the heads, "Food," "Dress," "Travelling," "Religion" and "Social."

5. Sources of Goods Consumed

According to their immediate source of origin the goods consumed have been divided into two classes, namely:—

1. Goods furnished by the farm.
2. Goods purchased.

A detailed account of the value of goods falling under these two heads will be found in Statement 3 on page 24 and a summary of that statement is given below:—

Items.	AVERAGE EXPENDITURE PER FAMILY.			PERCENTAGE TO TOTAL.	
	Total.	Furnished by the Farm.	Purchased.	Furnished by the Farm.	Purchased.
	Rs.	Rs.	Rs.		
Food ..	264.50	204.98	59.52	77.5	22.5
Fuel ..	..	..	..	100.0	..
Dress ..	90.44	12.82	77.62	14.2	85.8
Housing ..	1.22	..	1.22	..	100.0
Lighting ..	4.21	..	4.21	..	100.0
Medicine ..	7.19	..	7.19	..	100.0
Travelling ..	26.83	..	26.83	..	100.0
Education ..	2.04	..	2.04	..	100.0
Religion ..	18.08	3.93	14.15	21.7	78.3
Social ..	12.64	0.41	12.23	3.2	96.8
Amusements and luxuries ..	7.55	..	7.55	..	100.0
Miscellaneous ..	10.22	6.73	3.49	65.8	34.2
<i>Total</i> ..	<i>444.92</i>	<i>228.87</i>	<i>216.05</i>	<i>51.4</i>	<i>48.6</i>

It will be seen that a little more than half the goods used were furnished by the farm and a little less purchased. It must be noted, however, that the tenants are bound by the terms of their lease to sell, if required, all of their wheat to the Department of Agriculture for seed purposes; and, as most of the wheat produced on the farm was sold in this manner, the tenants had to buy wheat for food from the town (Lyallpur). The general practice with farmers in the Punjab is to produce wheat for home consumption on their farms; to make the figures in the above table conform to the general practice in the province, it has been assumed that all wheat grain bought from the city for food, was furnished by the farm. This assumption is not wrong, as in each case more wheat was sold than bought.

The following table gives for each of the four years, 1932-3 to 1935-6, the value of the goods furnished by the farm and purchased from outside, on the assumption that the amount of wheat bought was grown on the farm itself.

Year.	AVERAGE EXPENDITURE—						PERCENTAGE TO TOTAL.	
	Per Family.			Per Adult Male Unit.			Furnished by the Farm	Purchased.
	Total.	Furnished by the Farm	Purchased.	Total.	Furnished by the Farm	Purchased.		
1932-3 ..	Rs. 469.66	Rs. 264.94	Rs. 204.72	Rs. 71.38	Rs. 40.27	Rs. 31.11	55.4	43.6
1933-4 ..	461.76	272.43	189.33	77.61	45.79	31.82	59.0	41.0
1934-5 ..	360.30	203.92	156.38	62.48	35.36	27.12	56.6	43.4
1935-6 ..	444.92	228.87	216.05	76.05	39.12	36.93	51.4	48.6

6. Food

Statement 4 on page 25 shows the cost of food under various heads. Wheat includes wheat grain, flour, bread, sooji (flour in granular form), etc., consumed as food by the family, whether produced on the farm or bought; also the grinding charges actually paid. Similarly, maize includes grain and flour, and grinding charges. Milk and milk products comprise liquid milk, butter, curd, lassi (butter-milk), ghi (clarified butter commonly used in place of lard in India), and other preparations of milk. Sugar includes gur, shakkar and white sugar used by the family. "Miscellaneous" includes spices, pickles, and also other articles of food not included under any other

head; it also includes current expenses on kitchen utensils, matches, charges of water-carrier for supplying drinking water, etc.

The following table shows the maximum, minimum and average value of the various items of food per family and per adult male unit incurred by the six families:—

Items of food.	PER FAMILY.			PER ADULT MALE UNIT.		
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Wheat ..	161.40	41.18	101.07	27.67	12.81	17.28
Maize ..	3.00	..	0.57	0.83	..	0.10
Milk and milk products ..	135.71	62.79	105.54	37.70	8.60	18.04
Sugar ..	40.93	15.07	25.73	8.19	2.30	4.40
Rice ..	8.16	0.69	4.50	1.98	0.14	0.77
Meat ..	9.31	0.63	2.93	1.86	0.18	0.50
Pulses ..	8.49	1.37	5.17	2.36	0.51	0.88
Vegetables ..	11.64	2.52	6.29	2.01	0.57	1.07
Fruit ..	9.02	3.40	5.50	1.99	0.44	0.94
Salt ..	1.71	0.38	1.04	0.23	0.13	0.18
Miscellaneous ..	10.29	3.00	6.16	1.41	0.86	1.05
<i>All items</i> ..	<i>353.61</i>	<i>149.97</i>	<i>264.50</i>	<i>79.12</i>	<i>29.05</i>	<i>45.21</i>

The quantities of various articles of food used per family per adult male unit and per head are shown in Statement 5 on page 26.

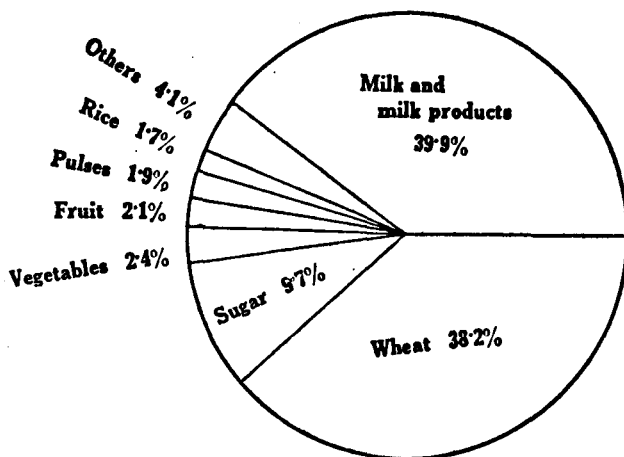
The following table shows the maximum, minimum and average amounts used in any of the families:—

Items.	PER FAMILY PER ANNUM.			PER ADULT MALE UNIT PER ANNUM.			PER DAY PER—	
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Adult male unit.	Head.
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Chtks.	Chtks.
MAJOR COMMODITIES—								
Wheat ..	66.14	16.97	42.75	11.22	5.64	7.31	12.8	9.3
Milk and milk products* ..	72.40	15.00	49.19	20.11	5.75	8.41	14.7	10.6
MINOR COMMODITIES—	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.		
Maize ..	60	..	13	16.67	..	2.22	0.1	0.1
Sugar ..	307	90	206	61.40	23.42	35.24	1.5	1.1
Rice ..	72	15	44	11.25	4.17	7.55	0.3	0.2
Meat ..	26	1	8	5.20	0.28	1.34	0.1	..
Pulses ..	108	43	78	30.00	5.89	13.39	0.6	0.4
Salt ..	27	6	16	3.60	2.21	2.82	0.1	0.1

* In terms of liquid milk, including ghi purchased. Ghi has been converted into milk on the assumption: one chhatak of ghi=one seer of milk.

The relative importance of the various items of expenditure on food is shown in the following diagram.

CHART II
Expenditure on Various Items of Food.



The average expenditure on different items of food is compared in the following table with similar expenditure in the three previous years:—

Items.	AVERAGE PER FAMILY.				PER ADULT MALE UNIT.			
	1932-3.	1933-4.	1934-5.	1935-6.	1932-3.	1933-4.	1934-5.	1935-6.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Wheat ..	142.78	145.34	91.31	101.07	21.70	24.43	15.83	17.28
Maize ..	2.25	1.79	3.00	0.57	0.34	0.30	0.52	0.10
Milk and milk products ..	97.64	111.15	96.22	105.54	14.84	18.68	16.69	18.04
Sugar ..	25.56	21.13	18.01	25.73	3.89	3.55	3.12	4.40
Rice ..	8.12	6.23	4.74	4.50	1.23	1.05	0.82	0.77
Meat ..	6.98	3.37	1.98	2.93	1.06	0.57	0.35	0.50
Pulses ..	4.27	3.33	6.06	5.17	0.65	0.56	1.05	0.88
Vegetables ..	3.54	3.22	5.55	6.29	0.54	0.54	0.96	1.07
Fruit ..	3.69	3.09	1.96	5.50	0.56	0.52	0.34	0.94
Salt ..	1.48	1.39	0.84	1.04	0.23	0.23	0.15	0.18
Miscellaneous ..	5.81	13.46	4.90	6.16	0.88	2.26	0.85	1.05
Total ..	302.12	313.50	234.57	264.50	45.92	52.69	40.68	45.21

7. Sources of Food Consumed

Statement 6 on page 27 gives in the case of each family the values of the items of food furnished by the farm and bought from outside. The table given below shows the average figures for the six families. As explained previously the usual practice of farmers in the Punjab is to produce wheat for home consumption on their own farms, but most of the wheat produced by these tenants was sold to the Government for seed, according to the terms of their lease. Wheat for home consumption had, therefore, to be bought from the city and this has, in the following table, been considered as grown on the farm:—

Items.	AVERAGE EXPENDITURE PER FAMILY.			PERCENTAGE TO TOTAL.	
	Total.	Furnished by the farm.	Purchased.	Furnished by the farm.	Purchased.
	Rs.	Rs.	Rs.		
Wheat ..	101.07	89.28	11.79	88.3	11.7
Maize ..	0.57	0.57	..	100.0	..
Milk and milk products ..	105.54	99.21	6.33	94.0	6.0
Sugar ..	25.73	12.26	13.47	47.7	52.3
Rice ..	4.50	..	4.50	..	100.0
Meat ..	2.93	..	2.93	..	100.0
Pulses ..	5.17	2.97	2.20	57.3	42.7
Vegetables ..	6.29	..	6.29	..	100.0
Fruit ..	5.50	..	5.50	..	100.0
Salt ..	1.04	..	1.04	..	100.0
Miscellaneous ..	6.16	0.69	5.47	11.2	88.8
<i>Total</i> ..	<i>264.50</i>	<i>204.98</i>	<i>59.52</i>	<i>77.5</i>	<i>22.5</i>

Ghi.—The proportion of ghi prepared at home and purchased and its consumption per adult male unit and per head was as follows:—

Tenant.	Produced.	Purchased.	Total.	Consumed per adult male unit per annum.	CONSUMPTION PER DAY.	
					Per adult male unit.	Per head.
	Seers.	Seers.	Seers.	Seers.	Chhataks.	Chhataks.
A ..	105.2	..	105.2	13.7	0.6	0.4
B ..	120.9	1.0	121.9	24.4	1.1	0.9
C ..	81.5	..	81.5	11.7	0.5	0.4
D ..	96.9	5.2	102.1	11.2	0.5	0.3
E ..	123.2	8.4	131.6	36.6	1.6	1.2
F ..	31.2	0.6	31.8	13.2	0.6	0.5
Total ..	558.9	15.2	574.1	16.4	0.7	0.5

Sugar.—The proportion of sugar produced and bought and also its consumption per adult male unit and per head is shown in Statement 7 on page 28. The average figures of the present year compare with those for the previous three years as follows:—

(Average per Family per Annum).

Year.	RAW SUGAR.			Refined sugar purchased.	Total.	Per adult male unit.	Per head.
	Furnished by farm.	Purchased.	Total.				
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.
AMOUNT—							
1932-3 ..	110.0	138.9	248.9	31.3	280.2	42.6	31.1
1933-4 ..	58.3	67.8	126.1	34.4	160.5	26.9	19.6
1934-5 ..	57.3	61.9	119.2	23.3	142.5	24.7	17.8
1935-6 ..	118.5	55.3	173.8	32.3	206.2	35.2	25.6
VALUE—	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1932-3 ..	6.47	9.01	15.48	10.07	25.55	3.88	2.84
1933-4 ..	3.33	7.88	11.21	9.92	21.13	3.55	2.59
1934-5 ..	4.58	7.11	11.69	6.32	18.01	3.12	2.25
1935-6 ..	12.26	4.86	17.12	8.61	25.73	4.40	3.20

8. Production and Disposal of Milk

(i) **Production.**—Milk is produced mainly by buffaloes and to a much smaller extent by cows, because the latter are kept primarily for breeding and the supply of bullocks for the plough. Buffaloes are preferred because they are heavier yielders than cows and their milk is richer in fat. The cost of production of milk has been worked out for buffaloes and cows separately in Statements 8-A and 8-B on pages 29 and 30, respectively. The main items of cost are as follows:—

- (a) Roughages.
- (b) Concentrates and salt.
- (c) Interest and depreciation on the value of milch cattle.
- (d) Miscellaneous.

Housing has been left out because it did not cost the tenants anything: the houses were either provided by the landlord free of charge, or built by family labour for which no cash expense was incurred. Labour has also been excluded because milk production is only a subsidiary industry, and is carried out in spare time with no additional out-of-pocket expenses.

Roughages include green fodders, **bhusa** (straw), etc. They are fed to all cattle from a common lot, and, therefore, no separate records of consumption by each animal are available. The share of each animal has been worked out by dividing the total cost of roughages by the number of adult animals. For this purpose animals above two years of age have been taken as adults and those between one and two years of age as equal to half an adult animal; animals below one year have been ignored. The records of consumption of concentrates and salt were maintained separately.

Depreciation on the value of cattle has been charged @ 12 per cent. per annum, and interest on capital @ 8 per cent. per annum. An important change has been made in the system of charging interest from this year. In the previous years the interest was charged @ 8 per cent. per annum on the original value until the value was covered by depreciation. From this year it has been assumed that the value covered by depreciation in a year is recovered that year, and interest should be charged only on the remaining part of the original value. In this way interest would be charged at 8 per cent. per annum on the progressively decreasing amount until the value is fully covered by depreciation. An alternative, which amounts practically to the same thing but is more convenient, is to charge interest at half the given rate on the original value until full value is recovered in the form of depreciation. This system has been adopted from the present year, and interest is charged @ 4 per cent. per annum on the original value.

9. Dress

Dress includes clothing and shoes. The former may be divided into four classes, viz.,

- (i) Clothes of every day wear.
- (ii) Bedding.
- (iii) Those meant for wear on special occasions, such as marriages, festivals, etc.
- (iv) Those given as presents to relatives.

The first group includes, for males, turbans, shirts, loin cloths, tehmats and chaddars and for females, dopattas, shirts, shilwars, suthans and ghagras. The second group includes bed sheets, durries, quilts, mattresses, etc., which are generally made of coarse cloth. Clothes included in group (iii) are always machine-made and bought from outside. Shoes are always purchased.

Dress which accounted for 20.3 per cent. of the total expenditure stands second in importance to food among the items of expenditure. Its total cost varied from Rs. 70.91 in Family F to Rs. 113.56 in Family A and the average came to Rs. 90.44. Per adult male unit the figure ranged from Rs. 10.96 in Family D to Rs. 29.54 in Family F, the average being Rs. 15.46. These averages compare with those for the previous three years as follows:—

Year.	COST OF DRESS.	
	Per family.	Per adult male unit.
	Rs	Rs.
1932-3 ..	97.14	14.76
1933-4 ..	75.67	12.72
1934-5 ..	65.24	11.31
1935-6 ..	90.44	15.46

The following table gives the quantities of cloth and shoes purchased:—

Tenant.	TOTAL.		PER ADULT MALE UNIT.		Pairs of shoes per head.
	Cloth.	Shoes.	Cloth.	Shoes.	
	Yards.	Pairs.	Yards.	Pairs.	
A ..	382.5	5.0	49.7	0.6	0.5
B ..	158.5	7.0	31.7	1.4	1.2
C ..	187.0	6.0	25.6	0.8	0.6
D ..	265.5	4.0	29.2	0.4	0.3
E ..	217.5	6.0	60.4	1.7	1.2
F ..	150.0	4.0	62.5	1.7	1.3
<i>Total</i> ..	<i>1,361.0</i>	<i>32.0</i>	<i>38.8</i>	<i>0.9</i>	<i>0.7</i>
<i>Per Family</i> ..	<i>226.8</i>	<i>5.3</i>	<i>..</i>	<i>..</i>	<i>..</i>

The average proportion of dress purchased and furnished by the farm came to 85.8 and 14.2 per cent., respectively.

The following table shows the amount of cotton lint used by the families for different purposes:—

Tenant.	Quilts and pillows.	Cloth and bed sheets.	Lint and yarn exchanged for cloth.	Total.
	Seers.	Seers.	Seers.	Seers.
A ..	3.2	6.0	0.8	10.0
B ..	6.0	10.0	..	16.0
C ..	6.0	20.0	..	26.0
D ..	12.4	16.4	..	28.8
E ..	6.0	12.0	..	18.0
F ..	..	18.0	..	18.0
<i>Total</i> ..	<i>33.6</i>	<i>82.4</i>	<i>0.8</i>	<i>116.8</i>
<i>Average</i> ..	<i>5.6</i>	<i>13.7</i>	<i>0.13</i>	<i>19.5</i>

"Miscellaneous" includes the cost of ropes, veterinary charges, etc.

From the total of these items the value of young stock raised during the year is deducted. No allowance has been made for the value of manure produced as this is also ignored in the "Farm Accounts." Its omission from both sides of the accounts, i.e., from the income side in the "Family Budgets," and the expenditure side in the "Farm Accounts," leaves the balance of family accounts unaffected. The cost of milk production, therefore, includes the value of the share of roughages, concentrates and salt consumed, interest and depreciation, and miscellaneous expenses, less the value of young stock at the end of the year.

The cost of production of milk during the year under review averaged as follows:—

Items.	TOTAL.		PER ANIMAL.	
	Buffaloes.	Cows.	Buffaloes.	Cows.
	Rs.	Rs.	Rs.	Rs.
Roughages ..	270·1	143·85	29·70	26·35
Concentrates and salt ..	165·78	44·53	18·24	8·15
Interest and depreciation on the value of cattle ..	124·83	34·03	13·73	6·23
Miscellaneous ..	4·69	..	0·52	..
<i>Total</i> ..	<i>565·31</i>	<i>222·41</i>	<i>62·19</i>	<i>40·73</i>
<i>Less value of young stock</i> ..	<i>33·00</i>	<i>20·00</i>	<i>3·63</i>	<i>3·66</i>
<i>Balance</i> ..	<i>532·31</i>	<i>202·41</i>	<i>58·56</i>	<i>37·07</i>
	Mds.	Mds.	Mds.	Mds.
Milk produced ..	273·98	89·47	30·14	16·39
	Rs.	Rs.	Rs.	Rs.
Cost per maund ..	1·94	2·26	1·94	2·26

The cost of production per maund during the year under review is now compared with that for the previous two years in the following table. It will be seen that the cost of producing buffalo

milk has gone down and this is mainly because of the greater amount of milk produced per animal.

Year.	Number.	PER ANIMAL.		Cost of production per maund.
		Cost of upkeep.	Milk produced.	
		Rs.	Mds.	Rs.
BUFFALOES—				
1933-4	.. 13·00	62·22	25·68	2·42
1934-5	.. 9·00	62·83	23·15	2·71
1935-6	.. 9·09	58·56	30·14	1·94
Cows—				
1933-4	.. 6·00	38·59	10·42	3·70
1934-5	.. 5·00	41·41	16·00	2·59
1935-6	.. 5·46	37·07	16·39	2·26

(ii) Disposal.—The disposal of milk by the different tenants is shown in the following table:—

Family.	Total.	SOLD.		CONSUMED.		HOW CONSUMED.			
		Quantity.	Per cent.*	Quantity.	Per cent.*	As Milk.		As Curd, Butter, Ghi and Butter-milk.	
						Quantity.	Per cent.†	Quantity.	Per cent.†
1	2	3	4	5	6	7	8	9	10
		Mds.	Mds.	Mds.		Mds.		Mds.	
BUFFALOES—									
A ..	47·61	10·78	22·6	36·83	77·4	3·89	10·6	32·94	89·4
B ..	82·93	45·40	54·7	37·53	45·3	6·68	17·8	30·85	82·2
C ..	24·89	3·15	12·7	21·74	87·3	2·66	12·2	19·08	87·8
D ..	52·20	5·07	9·7	47·13	90·3	8·36	17·7	38·77	82·3
E ..	51·95	13·65	25·3	38·30	73·7	8·22	21·5	30·08	78·5
F ..	14·40	..	..	14·40	100·0	1·85	12·8	12·55	87·2
<i>Total</i> ..	<i>273·98</i>	<i>78·05</i>	<i>..</i>	<i>195·93</i>	<i>..</i>	<i>31·66</i>	<i>..</i>	<i>164·27</i>	<i>..</i>
<i>Per Family</i> ..	<i>45·66</i>	<i>13·01</i>	<i>28·5</i>	<i>32·65</i>	<i>71·5</i>	<i>5·27</i>	<i>16·2</i>	<i>27·38</i>	<i>83·8</i>
Cows—									
A ..	16·11	2·04	12·7	14·07	87·3	2·54	18·1	11·53	81·9
B ..	25·06	3·41	13·6	21·65	86·4	3·49	16·1	18·16	83·9
C ..	22·60	..	..	22·60	100·0	5·29	23·4	17·31	76·6
D ..	..	..	..	..	..	..	..	..	..
E ..	25·70	..	..	25·70	100·0	1·42	5·5	24·28	94·5
F ..	..	..	..	..	..	..	..	..	..
<i>Total</i> ..	<i>89·47</i>	<i>5·45</i>	<i>..</i>	<i>84·02</i>	<i>..</i>	<i>12·74</i>	<i>..</i>	<i>71·28</i>	<i>..</i>
<i>Per Family</i> ..	<i>14·91</i>	<i>0·91</i>	<i>6·1</i>	<i>14·00</i>	<i>93·9</i>	<i>2·12</i>	<i>15·2</i>	<i>11·88</i>	<i>84·8</i>

* Per cent. of col, 2,

† Per cent. of col. 5,

9. Dress

Dress includes clothing and shoes. The former may be divided into four classes, viz.,

- (i) Clothes of every day wear.
- (ii) Bedding.
- (iii) Those meant for wear on special occasions, such as marriages, festivals, etc.
- (iv) Those given as presents to relatives.

The first group includes, for males, turbans, shirts, loin cloths, tehmats and chaddars and for females, dopattas, shirts, shilwars, suthans and ghagras. The second group includes bed sheets, durries, quilts, mattresses, etc., which are generally made of coarse cloth. Clothes included in group (iii) are always machine-made and bought from outside. Shoes are always purchased.

Dress which accounted for 20.3 per cent. of the total expenditure stands second in importance to food among the items of expenditure. Its total cost varied from Rs. 70.91 in Family F to Rs. 113.56 in Family A and the average came to Rs. 90.44. Per adult male unit the figure ranged from Rs. 10.96 in Family D to Rs. 29.54 in Family F, the average being Rs. 15.46. These averages compare with those for the previous three years as follows:—

Year.	COST OF DRESS.	
	Per family.	Per adult male unit.
	Rs	Rs.
1932-3 ..	97.14	14.76
1933-4 ..	75.67	12.72
1934-5 ..	65.24	11.31
1935-6 ..	90.44	15.46

The following table gives the quantities of cloth and shoes purchased:—

Tenant.	TOTAL.		PER ADULT MALE UNIT.		Pairs of shoes per head.
	Cloth.	Shoes.	Cloth.	Shoes.	
	Yards.	Pairs.	Yards.	Pairs.	
A ..	382.5	5.0	49.7	0.6	0.5
B ..	158.5	7.0	31.7	1.4	1.2
C ..	187.0	6.0	25.6	0.8	0.6
D ..	265.5	4.0	29.2	0.4	0.3
E ..	217.5	6.0	60.4	1.7	1.2
F ..	150.0	4.0	62.5	1.7	1.3
<i>Total</i> ..	<i>1,361.0</i>	<i>32.0</i>	<i>28.8</i>	<i>0.9</i>	<i>0.7</i>
<i>Per Family</i> ..	<i>226.8</i>	<i>5.3</i>	<i>..</i>	<i>..</i>	<i>..</i>

The average proportion of dress purchased and furnished by the farm came to 85.8 and 14.2 per cent., respectively.

The following table shows the amount of cotton lint used by the families for different purposes:—

Tenant.	Quilts and pillows.	Cloth and bed sheets.	Lint and yarn exchanged for cloth.	Total.
	Seers.	Seers.	Seers.	Seers.
A ..	3.2	6.0	0.8	10.0
B ..	6.0	10.0	..	16.0
C ..	6.0	20.0	..	26.0
D ..	12.4	16.4	..	28.8
E ..	6.0	12.0	..	18.0
F ..	..	18.0	..	18.0
<i>Total</i> ..	<i>33.6</i>	<i>82.4</i>	<i>0.8</i>	<i>116.8</i>
<i>Average</i> ..	<i>5.6</i>	<i>13.7</i>	<i>0.13</i>	<i>19.5</i>

The total consumption of cotton lint per family averaged 19.5 seers, or an equivalent of 58.5 seers of seed cotton. This figure compares with those for the previous three years as follows:—

Year.	Cotton lint.		Equivalent of seed cotton.	
	Seers.	Seers.	Seers.	Seers.
1932-3	14.3		42.9	
1933-4	16.4		49.2	
1934-5	12.3		36.9	
1935-6	19.5		58.5	

The cost of khaddar made in the village is given in the following table:—

	TENANTS.			Total.
	A.	B.	C.	
	Seers.	Seers.	Seers.	Seers.
Lint—				
Quantity	6.0	10.0	10.0	26.0
	Rs.	Rs.	Rs.	Rs.
Value	2.70	4.50	4.50	11.70
Carding charges	0.22	0.94	0.94	2.10
Weaving charges—				
In cash	3.00	4.00	5.00	12.00
In kind	0.33	0.54	0.54	1.41
Spinning charges—				
(Not actually paid)	1.50	2.50	3.50	7.50
<i>Total</i>	<i>7.75</i>	<i>12.48</i>	<i>14.48</i>	<i>34.71</i>
	Yards.	Yards.	Yards.	Yards.
Cloth	18	56	75	149
	Rs.	Rs.	Rs.	Rs.
Cost per yard—				
Excluding spinning	0.35	0.18	0.15	0.18
Including	0.43	0.22	0.19	0.23

The cost of making khaddar, including spinning charges, thus came to Rs. 0.3-8 per yard. As spinning was mostly done by the women of the families the actual cost to the family was Rs. 0.2-11 per yard only.

Family A exchanged yarn for cloth from the town of Lyallpur, and the cost of obtaining cloth in this way was as follows:—

		<i>Tenant A.</i>	
Lint—			Seers.
Quantity	..	..	8
Value	..	..	Rs. 3.60
Cash payments	..	..	2.00
Spinning charges (not actually paid)	..	..	2.00
		<i>Total</i>	.. 7.60
Cloth obtained	..	..	25 yards.
Cost per yard—			
Including spinning charges	..	..	Rs. 0.30 (Rs. 0.4-10).
Excluding " "	..	..	Rs. 0.22 (Rs. 0.3-6).

The cost of making quilts was as follows:—

Family.	LINT.		Cost of cloth.	Cost of printing cover.	Carding and stuffing charges.	Total cost.	No. of quilts.	Cost per quilt.
	Quantity.	Value.						
	Seers.	Rs.						
A ..	3.2	1.44	0.14	2.50	0.38	4.46	1	4.46
B ..	6.0	2.70	0.25	3.21	0.62	6.78	2	3.39
C ..	6.0	2.70	0.31	9.00	0.75	12.76	2	6.38
D ..	10.0	4.50	0.50	7.88	0.94	13.82	3	6.91
E ..	6.0	2.70	0.38	6.75	0.75	10.58	2	5.29
F ..	..	..	..	..	..	..	..	..
<i>Total</i> ..	<i>31.2</i>	<i>14.04</i>	<i>1.58</i>	<i>29.34</i>	<i>3.44</i>	<i>48.40</i>	<i>10</i>	<i>4.84</i>

10. Financial Position of the Families

The following table shows the income, expenditure and surplus or deficit in the budgets of the six families. (The rent of land owned in the native villages of the tenants has not been included).

Family.		Income.	Expenditure.	Surplus (+) or deficit (—).
		Rs.	Rs.	Rs.
A	..	537.16	524.84	+12.32
B	..	502.64	500.55	+2.09
C	..	715.58	358.96	+356.62
D	..	1,018.61	531.94	+486.67
E	..	413.84	501.19	—87.35
F	..	260.69	252.03	+8.66
	<i>Total</i> ..	<i>3,448.52</i>	<i>2,669.51</i>	<i>+779.01</i>
	Per Family ..	574.75	444.92	+129.83

The financial position of the families (taking the income to include the interest on capital invested in livestock and implements)* during the four years 1932-3 to 1935-6 works out as follows:—

Year.	FAMILIES.						
	A.	B.	C.	D.	E.	F.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1932-3 ..	+44.24	-67.66	+178.86	-76.19	..	..	+79.25
1933-4 ..	-139.10	-91.10	-117.29	-316.01	-189.51	..†	-853.01
1934-5 ..	-32.67	+97.14	+172.05	+290.67	+80.35	+53.23	+660.77
1935-6 ..	+12.32	+2.09	+356.62	+486.67	-87.35	+8.66	+779.01
<i>Average</i> ..	<i>-115.21</i>	<i>-59.53</i>	<i>+590.24</i>	<i>+385.14</i>	<i>-196.51</i>	<i>+61.89</i>	<i>+666.02</i>

†This family left the farm at the end of the year and was replaced by the present Family F in 1934-5.

11. Employments of the Family Members

Statements 9-A and 9-B on pages 31 and 32 give the average of various kinds of work done by the male and female members of an average family. It will be seen that each male worker was on an average employed for 294.5 days during the year as against 294.8 in the previous year—(day=8 hours). Each female member was on an average employed for 298.4 days, which is the same as in 1934-5.

* In the previous years the income of the families was taken to include—

- (i). Net income from cultivation;
- (ii). Profit from the sale of milk produced; and
- (iii). Earnings from labour performed outside.

In the year under review the interest on capital invested in bullocks, milch cattle and implements has also been included in the income. The above figures for the previous years have, therefore, been worked out by the addition of the following amounts of interest to the corresponding figures in the previous publications:—

Year.	FAMILIES.						
	A.	B.	C.	D.	E.	F.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1932-3 ..	63.56	81.92	66.00	87.52	..	..
1933-4 ..	56.40	66.80	53.38	87.52	70.44	..	
1934-5 ..	56.40	66.20	29.04	63.06	43.24	40.57	

The distribution of the working time of men and women during the year under review and the previous three years was as follows:—

(Per Man or Woman)

Nature of work.	DAYS.*				PERCENTAGE TO TOTAL.			
	1932-3.	1933-4.	1934-5.	1935-6.	1932-3.	1933-4.	1934-5.	1935-6.
MALES—								
Cultivation ..	150.3	166.7	178.1	168.3	44.9	54.7	60.4	57.1
Upkeep of livestock ..	167.5	113.4	90.9	119.3	50.0	37.2	30.8	40.5
Milking ..	2.7	6.3	11.3	1.8	0.8	2.1	3.8	0.6
Churning ..	0.1	0.1	..	..	..	..	..	..
House-repairing ..	0.9	1.1	1.3	..	0.3	0.4	0.5	..
Carrying meals to fields ..	..	..	..	0.4	..	..	..	0.2
Grinding grain ..	2.3	2.0	2.5	2.1	0.7	0.7	0.9	0.7
Miscellaneous ..	7.3	9.3	7.5	0.5	2.2	3.1	2.5	0.2
Paid labour outside ..	3.9	5.6	3.2	2.1	1.1	1.8	1.1	0.7
<i>Total</i> ..	<i>335.0</i>	<i>304.5</i>	<i>294.8</i>	<i>294.5</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
FEMALES—								
Upkeep of livestock ..	1.9	2.0	6.0	1.7	0.8	0.8	2.0	0.5
Milking ..	5.7	9.7	4.8	6.8	2.5	4.0	1.6	2.3
Churning ..	20.1	16.6	18.2	14.5	8.9	6.7	6.1	4.8
House cleaning and .. repairing	13.0	13.1	13.4	15.7	5.7	5.3	4.5	5.3
Barn cleaning ..	18.7	27.0	23.3	22.6	8.3	10.9	7.8	7.6
Clothes (making, mend- ing and washing) ..	47.9	41.0	76.2	58.7	21.1	16.6	25.5	19.7
Cooking and carrying meals ..	75.1	80.5	80.0	115.0	33.2	32.5	26.8	38.5
Fetching water from well	22.0	25.9	23.7	21.2	9.7	10.5	8.0	7.1
Miscellaneous ..	1.2	0.9	3.9	0.8	0.5	0.4	1.3	0.3
Paid labour outside ..	21.0	30.5	48.9	41.4	9.3	12.3	16.4	13.9
<i>Total</i> ..	<i>226.6</i>	<i>247.2</i>	<i>298.4</i>	<i>298.4</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>

* Day=8 hours.

As noted last year, it will be seen that the work of the two sexes is more or less based on a division of labour. The males are mostly engaged in the work of cultivation and the upkeep of livestock, while the females do the cooking and make and mend clothes (including the ginning and spinning of cotton) in addition to picking cotton in winter. A male member on an average did 2.1 days' paid labour outside, and each female 41.4 days'.

Reference : Section 2 of text.

STATEMENT 1.

FAMILY MEMBERS.

Ages of Members at the end of the Year and Adult Male Units Equivalent of each Family.

Families.	MALES (BY AGE-GROUPS).									FEMALES (BY AGE-GROUPS).									Grand total.	Adult male units.
	Over 16 years.	15-16 years.	13-14 years.	12 years.	10-11 years.	6-9 years.	2-5 years.	Under 2 years.	Total.	Over 16 years.	15-16 years.	13-14 years.	12 years.	10-11 years.	6-9 years.	2-5 years.	Under 2 years.	Total.		
A (Muslim Arain)	3.3*	..	1	..	..	1	..	1	6.3	2	..	1	..	..	1	..	..	4	10.3*	7.7
B (" Jat)	3	..	..	..	..	..	..	..	3	2	..	..	..	..	..	1	..	3	6	5.0
C (" Arain)	4	..	..	..	..	1	2	..	7	2	..	..	..	..	..	1	..	3	10	7.3
D (" ")	3	1	..	..	..	1	2	1	8	3	..	..	..	..	1	1	1	6	14	9.1
E (Sikh Jat)	2	..	..	..	..	..	..	1	3	1	..	..	..	..	1	..	..	2	5	3.6
F (Muslim Arain)	1	..	..	..	1	..	..	..	2	1	..	..	..	..	..	..	..	1	3	2.4
Total ..	16.3	1	1	..	1	3	4	3	29.3	11	..	1	..	..	3	3	1	19	45.3	25.1
Per Family ..	2.7	0.2	0.2	..	0.1	0.5	0.6	0.5	4.8	1.8	..	0.2	..	..	0.5	0.5	0.2	3.2	8.0	5.8

*One relative remained in the family for four months only and then went away.

NOTE.—The age-groups are arranged according to Atwater's Scale of Adult Male Units—see footnote on page 1 of text.

Reference: Section 4 of text.

STATEMENT 2.

DOMESTIC EXPENDITURE.

Total and Per Adult Male Unit Domestic Expenditure of each Family.

Items of expenditure.	TOTAL.								PER ADULT MALE UNIT.							
	Family.						Total.	Average.	Family.						Average.	Percentage to total.
	A	B	C	D	E	F			A	B	C	D	E	F		
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
① Food ..	285-41	301-14	212-06	353-61	284-83	149-97	1,587-02	264-50	37-06	60-23	29-05	38-86	79-12	62-49	45-21	59-5
✓ Fuel ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
✓ Dress ..	113-56	88-03	82-12	99-77	88-26	70-91	542-65	90-44	14-75	17-60	11-25	10-96	24-52	29-54	15-46	20-3
✓ Housing ..	2-38	..	2-19	2-56	0-18	..	7-31	1-22	0-31	..	0-30	0-28	0-05	..	0-21	0-3
✓ Lighting ..	4-52	5-50	3-44	4-14	5-96	1-70	25-26	4-21	0-59	1-10	0-47	0-46	1-66	0-71	0-72	0-9
✓ Medicine ..	7-78	0-81	..	11-69	19-98	2-88	43-14	7-19	1-01	0-16	..	1-28	5-55	1-20	1-23	1-6
✓ Travelling ..	43-44	47-44	13-62	32-00	18-00	6-50	161-00	26-83	5-64	9-49	1-87	3-52	5-00	2-71	4-58	6-0
✓ Education ..	12-11	..	..	..	..	0-12	12-23	2-04	1-57	..	..	..	..	0-05	0-35	0-5
✓ Religion ..	17-99	38-43	14-33	14-40	20-34	3-01	108-50	18-08	2-34	7-69	1-96	1-58	5-65	1-25	3-09	4-1
✓ Social ..	23-39	2-88	8-00	..	40-55	1-00	75-82	12-64	3-04	0-58	1-10	..	11-26	0-42	2-16	2-8
Amusements and luxuries ..	6-98	6-81	14-06	4-50	2-56	10-36	45-27	7-55	0-91	1-36	1-92	0-49	0-71	4-32	1-29	1-7
✓ Miscellaneous ..	7-28	9-51	9-14	9-27	20-53	5-58	61-31	10-22	0-94	1-90	1-25	1-02	5-70	2-32	1-75	2-3
Total ..	524-84	500-55	358-96	531-94	501-19	252-03	2,669-51	444-92	68-16	100-11	49-17	58-45	139-22	105-01	76-05	100-0

Reference : Section 5 of text.

STATEMENT 3.

SOURCES OF GOODS CONSUMED.

Value of the Items of Household Expenditure Furnished by the Farm or Purchased from Outside.

Items of expenditure.	FURNISHED BY THE FARM.							PURCHASED FROM OUTSIDE.							PERCENTAGE TO TOTAL.	
	Family.						Total.	Family.						Total.	Furnished by Farm.	Purchased from outside.
	A	B	C	D	E	F		A	B	C	D	E	F			
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
Food ..	228.61	236.36	168.13	272.05	221.59	103.16	1,229.90	56.80	64.78	43.93	81.56	63.24	46.81	357.12	77.50	22.50
Fuel ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	100.00	..
Dress ..	11.46	13.61	12.78	17.38	12.25	9.45	76.93	102.10	74.42	69.34	82.39	76.01	61.46	465.72	14.18	85.82
Housing ..	..	..	..	..	..	..	..	2.38	..	2.19	2.56	0.18	..	7.31	..	100.00
Lighting ..	..	..	..	..	..	..	..	4.52	5.50	3.44	4.14	5.96	1.70	25.26	..	100.00
Medicine ..	..	..	..	..	..	..	..	7.78	0.81	..	11.69	19.98	2.88	43.14	..	100.00
Travelling ..	..	..	..	..	..	..	..	43.44	47.44	13.62	32.00	18.00	6.50	161.00	..	100.00
Education ..	..	..	..	..	..	..	..	12.11	..	..	..	..	0.12	12.23	..	100.00
Religion ..	6.74	4.24	6.61	2.40	2.34	1.26	23.59	11.25	34.19	7.72	12.00	18.00	1.75	84.91	21.74	78.26
Social ..	..	..	..	..	2.43	..	2.43	23.39	2.88	8.00	..	38.12	1.00	73.39	3.20	96.80
Amusement and luxuries ..	..	..	..	..	..	..	..	6.98	6.81	14.06	4.50	2.56	10.36	45.27	..	100.00
Miscellaneous ..	4.83	5.20	6.64	6.10	13.49	4.09	40.35	2.45	4.31	2.50	3.17	7.04	1.49	20.96	65.81	34.19
Total ..	251.64	259.41	191.16	297.93	252.10	117.98	1,373.20	273.20	241.14	164.80	234.01	249.09	134.07	1,296.31	51.44	48.56
Percentage to total ..	47.95	51.82	54.09	56.01	50.30	46.80	51.44	52.05	48.18	45.91	43.99	49.70	53.20	48.56	51.44	48.56

Reference : Section 6 of text.

STATEMENT 4.
EXPENDITURE ON FOOD.

Total and Per Adult Male Unit Expenditure on Food by each Family.

Items.	TOTAL.								PER ADULT MALE UNIT.							Percentage to total.
	Family.						Total.	Average.	Family.						Average.	
	A	B	C	D	E	F			A	B	C	D	E	F		
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Wheat ..	109.94	100.73	93.54	161.40	99.63	41.18	606.42	101.07	14.28	20.15	12.81	17.73	27.67	17.16	17.28	38.2
Maize ..	0.44	..	..	..	3.00	..	3.44	0.57	0.06	..	..	..	0.83	..	0.10	0.2
Milk and milk products ..	111.85	117.69	62.79	129.41	135.71	75.81	633.26	105.54	14.53	23.54	8.60	14.22	37.70	31.58	18.04	39.9
Sugar ..	32.22	40.93	22.42	20.96	22.80	15.07	154.40	25.73	4.18	8.19	3.07	2.30	6.33	6.28	4.40	9.7
Rice ..	5.29	0.69	8.16	6.20	1.88	4.75	26.97	4.50	0.69	0.14	1.12	0.68	0.52	1.98	0.77	1.7
Meat ..	2.50	9.31	1.75	2.25	0.63	1.12	17.56	2.93	0.32	1.86	0.24	0.25	0.18	0.47	0.50	1.1
Pulses ..	5.86	6.82	3.86	4.62	8.49	1.37	31.02	5.17	0.76	1.36	0.53	0.51	2.36	0.57	0.88	2.0
Vegetables ..	5.71	10.04	4.17	11.64	3.66	2.52	37.74	6.29	0.74	2.01	0.57	1.28	1.02	1.05	1.07	2.4
Fruit ..	3.40	9.02	3.62	7.61	4.61	4.77	33.03	5.50	0.44	1.80	0.50	0.84	1.28	1.99	0.94	2.1
Salt ..	1.04	1.13	1.46	1.71	0.50	0.38	6.22	1.04	0.13	0.23	0.20	0.19	0.14	0.16	0.18	0.4
Miscellaneous ..	7.16	4.78	10.29	7.81	3.92	3.00	36.96	6.16	0.93	0.95	1.41	0.86	1.09	1.25	1.05	2.3
Total ..	285.41	301.14	212.06	353.61	284.83	149.97	1,587.02	264.50	37.06	60.23	29.05	38.86	79.12	62.49	45.21	100.0

Reference : Section 6 of text.

STATEMENT 5.

ARTICLES OF FOOD CONSUMED.

Total and per Adult Male Unit weights of the Articles of Food Consumed by each Family.

Article of food.	TOTAL.								PER ADULT MALE UNIT.								Per head per day.	
	Family.						Total.	Average.	Family						Average.			
	A	B	C	D	E	F			A	B	C	D	E	F	Per year.	Per day.		
MAJOR COMMODITIES—	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Chhs.†	Chhs.†
Wheat ..	46-83	45-02	41-14	66-14	40-40	16-97	256-50	42-75	6-08	9-00	5-64	7-27	11-22	7-07	7-31	12-8	9-3	
Milk and milk* products ..	50-90	60-18	44-34	52-33	72-40	15-00	295-15	49-19	6-61	12-04	6-07	5-75	20-11	6-25	8-41	14-7	10-6	
MINOR COMMODITIES—	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.			
Maize ..	10	..	..	8	60	..	78	13	1-30	..	..	0-88	16-67	..	2-22	0-1	0-1
Sugar ..	279	307	171	232	158	90	1,237	206	36-23	61-40	23-42	25-49	43-89	37-50	35-24	1-5	1-1	
Rice ..	51	39	72	60	15	28	265	44	6-62	7-80	9-86	6-59	4-17	11-25	7-55	0-3	0-2	
Meat ..	7	26	5	6	1	3	48	8	0-91	5-20	0-68	0-66	0-28	1-25	1-34	0-1	..	
Pulses ..	101	108	43	65	108	45	470	78	13-12	21-60	5-89	7-14	30-00	18-75	13-39	0-6	0-4	
Salt ..	17	18	23	27	8	6	99	16	2-21	3-60	3-15	2-97	2-22	2-50	2-82	0-1	0-1	

*In terms of liquid milk, including ghi purchased. Ghi has been converted into milk by assuming that one chhatak of ghi=one seer of milk.

†Chhataks.

Reference : Section 7 of text.

STATEMENT 6.
SOURCES OF FOOD CONSUMED.

Proportion of Articles of Food Furnished by the Farm or Purchased from Outside.

Items.	FURNISHED BY THE FARM.							PURCHASED.							PERCENTAGE TO TOTAL.	
	Family.						Total.	Family.						Total.	Furnished by Farm.	Purchased.
	A	B	C	D	E	F		A	B	C	D	E	F			
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		
Wheat ..	85.91	94.49	87.11	147.97	92.12	28.10	535.70	24.03	6.24	6.43	13.43	7.51	13.08	70.72	88.3	11.7
Maize ..	0.44	..	..	..	3.00	..	3.44	..	..	..	..	..	..	..	100.0	..
Milk ..	111.85	115.19	62.79	116.41	114.71	74.31	595.26	..	2.50	..	13.00	21.00	1.50	38.00	94.0	6.0
Sugar ..	25.81	24.43	12.46	3.17	7.72	..	73.59	6.41	16.50	9.96	17.79	15.08	15.07	80.81	47.7	52.3
Rice ..	..	..	..	..	..	..	..	5.29	0.69	8.16	6.20	1.88	4.75	26.97	..	100.0
Meat ..	..	..	..	..	..	..	..	2.50	9.31	1.75	2.25	0.63	1.12	17.56	..	100.0
Fulses ..	4.60	2.25	1.64	4.50	4.04	0.75	17.78	1.26	4.57	2.22	0.12	4.45	0.62	13.24	57.3	42.7
Vegetables ..	..	..	..	..	..	..	..	5.71	10.04	4.17	11.64	3.66	2.52	37.74	..	100.0
Fruit ..	..	..	..	..	..	..	..	3.40	9.02	3.62	7.61	4.61	4.77	33.03	..	100.0
Salt ..	..	..	..	..	..	..	..	1.04	1.13	1.46	1.71	0.50	0.38	6.22	..	100.0
Miscellaneous ..	..	..	4.13	..	..	..	4.13	7.16	4.78	6.16	7.81	3.92	3.00	32.83	11.2	88.8
Total ..	228.61	236.36	168.13	272.05	221.59	103.16	1,229.90	56.80	64.78	43.93	81.56	63.24	46.81	357.12	77.5	22.5
Percentage to total ..	80.1	78.5	79.3	76.9	77.8	68.8	77.5	19.9	21.5	20.7	23.1	22.2	31.2	22.5	..	..

Reference: Section 7 of text.

STATEMENT 7.
SUGAR CONSUMED.

Total and per Adult Male Unit Amount and Value of Sugar Consumed per Annum by each Family.

Family.	TOTAL.						PER ADULT MALE UNIT.		
	Raw sugar.			Refined sugar purchased.	Total.	Per head.	Raw sugar	Refined sugar.	Total.
	Furnished by the Farm	Purchased	Total.						
A. AMOUNT—	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.
A. ..	240	22	262	17	279	27-09	34-02	2-21	36-23
B. ..	236	16	252	55	307	51-17	50-40	11-00	61-40
C. ..	126	16	142	29	171	17-10	19-45	3-97	23-42
D. ..	29	17	199	33	232	16-57	21-87	3-63	25-50
E. ..	80	42	122	36	158	31-60	33-89	10-00	43-89
F. ..	..	66	66	24	90	30-00	27-50	10-00	37-50
<i>Total</i> ..	<i>711</i>	<i>332</i>	<i>1,043</i>	<i>194</i>	<i>1,237</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>
<i>Average</i> ..	<i>118-50</i>	<i>55-33</i>	<i>173-83</i>	<i>32-33</i>	<i>206-16</i>	<i>25-61</i>	<i>29-71</i>	<i>5-53</i>	<i>35-24</i>
B. VALUE—	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
A. ..	25-81	2-00	27-81	4-41	32-22	3-13	3-61	0-57	4-18
B. ..	24-43	2-00	26-43	14-50	40-93	6-82	5-29	2-90	8-19
C. ..	12-46	2-38	14-84	7-58	22-42	2-24	2-03	1-04	3-07
D. ..	3-17	9-13	12-30	8-66	20-96	1-50	1-35	0-95	2-30
E. ..	7-72	5-30	13-02	9-78	22-80	4-56	3-61	2-72	6-33
F. ..	..	8-32	8-32	6-75	15-07	5-02	3-47	2-81	6-28
<i>Total</i> ..	<i>73-59</i>	<i>29-13</i>	<i>102-72</i>	<i>51-68</i>	<i>154-40</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>
<i>Average</i> ..	<i>12-26</i>	<i>4-86</i>	<i>17-12</i>	<i>8-61</i>	<i>25-73</i>	<i>3-20</i>	<i>2-93</i>	<i>1-47</i>	<i>4-40</i>

Reference : Section 8 of text.

STATEMENT 8-A.
PRODUCTION AND DISPOSAL OF MILK.
A.—BUFFALOES.

Items.	FAMILIES.						Total.	Average per family.
	A.	B.	C.	D.	E.	F.		
Total stock	9-00	13-00	10-25	11-00	10-83	3-00	57-08	9-51
Number of milch buffaloes ..	1-42	2-25	1-00	2-30	1-12	1-00	9-09	1-52
Cost of roughages con- { Bhusa ..	Rs. 75-00	Rs. 123-50	Rs. 74-00	Rs. 120-50	Rs. 103-50	Rs. 48-50	Rs. 545-00	Rs. 90-83
sumed by all cattle { Fodders..	155-15	212-94	147-16	201-08	235-33	106-32	1,057-98	176-33
<i>Total</i> ..	<i>230-15</i>	<i>336-44</i>	<i>221-16</i>	<i>321-58</i>	<i>338-83</i>	<i>154-82</i>	<i>1,602-98</i>	<i>267-16</i>
COST OF UPKEEP—								
Share of roughages ..	36-31	58-23	21-58	67-24	35-04	51-61	270-01	45-00
Concentrates and salt ..	39-90	45-54	10-11	37-31	21-86	11-06	165-78	27-63
Interest and depreciation on value ..	21-89	26-40	9-60	30-60	19-70	16-64	124-83	20-80
Miscellaneous	1-00	1-00	..	1-69	..	1-00	4-69	0-78
<i>Total</i> ..	<i>99-10</i>	<i>131-17</i>	<i>41-29</i>	<i>136-84</i>	<i>76-60</i>	<i>80-31</i>	<i>565-31</i>	<i>94-22</i>
Less value of young stock ..	2-00	10-00	4-00	8-00	3-00	6-00	33-00	5-50
<i>Total</i> ..	<i>97-10</i>	<i>121-17</i>	<i>37-29</i>	<i>128-84</i>	<i>73-60</i>	<i>74-31</i>	<i>532-31</i>	<i>88-72</i>
Milk consumed	Mds. 36-83	Mds. 37-53	Mds. 21-74	Mds. 47-13	Mds. 38-30	Mds. 14-40	Mds. 195-93	Mds. 32-65
„ sold	10-78	45-40	3-15	5-07	13-65	..	78-05	13-01
<i>Total produced</i> ..	<i>47-61</i>	<i>82-93</i>	<i>24-89</i>	<i>52-20</i>	<i>51-95</i>	<i>14-40</i>	<i>273-98</i>	<i>45-66</i>
Milk produced per buffalo ..	33-53	36-86	24-89	22-70	46-38	14-40	30-14	..
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Cost per maund	2-04	1-46	1-50	2-47	1-42	5-16	1-94	1-94
Cost of milk consumed ..	75-13	54-79	32-61	116-41	54-39	74-31	407-64	67-94
Price realised on sale ..	35-03	147-55	10-24	16-48	44-36	..	253-66	42-28
Profit on sale	13-06	81-17	5-56	4-05	25-15	..	128-99	21-50

Reference : Section 8 of text.

STATEMENT 8-B.
PRODUCTION AND DISPOSAL OF MILK.
B. - Cows.

Item.	TENANT.						Total.	Average per family.
	A.	B.	C.	D.	E.	F.		
Total Stock	9-00	13-00	10-25	..	10-83	..	43-08	7-18
Number of milch cows	1-13	2-00	1-00	..	1-33	..	5-46	0-91
Cost of roughages consumed by all cattle { Bhusa	Rs. 75-00	Rs. 123-50	Rs. 74-0	..	Rs. 103-50	..	Rs. 376-00	Rs. 62-66
{ Fodders	155-15	212-94	147-16	..	235-33	..	750-58	125-10
<i>Total</i>	<i>230-15</i>	<i>336-44</i>	<i>221-16</i>	..	<i>338-83</i>	..	<i>1,126-58</i>	<i>187-76</i>
COST OF UPKEEP OF COWS—								
Share of roughages	28-90	51-76	21-58	..	41-61	..	143-85	23-98
Concentrates and salt	10-42	14-53	6-20	..	13-38	..	44-53	7-42
Interest and depreciation on value	8-70	9-60	6-40	..	9-33	..	34-03	5-67
Miscellaneous .. ..	..	..	..	..	..	..	..	..
<i>Total</i>	<i>48-02</i>	<i>75-89</i>	<i>34-18</i>	..	<i>64-32</i>	..	<i>222-41</i>	<i>37-07</i>
Less value of young stock	6-00	6-00	4-00	..	4-00	..	20-00	3-33
<i>Total</i>	<i>42-02</i>	<i>69-89</i>	<i>30-18</i>	..	<i>60-32</i>	..	<i>202-41</i>	<i>33-74</i>
Milk consumed	Mds. 14-07	Mds. 21-65	Mds. 22-60	..	Mds. 25-70	..	Mds. 84-02	Mds. 14-00
„ sold	2-04	3-41	..	..	..	..	5-45	0-91
<i>Total produced</i>	<i>16-11</i>	<i>25-06</i>	<i>22-60</i>	..	<i>25-70</i>	..	<i>89-47</i>	<i>14-91</i>
Milk produced per cow	14-26	12-53	22-60	..	19-32	..	16-39 (Average)	16-39
Cost per maund	Rs. 2-61	Rs. 2-79	Rs. 1-34	..	Rs. 2-35	..	Rs. 2-26	Rs. 2-26
Cost of milk consumed	36-72	60-40	30-18	..	60-32	..	187-62	31-27
Price realised on sale	5-61	9-38	..	..	..	..	14-99	2-50
Profit on sale	0-31	—(0-11)	..	..	..	..	0-20	0-03

Reference : Section 11 of text.

STATEMENT 9-A.
LABOUR SHEET.

Average Number of Days Worked by Members of the Families in 1935-6.

A.—MALES.

Items of work.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	Total.	Per working member.	Percentage to total.
Cultivation	43.9	34.8	39.1	36.9	38.4	46.5	32.6	41.3	42.0	56.5	45.6	64.1	321.7	168.3	57.1
Upkeep of livestock	26.0	32.2	34.1	33.5	34.4	32.6	33.6	33.2	30.8	32.0	25.7	21.7	369.8	119.3	40.5
Milking	0.4	0.5	0.5	0.4	0.2	0.3	0.2	0.4	0.6	0.9	0.7	0.4	5.5	1.8	0.6
Churning .. ..	..	..	..	..	..	0.1	..	..	..	..	..	..	0.1	..	..
House repairing, etc. .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Carrying meals to the fields .. ..	..	0.5	0.6	..	..	0.2	..	..	..	..	..	..	1.3	0.4	0.2
Fetching water .. ..	..	..	..	..	..	0.1	..	..	..	..	..	..	0.1	..	..
Grinding grains	0.5	0.5	0.6	0.5	0.6	0.5	0.6	0.5	0.6	0.5	0.6	0.5	6.5	2.1	0.7
Miscellaneous	0.2	..	..	..	..	..	..	..	..	..	1.3	..	1.5	0.5	0.2
Paid labour outside	3.0	0.2	..	..	..	..	..	..	..	3.2	..	..	6.4	2.1	0.7
<i>Total</i>	<i>74.0</i>	<i>68.7</i>	<i>74.9</i>	<i>71.3</i>	<i>73.6</i>	<i>80.3</i>	<i>67.0</i>	<i>75.4</i>	<i>74.0</i>	<i>93.1</i>	<i>73.9</i>	<i>86.7</i>	<i>912.9</i>	<i>294.5</i>	<i>100.0</i>
Per working member	23.9	22.2	24.2	23.0	23.7	25.9	21.6	24.3	23.9	30.0	23.8	28.0	294.5	294.5	100.0

Reference: Section 11 of text.

STATEMENT 9-B.
LABOUR SHEET.

Average Number of Days Worked by Members of the Families in 1935-6.

B.—FEMALES.

Items of work.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	Total.	Per working member.	Percentage to total.
Upkeep of livestock .. ..	..	..	..	..	..	..	..	0-23	0-60	0-96	0-22	1-37	3-38	1-7	0-5
Milking	1-15	1-14	1-17	1-11	1-12	1-12	1-24	1-32	1-12	1-23	0-88	0-98	13-58	6-8	2-3
Churning	2-59	2-42	2-43	2-35	2-35	2-43	2-58	2-58	2-46	2-58	2-08	2-15	29-00	14-5	4-8
Barn cleaning	3-75	3-93	3-87	3-73	3-85	3-71	3-87	3-87	3-65	3-90	3-75	3-23	45-11	22-6	7-6
House cleaning, etc.	3-23	2-98	2-76	2-48	2-50	2-20	2-26	2-50	2-77	3-16	2-60	2-03	31-47	15-7	5-3
Cloth making, etc.	4-71	6-23	10-71	6-50	5-01	9-71	9-75	10-12	11-04	20-71	16-42	6-54	117-45	58-7	19-7
Cooking, etc.	15-00	16-02	18-58	18-04	18-73	17-54	18-73	18-73	17-52	19-15	25-42	26-48	229-94	115-0	38-5
Fetching water	3-75	3-89	3-81	3-75	3-87	3-60	3-87	3-87	3-17	3-23	2-41	3-12	42-34	21-2	7-1
Miscellaneous	0-46	..	0-32	..	..	..	0-17	..	..	0-33	0-33	..	1-61	0-8	0-3
Paid labour outside	0-17	..	..	2-08	22-46	23-19	20-42	13-37	..	0-71	..	0-46	82-86	41-4	13-9
<i>Total</i>	<i>34-81</i>	<i>36-61</i>	<i>43-65</i>	<i>40-04</i>	<i>59-89</i>	<i>63-50</i>	<i>62-89</i>	<i>56-59</i>	<i>42-33</i>	<i>55-96</i>	<i>54-11</i>	<i>46-36</i>	<i>596-74</i>	<i>298-4</i>	<i>100-0</i>
Per working member	17-4	18-3	21-8	20-0	29-9	31-8	31-4	28-3	21-2	28-0	27-1	23-2	298-4	298-4	100-0

APPENDIX
FORMS USED IN THE INQUIRY
Members of the Family.

FAMILY _____

Name.	Date of birth.	Relationship.	Work.	Remarks.

Daily Cash Account.

FAMILY _____

Date.	Particulars.	Quantity.	Income.	Expenditure.	Source or purpose.	Remarks.
			Rs. a. p.	Rs. a. p.		

Weekly Fuel Account.

FAMILY _____

Date.	Article.	Amount.	VALUE.			Remarks.
			Rs.	a.	p.	

Weekly Milk Record.

ANIMAL _____ *

Date.	MILK.					GHI.			Monthly total of milk sold.	Remarks.
	Given to Calf.	Net Milked.	Sold.	Consumed.	Churned.	Made.	Sold.	Consumed.		

* Separate sheets should be used for buffaloes, cows, goats, etc.

Live Stock Account.

FAMILY _____

Name.	Age in the beginning of the year.	Value.	Date of purchase or beginning of useful period.	Date of disposal or end of useful period.	Remarks.

Inventory.

Dated _____

FAMILY _____

Particulars.	Quantity.	Rate.	VALUE.			Remarks.
			Rs.	a.	p.	
FOOD PRODUCTS:						
Wheat ..						
Maize ..						
Ghi ..						
Sugar—						
Shakkar ..						
Gur ..						
Khand ..						
Rice ..						
Pulses—						
Mash ..						
Moth ..						
Mung ..						
Gram ..						
Masur ..						
Others ..						
Salt ..						
Others ..						
DRESS—						
Kapas ..						
Lint ..						
Yarn ..						
KEROSENE OIL ..						
ARTICLES OF FUEL						
OTHER ARTICLES—						
Cotton seed ..						
Oil cakes ..						
Mammni ..						

Cotton Account.

FAMILY _____

Particulars.	KAPAS.		LINT.		YARN.		Remarks.
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	Srs.	Rs.	Srs.	Rs.	Srs.	Rs.	
1. Surplus from the last year ..							
2. Purchased or gifts received ..							
3. Produced ..							
<i>Total</i> ..							
4. Sold ..							
5. Given to kamins ..							
6. Used at home—							
(i) Bartered for cloth ..							
(ii) Ginned (kapas only) ..							
(iii) Used for quilts (lint only) ..							
(iv) Spun into yarn (lint only) ..							
(v) Turned into cloth (yarn only) in the village ..							
7. Surplus ..							
<i>Total</i> ..							

HOME-MADE CLOTH ACCOUNT.			CLOTH IN EXCHANGE FOR KAPAS, LINT OR YARN ACCOUNT.			QUILT ACCOUNT.		
Particulars.	Quantity.	Value.	Particulars.	Quantity.	Value.	Particulars.	Quantity.	Value.
		Rs.			Rs.			Rs.
1. Lint ..			1. Kapas ..			1. Cloth ..		
2. Carding charges—			2. Lint ..			2. Printing and dyeing—		
(i) Cash ..			3. Yarn ..			(i) Cash ..		
(ii) Kind ..			4. Cash ..			(ii) Kind ..		
3. Spinning charges—			5. Kind ..			3. Carding and stuffing—		
(i) Cash ..			6. Carding charges—			(i) Cash ..		
(ii) Kind ..			(i) Cash ..			(ii) Kind ..		
4. Charges of weaver—			(ii) Kind ..			4. Stitching—		
(i) Cash ..			7. Spinning charges—			(i) Cash ..		
(ii) Kind ..			(i) Cash ..			(ii) Kind ..		
<i>Total</i> ..			(ii) Kind ..			<i>Total</i> ..		
5. Length ..			<i>Total</i> ..			5. No. of quilts ..		
6. Cost per yard ..			8. Length ..			6. Cost per quilt ..		
			9. Cost per yard ..					

Labour Record.

NAME _____

Date.	Total ..
Cultivation work.	
All animals.	
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 grains for home consumption.	
Miscellaneous.	
Paid labour outside.	
Remarks.	

Use separate sheets for separate persons.

GLOSSARY

ANNA	.. One-sixteenth of a rupee.
ARAIN	.. Mohammedan agricultural tribe noted for its industry and cultivation; often found as market-gardeners near cities.
BHUSA	.. Straw of wheat stalks broken and crushed into short lengths by bullocks treading on it at the time of threshing.
CHADDAR	.. Sheet of cloth.
CHARPOY	.. Bedstead.
CHHATAK	.. Indian weight: one-sixteenth of a seer; equal to 2.057 ozs.
DAHI	.. Curd.
DOPATTA	.. Sheet of thin cloth used as headwear by women.
DURRI	.. Carpet.
GHAGRA	.. Skirt of voluminous folds.
GHI	.. Clarified butter, commonly used in India instead of lard or other cooking fats.
GUR	.. Raw unrefined cane-sugar in lumps.
GURDWARA	.. Worshipping place of Sikhs.
'ID	.. Mohammendan 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.
KAMIN	.. Menial; village servant.
KANAL	.. Measure of area; in Lyallpur District equals one-eighth of an acre.
KAPAS	.. Raw unginced cotton.
KHAND	.. Crystallised sugar.
LASSI	.. Butter-milk.
MAMMNI	.. Refuse separated from wheat during the process of winnowing; contains shrivelled and diseased grains of wheat, weed seeds and dust.
MARLA	.. Measure of area; equals one-twentieth of a kanal.
MASH	.. Pulse, much valued as human food (<i>Phaseolus radiatus</i>).
MASSAR	.. Lentil (<i>Lens esculenta</i>).
MAULVI	.. Muslim man of learning; a teacher.

- MAUND .. Indian standard weight of forty seers ; equal to $82 \frac{2}{7}$ lbs.
- MOTH .. Small pulse (*Phaseolus aconitifolius*).
- MUNG .. Pulse, much valued as food for invalids (*Phaseolus mungo*).
- PIE .. One-twelfth of an anna.
- PIRI .. Low stool.
- 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.
- SHAKKAR .. Roughly ground raw cane-sugar.
- SHILWAR .. Baggy pyjamas worn in North India.
- 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 .. Division of land, in certain Canal Colonies (including Lyallpur) ; size, 1,100 feet by 1,100 feet ; equivalent to 27.8 acres.
- SUTHAN .. Women's trousers.
- TEHMAT .. Sheet of thick striped cloth worn around the legs like a sarong.

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The Board of Economic Inquiry, Punjab.

PUBLICATION No. 60.

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

630

URBAN WORKING CLASS COST OF LIVING INDEX NUMBERS (1937) IN THE PUNJAB.

Being the Second Year's issue dealing with the Cost of Living at
Sialkot, Ludhiana, Rohtak, Lahore and Multan during the
Year, 1937.

BY

RAM LAL,

DIRECTOR OF INDUSTRIES, PUNJAB.

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

1938.

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PREFACE

This is the second year for which index numbers in respect to the cost of living of the urban classes in the Punjab have been kept; the first year's results relating to the year 1936 were published in the Board's publication No. 56. As mentioned in that report the usefulness of these numbers is bound to increase as the development of organised industry in the cities and suburban areas of the Punjab takes place.

The present report shows that the cost of living in 1937 was higher than in 1936 in all the five centres, *viz.*, Ludhiana, Rohtak, Lahore, Sialkot and Multan in descending order. The index numbers have risen from 5 to 12 points, representing percentage increases of from 4.2 to 11.2. The index was the highest during the first quarter of the year and this was due to higher prices throughout the world at that time. The largest increase took place in the items under Food (the percentage rise being from 6.3 to 13.6 in the various centres) followed by rises under Fuel and Lighting of from 0.9 to 19.1 per cent. Wheat and wheat flour and mung pulse rose much more than other items for these are popular articles of diet all over the province; maize, jowar, and bajra showed a rise in those districts where they form an important part of the diet. High prices of firewood and coal accounted for the increase in fuel and lighting although the price of kerosene oil remained practically stationary. The index number for miscellaneous items has followed an erratic course.

This series is being continued and the monthly figures are published periodically in the Punjab Government Gazette. The usefulness of such data cannot be overemphasised as there is now a growing impetus to factory industry and a general realization of the need for the development of local resources. The welfare of industrial urban workers is a matter of prime importance for the development of industries on proper lines.

Acknowledgment is made to R. B. Lala Ram Lal, M.B.E., P.C.S., the Director of Industries, Punjab, for this very useful piece of work.

E. D. L.

August, 1938.

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**REPORT ON URBAN WORKING CLASS COST OF LIVING
INDEX NUMBERS IN THE PUNJAB DURING THE
YEAR 1937.**

1. Introductory.

This is the second year of the publication of Urban Working Class Cost of Living Index Numbers in the Punjab. The report for the year 1936 was printed by the Board of Economic Inquiry, Punjab, as Publication No. 56.

Brief notes on the value and practical utility of index numbers in their application to the practical problems of national economy such as wages, money and credit; on such other matters as the selection of commodities and other items of expenditure for the purposes of the index; the selection of centres for reporting prices, the determination of the base prices and the weightage assigned to the various items of expenditure and the method of working the index have been given in the report for 1936. Short notes necessary for the elucidation of the data presented in this report are given below for facility of reference.

2. Commodities and other items of Expenditure taken into account in the Construction of the Index.

The expenditure has been divided in the following five major groups:—

- (a). Food articles.
- (b). Fuel and lighting.
- (c). Clothing.
- (d). House rent.
- (e). Miscellaneous.

The various items included under each group will be found in Statement No. 4. It was ascertained, as a result of an intensive inquiry into the family budgets of a large number of industrial workers in various industries in different parts of the province, that the amounts spent on the five groups cited above accounted for approximately 75 per cent. of their total expenditure according to the details given below:—

	Per cent.
Food articles	.. 50
Fuel and lighting	.. 6
Clothing	.. 9
House rent	.. 4
Miscellaneous	.. 6
Total	.. 75

These percentages of the proportional expenditure have been used in the preparation of the index numbers given in this report. The remaining 25 per cent, which is spent on education, marriages, interest on debts, travelling, religious performances, etc., has not been accounted for in the index.

3. Centres for Reporting Prices.

The prices were continued to be reported for Sialkot, the most important industrial town in the north, Ludhiana the centre of the hosiery and handloom-weaving industry in the east, Rohtak the grain trade market in the south, Lahore representing the trade and industry central area and Multan the home of a number of small-scale industries in the west. The monthly prices, rates, etc., were collected by the Superintendents of Industries on the last date of each month.

4. Base Prices.

The base prices and rates for the index at the five centres represent the average of prices and rates for the five years from January 1931 to December 1935. The progressive index for subsequent years is worked out on this base.

5. Weights.

A simple arithmetic average was used for obtaining the average prices for the base and the following "weights" proportional to the total expenditure under each separate group have been assigned, according to the relative importance of the various constituent commodities, or items at the different stations.

I. Food Articles.

Sialkot. Ludhiana. Rohtak. Lahore. Multan.

(a) Cereals—

Rice	13	3	10	10	15
Wheat and wheat flour	40	30	30	45	41
Maize	8	15	8	5	5
Jowar	3	8	4	4	3
Bajra	5	13	17	5	5
Total "weight"	69	69	69	69	69

(b) Pulses—

Gram	4	4	5	4	3
Arhar	0	1	3	2	0
Masur	7	1	2	2	2
Urd	2	4	3	5	4
Mung	2	5	2	2	6
Total "weight"	15	15	15	15	15

Sialkot. Ludhiana. Rohtak. Lahore. Multan.

(c) Other Items—					
Gur (raw cane-sugar)	2	2	2	2	2
Sugar (refined)	1	1	1	1	1
Salt	1	1	1	1	1
Goats' meat	2	2	2	2	2
Milk	4	4	4	4	4
Onions	1	1	1	1	1
Chillies (dry)	1	1	1	1	1
Ghi (clarified butter)	4	4	4	4	4
Total "weight"	16	16	16	16	16
Grand total	100	100	100	100	100

II. Fuel and Lighting—				Weight.
Firewood	..	..		83
Coal	..	..		2
Kerosene Oil	..	..		13
Matches	..	..		2
Total	..	..		100

III. Clothing—			
Chaddar (sheet)	..	..	20
Dhoti (loin cloth)	..	..	20
Blanket	..	..	6
Shirting	..	..	25
Long cloth	..	..	15
Muslin	..	..	14
Total	..	..	100

IV. House Rent	100
-----------------------	----	----	------------

V. Miscellaneous—			
Cigarettes	..	..	17
Tobacco (for smoking)	..	..	60
Soap (for washing)	..	..	15
Oil (sarson)	..	..	8
Total	..	..	100

6 Method of Working the Index.

The index for individual articles has been obtained by simple arithmetical calculations which are illustrated by the concrete examples given below:—

	Rs.	As.	Ps.
Base price (per seer) of ghi at Sialkot ..	1	1	9
Price (per seer) in January 1937 ..	1	2	0
Index=Rs. 1-1-9 : Rs. 1-2-0 : : 100 : X =101.4—rounded to	101		

The "group index" under each of the five groups has been obtained by multiplying the index of each item by the weight assigned to it and dividing the total by 100 (the total of the proportional weight under each group). An example is given below:—

Items of Clothing	Base price for Sialkot.	Weight	Price for January 1937.	Index.	Index multiplied by Weight.
	Rs. a. p.		Rs. a. p.		
1. Chaddar (price per one)	0 14 9	20	1 3 0	129	2,580
2. Dhoti (price per pair)	1 15 9	20	2 1 0	104	2,080
3. Blanket (price per one)	3 7 2	6	3 0 0	87	522
4. Shirting cloth (per yard)	0 3 6	25	0 2 6	71	1,775
5. Long cloth (")	0 2 10	15	0 3 3	115	1,725
6. Muslin, coarse (")	0 2 5.2	14	0 2 0	82	1,148
<i>Total</i> ..	..	<i>100</i>	..	..	<i>9,830</i>

Therefore Index=9,830 divided by 100=98.3—rounded 98.

The general index for each centre has been obtained by multiplying the "group" indices by the proportional percentage expenditure under each group mentioned in paragraph 2 above and dividing the total by 75 (the total proportion of expenditure on items taken into consideration for the purposes of the index). An example of this is given below:—

Main Group.	Index for Sialkot for January 1937.	Proportional percentage expenditure on each group item.	Index multiplied by proportional percentage expenditure.
1. Food articles ..	146	50	7,300
2. Fuel and lighting..	104	6	624
3. Clothing ..	98	9	882
4. House rent ..	77	4	308
5. Miscellaneous ..	111	6	666
<i>Total</i> ..	..	<i>75</i>	<i>9,780</i>

Therefore general index=9,780 divided by 75=130.4—rounded 130.

7. General Index for the Province.

No attempt has been made in this report to work out a general index for the province as a whole from the average of the indices of the five towns, as it was considered that the resultant index would not be true for every part of the province, or as a general average for the province as a whole. The cost of living and standard of wages vary considerably in different parts of the province, and the movements of the monthly index do not follow the same trend at the five centres.

8. Index for 1937.

Statement 4 appended to this report shows the retail prices of the commodities taken for the months of January to December 1937, on the base prices 1931—1935, the movement of the index for each item of expenditure, and the weighted total cost of living index at Sialkot, Ludhiana, Rohtak, Lahore and Multan.

Statement 1 shows in an abstract form the monthly weighted index for each group expenditure and the total cost of living index at each centre for 1937 and 1936, together with the annual average index for these two years. Statement 2 shows the variations in the index numbers for the commodities in 1937 and the percentage rise or fall as compared to 1936. Statement 3 shows the comparative cost of living at different centres taking the index number at Lahore in January 1937=100.

Graphs are also appended showing the movement of the index at the five centres in respect of cost of: 1. Food Articles (Graph I); 2. Fuel and Lighting (Graph II); 3. Clothing (Graph III); 4. Miscellaneous (Graph IV) and 5. Total Cost of Living Index (Graph V). Expenditure on house rent being stationary at all centres, no graph in respect of this item has been prepared.

As will be observed from Statement 1, the most noteworthy feature of the year under report is the further rise in the average index for 1937 over 1936 at all the five stations. The number of points by which the increase has been registered is shown below:—

Name of station	Average index for 1937.	Average index for 1936.	INCREASE IN 1937 OVER 1936.	
			Points.	Percentage increase.
Sialkot ..	127	118	9	7.6
Ludhiana ..	119	107	12	11.2
Rohtak ..	110	100	10	10.0
Lahore ..	125	115	10	8.7
Multan ..	124	119	5	4.2

Secondly, it will be observed that the index was highest during the first quarter of the year except for Rohtak where the fluctuations in prices during the last six months of the year were not very pronounced. The highest and lowest points reached are quoted below:—

	Jan- uary 1937.	December 1937.	Lowest.	Highest.
Sialkot	130	127	February, May, } June, August }	124 March 132
Ludhiana	134	111	May	105 January 134
Rohtak	109	112	May	100 November 114
Lahore	129	124	May, July, August	120 March 135
Multan	129	113	November } December }	113 March 138

The higher index during the first quarter of the year was probably due to rumours of a world war consequent upon Italy's conquest of Abyssinia and the Spanish civil war which sent up food prices to a high level. Food articles account for 50 per cent. of the gross, or 66.6 per cent. of net, expenditure taken into consideration in the construction of the index. The extent of the increase in the index for Food prices over the figures of the previous year is shown in Statement 2. It will be observed that the largest increases have occurred in prices of wheat and wheat flour and pulses—particularly mung, which is popular all over the province,—and in the prices of maize, jowar and bajra, more particularly in the districts in which they are an important item of diet. The average index for 1937 shows an increase over 1936 of 8.5, 13.5, 13.6, 10.1 and 6.3 per cent. at Sialkot, Ludhiana, Rohtak, Lahore and Multan respectively. The average index for wheat, at the five stations in the order of their notation above, shows an appreciation by 11, 18, 14, 23 and 23 per cent. respectively, while at Rohtak the index for maize has risen by 53 per cent. and that for jowar by 25 per cent. Onions, though not of much importance, appreciated by 15, 42 and 11 per cent. at Lahore, Sialkot and Ludhiana respectively while registering a fall of 15 per cent. at Rohtak. The example of onions is quoted here as an illustration to show the effect on the movement of the index of a disturbing element which may be responsible for leading the price curves at two places in divergent directions.

The average indices for "Fuel and Lighting" in the year under report register an appreciation of 19.1, 13.5 and 13 points

at Lahore, Sialkot, Ludhiana, Rohtak and Multan respectively over the indices of the previous year. The rise of the index is due generally to the higher prices of firewood and coal. The price of kerosene oil remained practically stationary at all the five stations while slight variations were registered in the prices of matches at Ludhiana, Rohtak, Lahore and Multan.

The average index for articles of Clothing shows an increase of 7.3, 4.4 and 4.8 per cent. at Sialkot, Ludhiana and Rohtak respectively over the average of the previous year, and 0.9 per cent. at Lahore while the index for Multan remained stationary. The smaller increases in the indices for Lahore and the stationary position of Multan are apparently due to the well organised cloth markets existing in these places and fluctuations in prices are not as marked as in the smaller towns.

There is no variation during the year in the index for House Rent at any of the five stations. The previous year's fall at Ludhiana rose to par with the base period rate during 1937.

The index for Miscellaneous items has again followed an erratic course. At Sialkot it has remained practically stationary varying by only 2 points throughout the year. At Ludhiana the index fell from 109 in January to 91 in February and varied between 88 and 98 during the rest of the year. At Rohtak the variations are again small, the index oscillating between 86 and 92 points. In Lahore the index gradually rose from 120 in January to 126 in April, after which there have been wide fluctuations from 106 to 120, while at Multan there is a pronounced collapse from 100 in June to 69 in October. No single item is responsible for the changing figures of the index under this group.

The figures of the average index for 1937 have been given above in this paragraph and the average index is given below based on Statement No. 3 which shows the comparative cost of living at the five different stations taking the index for Lahore in January 1937=100.

Name of Station.	Average Index for 1937.	Average index Lahore prices in January 1937=100.
Sialkot	127	98
Ludhiana	119	92
Rohtak	110	86
Lahore	125	97
Multan	124	96

The figures in both the columns above reveal the same trend. Sialkot with a few of its disturbing items shows the largest appreciation in the index, closely followed by Lahore and Multan, while Ludhiana and Rohtak continue to occupy the fourth and fifth places respectively.

9. Expenditure on the Inquiry.

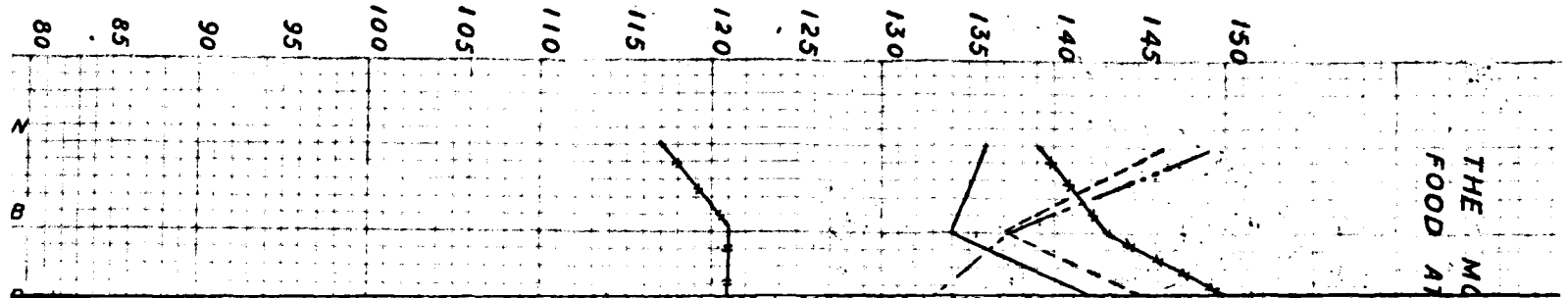
The total expenditure incurred on the compilation and tabulation of the index during 1937 amounted to Rs. 795-3-0, which amount was met by the Punjab Board of Economic Inquiry. The amount spent on travelling allowances, etc., of the Superintendents of Industries concerned was defrayed by the Department of Industries.

RAM LAL,
Director of Industries,
Punjab.

APPENDIX
FORM USED FOR WORKING OUT INDEX NUMBER
 CENTRE..... MONTH.....
 (Average prices from January 1931 to December 1935=100)

Article.	Unit of quantity.	PRICE RETAIL PER UNIT OF QUANTITY.			Weights proportional to total expenditure.	INDEX NUMBER.
		Base prices.				
I. FOOD ARTICLES—						
1. Rice (common)	Seer					
2. Wheat					
3. Wheat flour					
4. Maize					
5. Jowar					
6. Bajra					
7. Gram					
8. Arhar (dal)					
9. Masur (dal)					
10. Urd (dal)					
11. Mung (dal)					
12. Sugar, raw (gur)	..					
13. Sugar, refined	..					
14. Salt					
15. Goat's meat					
16. Milk					
17. Onions					
18. Chillies (dry)	..					
19. Ghi					
<i>Total</i> ..						
<i>Index Number</i> ..						

Article.	Unit of quantity.	PRICE RETAIL PER UNIT OF QUANTITY.			Weights proportional to total expenditure.	INDEX NUMBER.
		Base prices.				
II. FUEL AND LIGHTING—						
1. Firewood ..	Maund				83	
2. Coal ..	"				2	
3. Kerosene oil ..	Bottle				13	
4. Matches (40)	Per dozen boxes				2	
<i>Total</i> ..					100	
<i>Index Number</i> ..						
III. CLOTHING—						
1. Chaddar ..	One				20	
2. Dhoti ..	Pair.				20	
3. Blanket ..	One				6	
4. Shirting ..	Yard.				25	
5. Long cloth ..	"				15	
6. Muslin, coarse	"				14	
<i>Total</i> ..					100	
<i>Index Number.</i>						
IV. HOUSE RENT—						
	Per month.				100	
<i>Index Number</i> ..						
V. MISCELLANEOUS—						
1. Cigarettes ..	Packet of 10.				17	
2. Tobacco (smoking) ..	Seer.				60	
3. Soap (washing)	"				15	
4. Oil (sarson) ..	"				8	
<i>Total</i> ..					100	
<i>Index Number</i> ..						

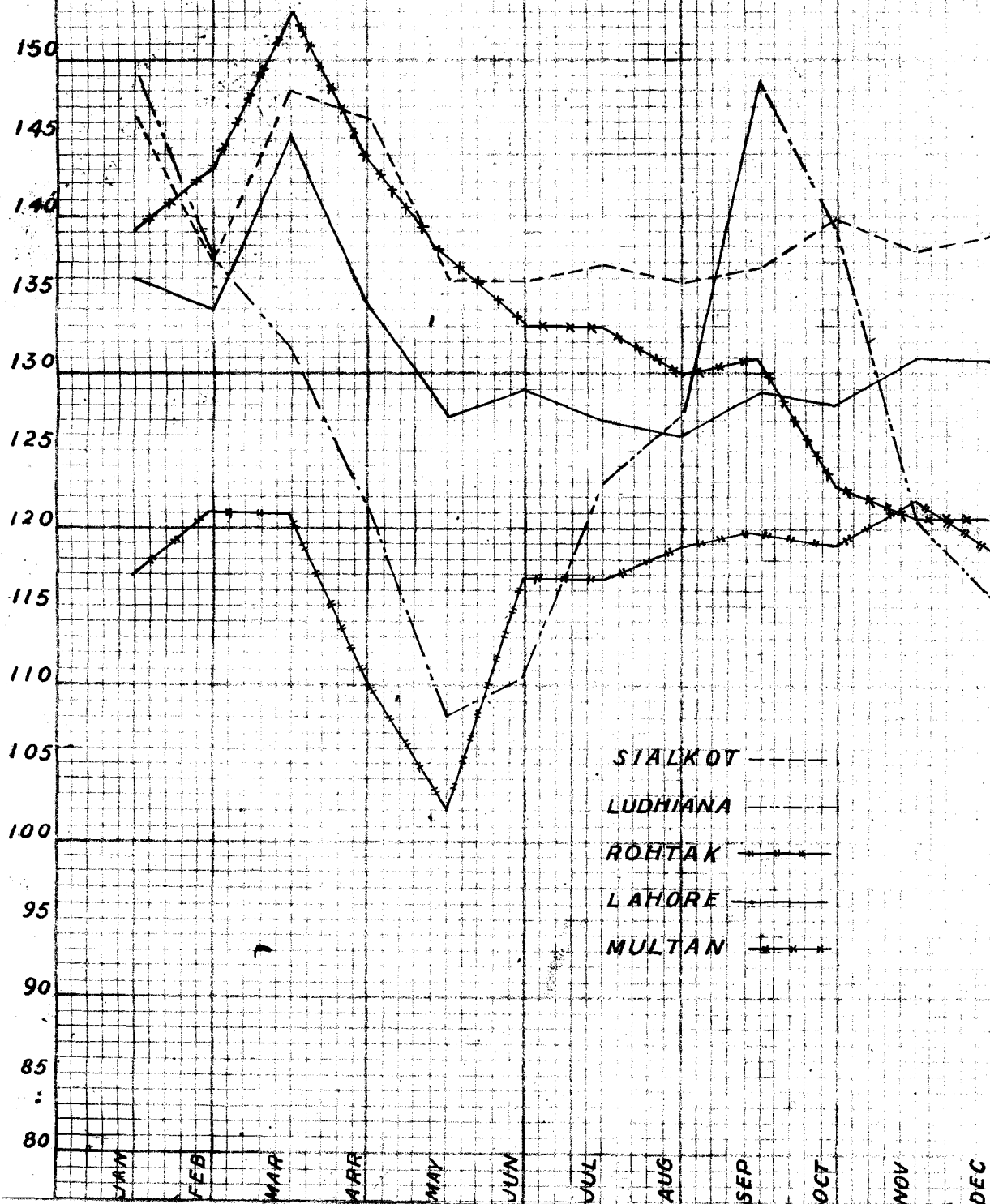


<i>Total Cost of Living, 1936</i>	108	113	111	111	110	110	113	113	120	117	123	131	115
V. MULTAN—													
(a) Food ..	139	143	153	143	137	133	133	130	131	123	121	121	134
(b) Fuel and Lighting ..	117	117	117	105	118	117	117	118	118	117	117	117	116
(c) Clothing ..	112	112	112	112	112	112	112	113	104	104	104	104	109
(d) House Rent ..	100	100	100	100	100	100	100	100	100	100	100	100	100
(e) Miscellaneous ..	98	99	99	101	84	100	87	89	87	69	69	69	88
<i>Total Cost of Living, 1937</i>	129	131	138	131	126	125	124	122	122	115	113	113	124
<i>Total Cost of Living, 1936.</i>	113	115	115	115	110	113	116	119	126	123	123	134	119

GRAPH NO. 1

THE MOVEMENT OF THE INDEX FOR ARTICLES OF FOOD AT THE FIVE DIFFERENT CENTRES DURING 1937.

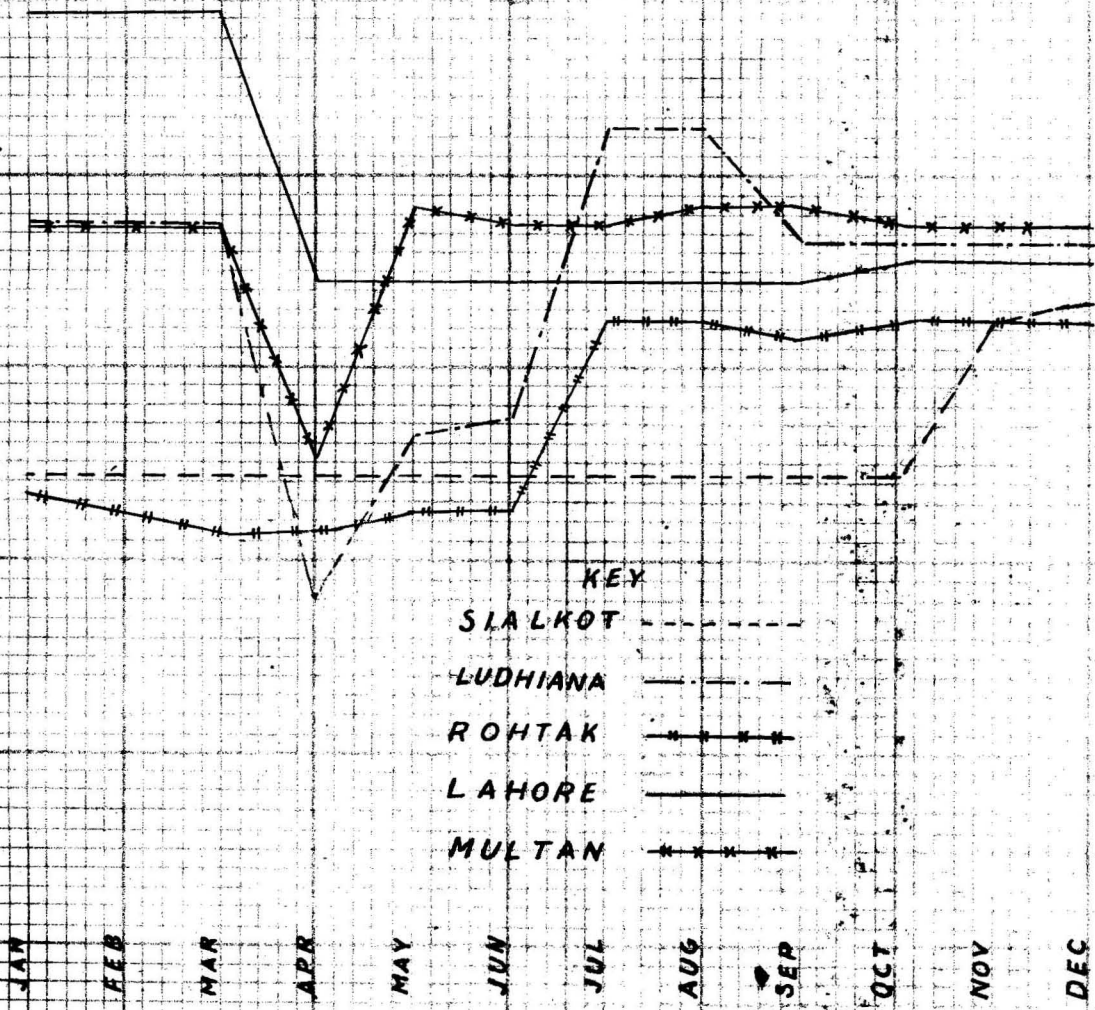
BASE 1931-35 = 100.



GRAPH NO. 2

THE MOVEMENT OF THE INDEX FOR FUEL AND LIGHTING AT THE FIVE DIFFERENT CENTRES DURING 1937
BASE 1931-1935 = 100

150
145
140
135
130
125
120
115
110
105
100
95
90
85
80



KEY
SIALKOT - - - - -
LUDHIANA -
ROHTAK * * * * *
LAHORE —————
MULTAN * * * * *

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

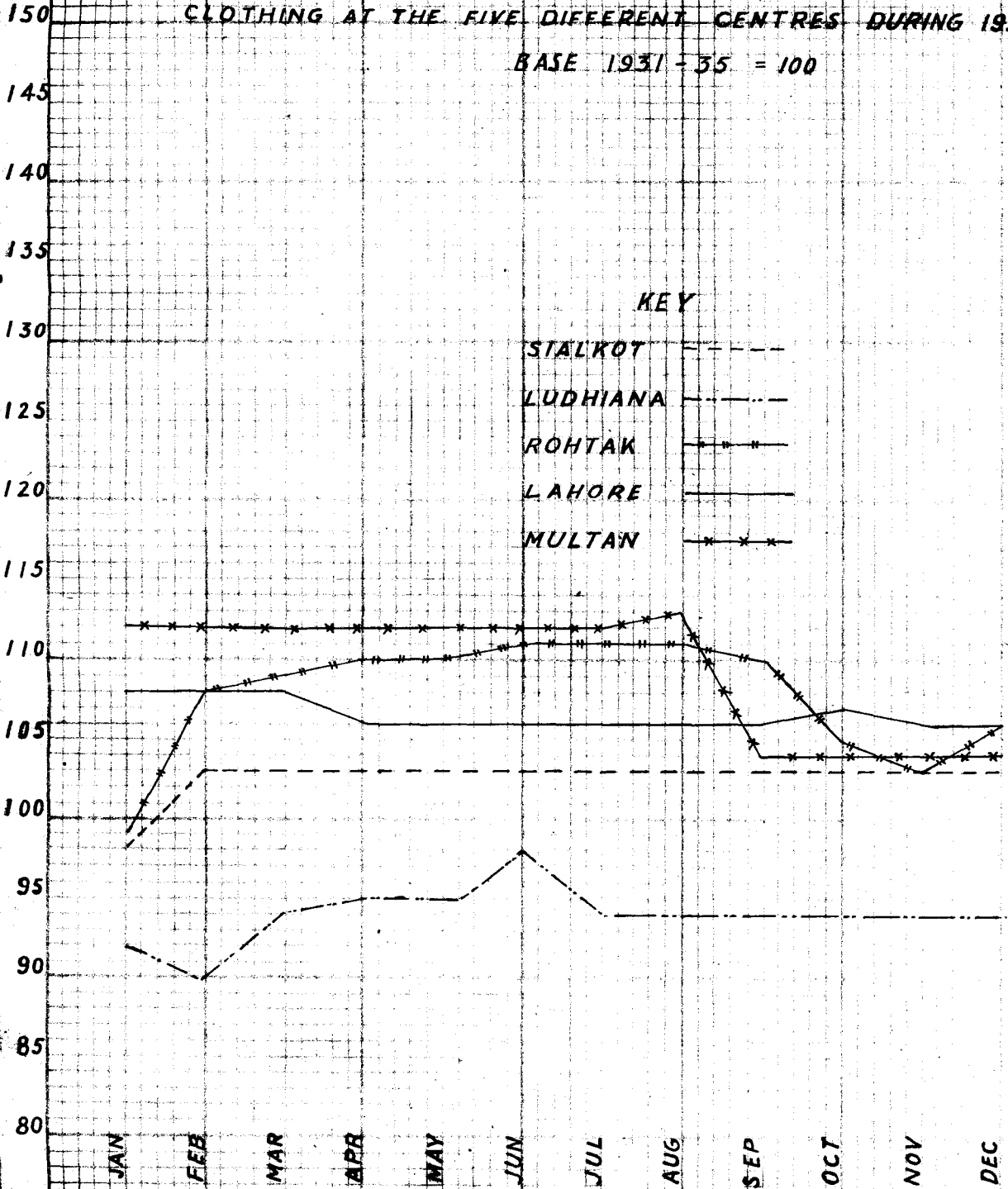
GRAPH No. 3

THE MOVEMENT OF THE INDEX FOR ARTICLES OF CLOTHING AT THE FIVE DIFFERENT CENTRES DURING 1937

BASE 1931-35 = 100

KEY

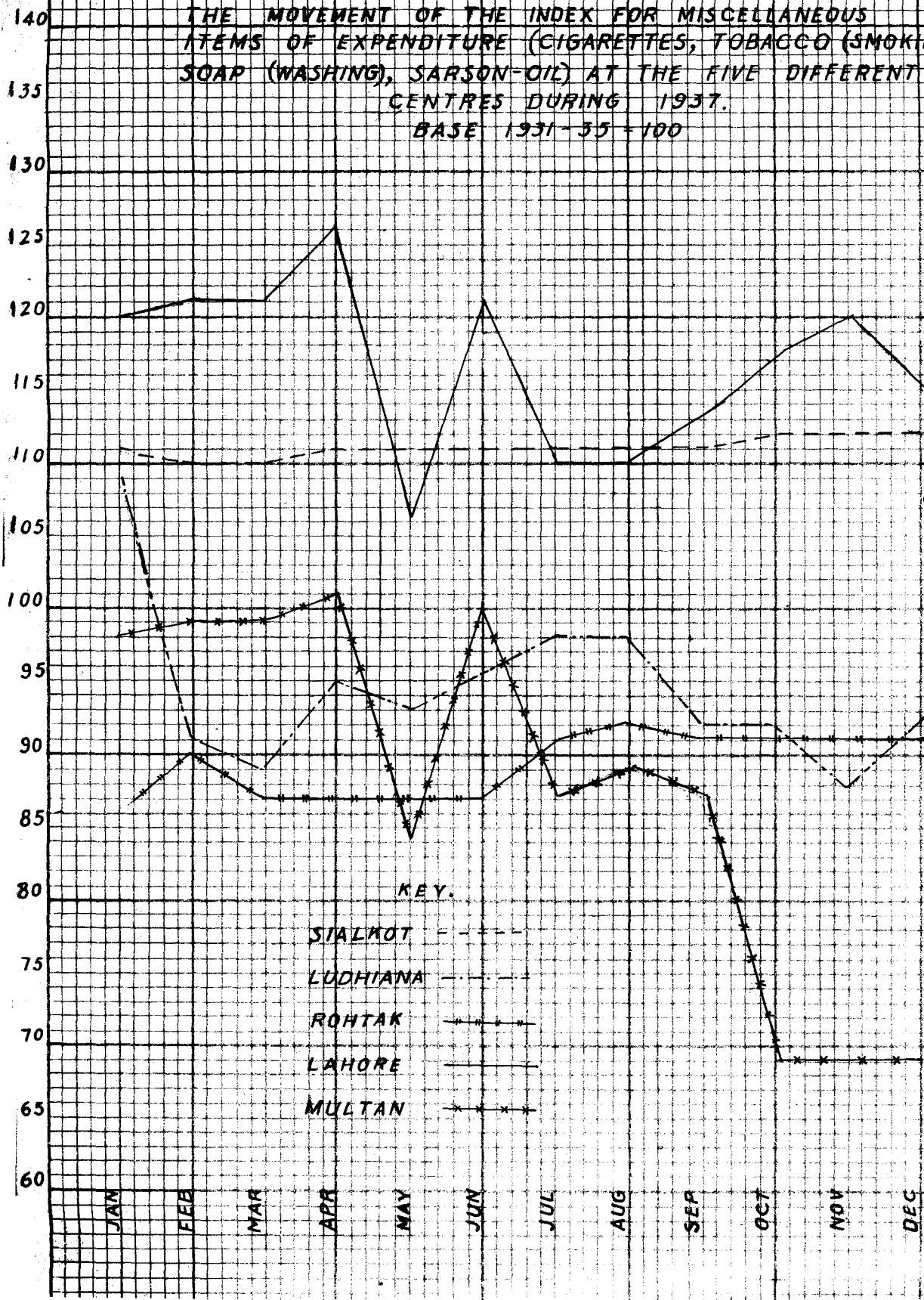
- STALKOT - - - - -
- LUDHIANA -
- ROHTAK - - - - -
- LAHORE - - - - -
- MULTAN * * * * *



GRAPH No. 4

THE MOVEMENT OF THE INDEX FOR MISCELLANEOUS
 ITEMS OF EXPENDITURE (CIGARETTES, TOBACCO (SMOKING),
 SOAP (WASHING), SARSON-OIL) AT THE FIVE DIFFERENT
 CENTRES DURING 1937.

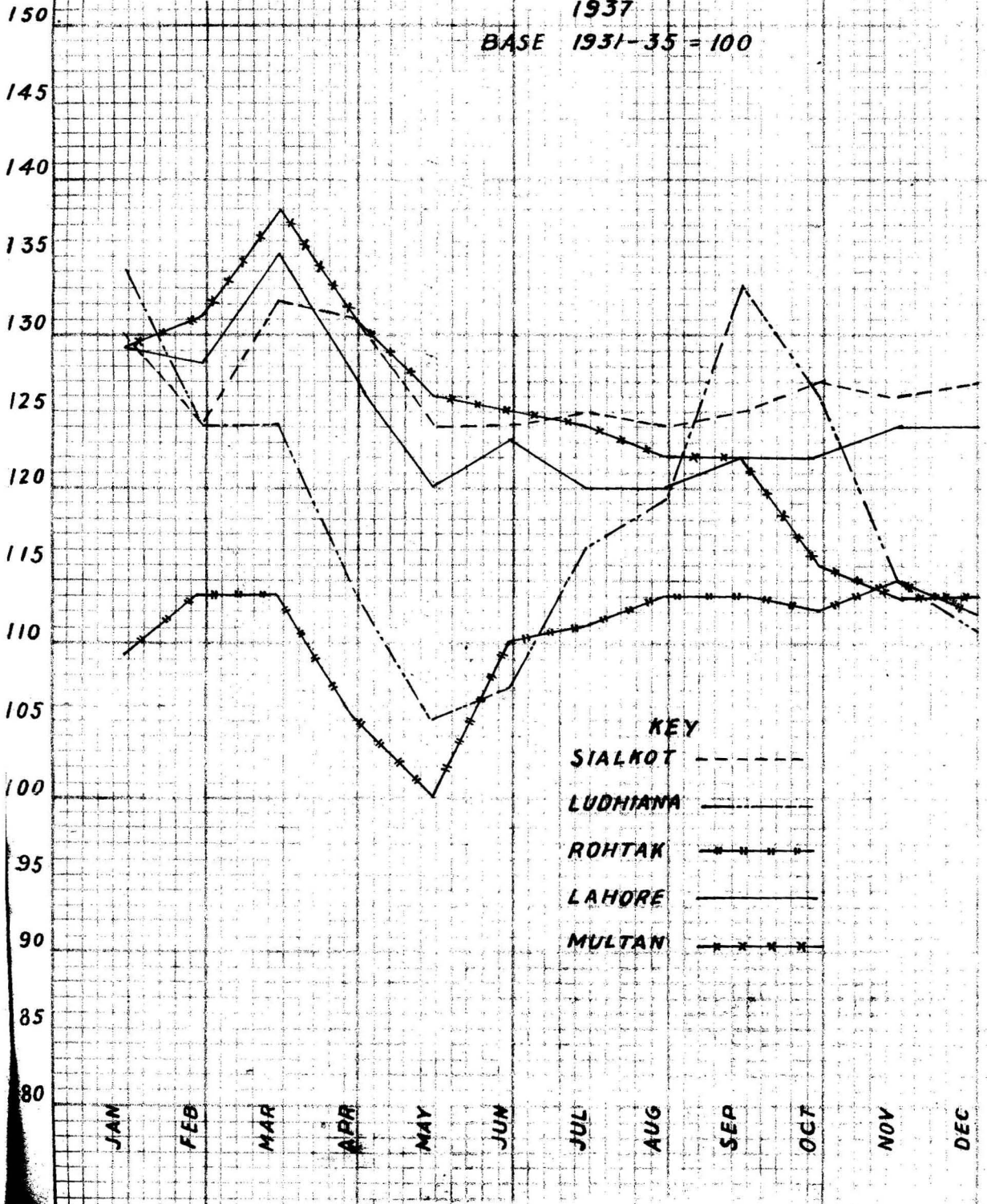
BASE 1931-35 = 100



GRAPH No. 5

THE MOVEMENT OF THE INDEX FOR TOTAL COST OF LIVING AT THE FIVE DIFFERENT CENTRES DURING 1937

BASE 1931-35 = 100



STATEMENT 1
ABSTRACT TABLE.

MONTHLY WEIGHTED INDEX FOR EACH GROUP EXPENDITURE AND THE TOTAL COST OF LIVING INDEX
AT THE FIVE CENTRES.

Centres and Groups of Commodities.	January 1937.	February 1937.	March 1937.	April 1937.	May 1937.	June 1937.	July 1937.	August 1937.	September 1937.	October 1937.	November 1937.	December 1937.	Average Index for the year.
	1	2	3	4	5	6	7	8	9	10	11	12	
I. SIALKOT—													
(a) Food ..	146	137	148	146	136	136	137	136	137	140	138	139	140
(b) Fuel and Lighting ..	104	104	104	104	104	104	104	104	104	104	112	113	105
(c) Clothing ..	98	103	103	103	103	103	103	103	103	103	103	103	103
(d) House Rent ..	77	77	77	77	77	77	77	77	77	77	77	77	77
(e) Miscellaneous ..	111	110	110	111	111	111	111	111	111	112	112	112	111
<i>Total Cost of Living, 1937</i>	130	124	132	131	124	124	125	124	125	127	126	127	127
<i>Total Cost of Living, 1936</i>	110	117	117	109	115	117	123	123	122	124	122	121	118
II. LUDHIANA—													
(a) Food ..	149	137	131	121	108	111	123	127	149	139	121	116	128
(b) Fuel and Lighting ..	117	117	117	97	106	107	122	122	116	116	116	116	114
(c) Clothing ..	92	90	94	95	95	98	94	94	94	94	94	94	94
(d) House Rent ..	100	100	100	100	100	100	100	100	100	100	100	100	100
(e) Miscellaneous ..	109	91	89	95	93	96	98	98	92	92	88	92	94
<i>Total Cost of Living, 1937</i>	134	124	124	113	105	107	116	119	133	126	114	111	119
<i>Total Cost of Living, 1936</i>	103	99	98	111	105	106	104	102	112	114	112	113	107
III. ROHTAK—													
(a) Food ..	117	121	121	110	102	117	117	119	120	119	122	119	117
(b) Fuel and Lighting ..	103	102	101	101	102	102	112	112	111	112	112	112	107
(c) Clothing ..	99	108	109	110	110	111	111	111	110	105	103	106	108
(d) House Rent ..	70	70	70	70	70	70	70	70	70	70	70	70	70
(e) Miscellaneous ..	86	90	87	87	87	87	91	92	91	91	91	91	89
<i>Total Cost of Living, 1937</i>	109	113	113	105	100	110	111	113	113	112	114	112	110
<i>Total Cost of Living, 1936</i>	101	87	96	93	93	102	107	104	100	107	104	108	100
IV. LAHORE—													
(a) Food ..	136	134	145	134	127	129	127	126	129	128	131	131	131
(b) Fuel and Lighting ..	128	128	128	114	114	114	114	114	114	115	115	115	118
(c) Clothing ..	108	108	108	106	106	106	106	106	106	107	106	106	107
(d) House Rent ..	100	100	100	100	100	100	100	100	100	100	100	100	100
(e) Miscellaneous ..	120	121	121	126	106	121	110	110	113	117	120	115	117
<i>Total Cost of Living, 1937</i>	129	128	135	127	120	123	120	120	122	122	124	124	125
<i>Total Cost of Living, 1936</i>	108	113	111	111	110	110	113	113	120	117	123	131	115
V. MULTAN—													
(a) Food ..	139	143	153	143	137	133	133	130	131	123	121	121	134
(b) Fuel and Lighting ..	117	117	117	105	118	117	117	118	118	117	117	117	116
(c) Clothing ..	112	112	112	112	112	112	112	113	104	104	104	104	109
(d) House Rent ..	100	100	100	100	100	100	100	100	100	100	100	100	100
(e) Miscellaneous ..	98	99	99	101	84	100	87	89	87	69	69	69	88
<i>Total Cost of Living, 1937</i>	129	131	138	131	126	125	124	122	122	115	113	113	124
<i>Total Cost of Living, 1936</i>	113	115	115	115	110	113	116	119	126	123	123	134	119

STATEMENT 2.

INDEX NUMBERS IN 1936 AND 1937.

VARIATIONS IN THE INDEX NUMBERS FOR VARIOUS COMMODITIES IN 1937 AND THE PERCENTAGE RISE (+) OR FALL (-)
AS COMPARED TO 1936.

Group or Item.	LAHORE.			SIALKOT.			LUDHIANA.			ROHTAK.			MULTAN.		
	Annual average for 1936.	Annual average for 1937.	Percentage rise (+) or fall (-).	Annual average for 1936.	Annual average for 1937.	Percentage rise (+) or fall (-).	Annual average for 1936.	Annual average for 1937.	Percentage rise (+) or fall (-).	Annual average for 1936.	Annual average for 1937.	Percentage rise (+) or fall (-).	Annual average for 1936.	Annual average for 1937.	Percentage rise (+) or fall (-).
<i>Food Articles—</i>															
Rice (common) ..	130	123	-5.4	177	189	+6.7	112	114	+1.8	120	126	+5.0	156	127	-18.6
Wheat ..	122	150	+23	128	142	+10.9	109	129	+18.3	112	128	+14.3	131	161	+22.9
Wheat flour ..	126	145	+15	112	127	+13.4	115	146	+26.9	102	115	+12.7	129	154	+11.6
Maize ..	110	127	+15.5	138	153	+10.9	133	160	+20.3	98	150	+53.1	113	111	-1.7
Jowar ..	104	104	..	127	133	+4.7	127	113	-11.0	96	120	+25.0	128	109	-14.8
Bajra ..	120	127	+5.8	141	168	+19.1	108	124	+14.8	108	137	+26.8	114	136	+19.3
Gram ..	121	113	-6.6	110	124	+12.7	105	127	+21	93	121	+30.1	93	118	+26.9
Arhar (pulse) ..	116	121	+4.3	..	..	..	97	106	+8.2	105	107	+1.9	..	..	..
Masur (,,) ..	158	180	+13.9	141	155	+9.9	165	163	-1.2	131	130	-0.8	121	113	-6.6
Urd (,,) ..	104	113	+8.6	114	116	+1.7	103	108	+4.8	93	100	+7.5	102	99	-2.9
Mung (,,) ..	109	136	+24.7	115	151	+31.3	130	167	+28.5	105	144	+37.1	99	118	+19.1
Sugar, raw (gur) ..	127	124	-2.4	121	93	-23.1	85	80	-5.9	100	90	-10.0	116	77	-33.6
Sugar, refined ..	84	70	-20	82	71	-13.4	78	63	-19.3	76	64	-15.8	87	76	-12.6
Salt ..	116	124	+6.9	119	116	-2.5	97	102	+5.1	103	103	..	107	117	+9.3
Goat's meat ..	90	95	+5.5	96	95	-1.0	75	84	+12.0	105	126	+20.0	109	109	..
Milk ..	89	72	-19.1	93	93	..	95	97	+2.1	80	88	+10.0	143	140	-2.1
Onions ..	167	192	+15	139	198	+42.4	57	63	+10.5	67	57	-14.9	138	133	-3.6
Chillies (dry) ..	60	55	-8.3	76	159	+109.2	61	56	-8.2	52	81	+55.8	66	92	+39.4
Ghi ..	96	98	+2.1	95	102	+7.4	91	101	+11.0	87	94	+8.0	104	104	..
1. Food Articles ..	119	131	+10.1	129	140	+8.5	113	128	+13.5	103	117	+13.6	126	134	+6.3
2. Fuel and Lighting ..	99	118	+19.1	104	105	+0.9	101	114	+13.0	102	107	+4.9	103	116	+12.6
3. Clothing ..	106	107	+0.9	96	103	+7.3	90	94	+4.4	103	108	+4.8	109	109	..
4. House Rent ..	100	100	..	77	77	..	95	100	+5.2	70	70	..	100	100	..
5. Miscellaneous ..	120	117	-2.5	110	111	+0.9	89	94	+5.6	89	89	..	97	88	-9.3
<i>Total Cost of Living..</i>	115	125	+8.7	118	127	+7.6	107	119	+11.2	100	110	+10.0	119	124	+4.2

STATEMENT 3.

CENTRES ON A COMPARABLE BASIS.

COMPARATIVE COST OF LIVING AT DIFFERENT CENTRES.

TAKING INDEX NUMBER FOR LAHORE IN JANUARY 1937=100.

Centres.	January 1937.	February 1937.	March 1937.	April 1937.	May 1937.	June 1937.	July 1937.	August 1937.	September 1937.	October 1937.	November 1937.	December 1937.	Average Index.
Sialkot ..	101	96	102	102	96	96	97	96	97	98	98	98	98
Ludhiana ..	104	96	93	88	81	83	90	92	103	98	88	86	92
Rohtak ..	84	88	88	81	78	85	86	88	88	87	88	87	86
Lahore ..	100	99	105	98	93	95	93	93	95	95	96	96	97
Multan ..	100	102	107	102	98	97	96	95	95	89	88	88	96

STATEMENT 2.

MEMBERS IN 1936 AND 1937.

MEMBERS IN 1937 AND THE PERCENTAGE RISE (+) OR FALL (-)
COMPARED TO 1936.

LUDHIANA.			ROHTAK.			MULTAN.		
Annual average for 1936.	Annual average for 1937.	Percentage rise (+) or fall (-).	Annual average for 1936.	Annual average for 1937.	Percentage rise (+) or fall (-).	Annual average for 1936.	Annual average for 1937.	Percentage rise (+) or fall (-).
112	114	+1.8	120	126	+5.0	156	127	-18.6
109	129	+18.3	112	128	+14.3	131	161	+22.9
115	146	+26.9	102	115	+12.7	129	154	+11.6
133	160	+20.3	98	150	+53.1	113	111	-1.7
127	113	-11.0	96	120	+25.0	128	109	-14.8
108	124	+14.8	108	137	+26.8	114	136	+19.3
105	127	+21	93	121	+30.1	93	118	+26.9
97	106	+8.2	105	107	+1.9	..	..	..
165	163	-1.2	131	130	-0.8	121	113	-6.6
103	108	+4.8	93	100	+7.5	102	99	-2.9
130	167	+28.5	105	144	+37.1	99	118	+19.1
85	80	-5.9	100	90	-10.0	116	77	-33.6
78	63	-19.3	76	64	-15.8	87	76	-12.6
97	102	+5.1	103	103	..	107	117	+9.3
75	84	+12.0	105	126	+20.0	109	109	..
95	97	+2.1	80	88	+10.0	143	140	-2.1
57	63	+10.5	67	57	-14.9	138	133	-3.6
61	56	-8.2	52	81	+55.8	66	92	+39.4
91	101	+11.0	87	94	+8.0	104	104	..
113	128	+13.5	103	117	+13.6	126	134	+6.3
101	114	+13.0	102	107	+4.9	103	116	+12.6
90	94	+4.4	103	108	+4.8	109	109	..
95	100	+5.2	70	70	..	100	100	..
89	94	+5.6	89	89	..	97	88	-9.3
107	119	+11.2	100	110	+10.0	119	124	+4.2

	December 1937.	Average Index.
98	98	98
88	86	92
88	87	86
96	96	97
88	88	96

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

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[GENERAL EDITOR: J. W. THOMAS, B.Sc., B.Com.]

TANNING INDUSTRY

IN THE

PUNJAB.

INQUIRY

CONDUCTED BY

ROSHAN LAL ANAND, M. A.

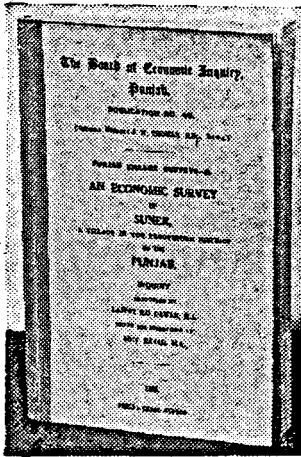
UNDER THE SUPERVISION OF

RAM LAL, R.B., M.B.E.,

DIRECTOR OF INDUSTRIES, PUNJAB

1939.

PRICE ONE RUPEE.



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**TANNING INDUSTRY
IN THE PUNJAB**

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FOREWORD

Next to weaving, the tanning and leather working trades occupy the second place in importance in the industrial occupations of the peoples of the Punjab. According to the census of 1931, 202,737 persons were shown as having tanning and leather work as their principal occupation, while another 13,718 persons followed these trades as subsidiary occupations. The Punjab is one of the largest producers of hides and skins, and the quality of some of these is recognised to be superior to that available in most other parts of the country. Excepting for oxen, there are more animals per square mile in the Punjab than the average for the whole of India. The province is one of the chief goat-skin exporting centres and has practically the monopoly for the export of lamb-skins. At the same time, the Punjab is rich in tanning materials, e.g., **kikar** and **babul** barks, myrobalans, etc.

The Punjab hides are particularly suited for sole leather and such strong leather goods as harness and saddlery, beltings, suit-cases, leather trunks, attache cases and the like. From the heavy cowhides and from the medium weight buffalo-hides, picking bands can be manufactured. If good hairy picking bands are produced from the thick cowhides in the Punjab, a very large trade is possible, because large quantities of these are now imported from foreign countries for use in the textile industry. The spready cowhides of the Punjab are a suitable material for making enamelled hides for upholstery. A fair quantity of this leather is imported for covering motor car and railway carriage cushions. From goat-skins we can manufacture good leather to replace the **nari** (red leather for uppers of shoes) and also high class Morocco skins. From large sized sheep-skins we can manufacture roller skins and also a leather to replace the crudely tanned sheep-skins, which are used largely for book-binding and as shoe lining. The Punjab hides and skins could further be usefully utilised in a general way for a large variety of utility leather wares.

Yet, in spite of these natural advantages, and a growing preference for leather goods and stylish foot-wear, the tanning industry of the province continues to be neglected, and in consequence the Punjab is largely an exporter of hides and skins in the raw state. Actual figures of the export and import trade of the Punjab in hides



Frontispiece.

General View of a Tannery at Lahore.

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

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Yet, in spite of these natural advantages, and a growing preference for leather goods and stylish foot-wear, the tanning industry of the province continues to be neglected, and in consequence the Punjab is largely an exporter of hides and skins in the raw state. Actual figures of the export and import trade of the Punjab in hides

and skins are available for 1937-38 only, as, for the purposes of inland trade statistics, the Punjab Province was grouped together with Delhi and North-West Frontier Province up to the year 1936-37. According to the figures of 1937-38, the Punjab exported 116,824 maunds of raw hides and 168,761 maunds of raw skins, as against 45,883 maunds of tanned hides and skins and leather, or only about 14 per cent. of the total exports. It will be interesting to compare here our position with Madras. In 1937-38, Madras exported 54,172 maunds of raw hides, 95,354 maunds of raw skins and 241,040 maunds of tanned hides and skins and leather, that is to say, the proportion of tanned hides and skins and leather to the total exports was 62 per cent. Madras is one of our largest purchasers of goat-skins, and we buy back our own goat-skins tanned in Madras at considerably higher rates. Similarly, our lamb-skins, which are exported primarily to Leipzig, are, after tanning, received back in India or are sent out to other countries at three or four times the price of the primary product. There is no reason why the Punjab should not be able to send out tanned, instead of raw, hides and skins.

The present methods of tanning followed in the province are crude and wasteful, and the industry is generally in the hands of illiterate cottage tanners. Modern tanneries have been set up from time to time, but with a few exceptions have not proved very successful, owing to lack of proper organisation or of technical knowledge, or due to competition from imported leathers. The amelioration of the economic condition of the village tanner and the general improvement of the tanning and leather working trades have been receiving the special attention of the Department of Industries. In the past, training in the use of up-to-date implements and tools and modern methods of work was provided to the tanners near their homes by means of peripatetic demonstration parties. In 1935 a central Tanning Institute was established at Jullundur with a course of about ten months' duration for the professional tanners and of two years' duration for educated persons. The aim of the Institute is to provide practical training in improved methods of tanning to village chamars in order to improve the village tanning industry and also to provide trained labour for the industry generally as well as to train educated young men to fill more responsible positions in it. A tanning class operates in the Government Industrial School, Muzaffargarh, for the convenience of tanners and others in the Western Punjab. The Government Industrial School, Kasur, specialises in leather manufactures. In the beginning, caste prejudices stood in the way of admissions to this School, but it has now turned the corner and some educated young men have come forward to receive training in it. A peripatetic tanning demonstration party has been sanctioned under the Rural

Development Programme and it is proposed to have a second demonstration party in the near future. The Industrial Research Laboratory of the Department took up research in the utilisation of tannery waste for the production of glue. A class of ten persons, including representatives of the hereditary glue makers of Rewari, was held last winter and the use of the improved devices and methods evolved at the Laboratory were taught to them. As a result of the training, it is hoped that the defects complained of in Rewari glue will be removed, and it is an encouraging sign that one of the trainees has started a small-scale glue factory at Amritsar.

There is a bright future ahead for the tanning industry and the leather working trades, if properly organised by persons of education and by those with sound theoretical and practical knowledge of leather technology. The report presents a comprehensive picture of the present position of the industry and it is hoped that prospective industrialists and investors will draw upon it freely in an intensive study of the subject and judge for themselves the possibilities of setting up this lucrative trade.

Mr. Roshan Lal Anand, an experienced Investigator of the Board, who has conducted the investigation under my supervision, has brought out a useful report and deserves to be complimented on the results of his enquiry.

Lahore:
12th November, 1938.

RAM LAL,
Director of Industries,
Punjab.

PREFACE

Here is a study of really first-rate importance to the economic life of this Province. A careful perusal of it will convince anyone that millions of rupees are being lost to the Punjab because industries connected with leather—of which tanning is the central—are now carried on in a crude way, with untrained labour, insufficient capital, rule-of-thumb methods, parasitic middlemen, bad marketing practices and many other handicaps.

Leather is one of the most valuable raw materials entering into world trade—it is estimated that over £200,000,000 worth of leather is annually dealt in. Leather production has been perfected within the last fifty years and science is now applied in Western countries and Japan to all steps in its making. In India the crude old methods for the most part still prevail.

The demand for leather has greatly increased not only for the uses to which it has long been put in shoes, harness and utensils, but new uses in sports goods, in jackets, bags, purses, lamp shades, motor cars and machinery and manifold other uses. India has the largest animal population of any country in the world, and is one of the largest exporters of hides and skins; much of these are raw or poorly tanned or cured and fetch low prices compared with the leather made from them. Other countries thus draw the larger part of the profits from this Indian material.

The Punjab which has proportionate to its area a larger animal population than other provinces, except in oxen, yet exports the bulk of its best hides and skins raw, and imports its better leather. The reason for this tremendous economic loss is the neglected state of the tanning industry. The census reveals that since 1911 the number of tanners, curriers, etc., have dropped from 27,000 odd to less than 15,000 in 1931.

Everything in this report goes to prove that this industry in leather is in an increasingly bad condition. The care of cattle and sheep and goats, the manner of flaying and curing, shipping and marketing are all old-fashioned, slovenly, unskilled and bad. The village tanners are despised and only tolerated on sufferance in the villages. They secure only the poorer hides and tan them by age-

old methods which tend to deteriorate with time rather than to improve. Their position in the village is increasingly insecure as only the poor in the villages are left as their customers. Many of them are in debt and if in debt they become the victims of oppression by the middlemen. In the tanning factories the wages are miserably low—even the head workers (the mistries) get less than one rupee per working day whereas the unskilled worker gets only a few annas.

The best skins are sent to Madras from where many go to Japan, and the best hides to United Provinces, or to Karachi for export. As there is no organised market, no grading and no information available to the chamar producer, the price he receives even for the best hides is a meagre one. The Muslim Khojas, who dominate this trade, leave much to be desired in their dealings with the poor, uneducated and badly indebted workers.

A growing trade in the skins of "unborn" lambs, kids and even calves (to secure which abortion is practised on the mothers) is described in sufficient detail to draw attention both to the inhumanities involved and also to the danger to the future welfare of the Province and the country in reducing the number and the quality of its stock of animals.

Much more might be said about this study, but we believe enough has been said to draw attention to its first rate importance. It is the third report put out by the Board of Economic Inquiry, Punjab, intended very especially for business men. The first was the Report on the "Gut Industry"—Publication No. 34, issued in 1934; an Urdu edition in 1937,—and the second was a study of the "Lac Industry"—Publication No. 47, issued in 1937. This publication is by all odds the most important because if we could create a first-class leather industry in the Punjab we would add millions of rupees to the annual income of her people. Surely this is worth doing in these hard times.

E. D. LUCAS.

6th February, 1939.

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CHAPTER I

RAW HIDES AND SKINS

Introductory.—The difference between the terms “Hides” and “Skins” is one of size rather than of kind. The term “Hides” refers to skins of the larger and full grown animals, such as the cow, ox, bull, buffalo, horse, donkey and camel; while “Skins” are of smaller animals, such as sheep, goat and deer. The skins of smaller sized Indian cattle are known in foreign markets as “Kips,” but in this report all skins of bovines are referred to as “Hides” except those of young calves. The hides and skins used in the manufacture of various kinds of leather, are obtained from a wide range of animals, including crocodiles and snakes. Most of the leather is, however, prepared from the hides and skins of domestic animals, which, besides being available in large numbers, have skins of finer texture as a result of their domestication. The importance of a country as a producer of hides and skins therefore, depends principally on the number of its domestic animals.

Live-Stock Census Figures.—The live-stock census was last conducted in most of the Indian provinces in 1935, and figures are given below for British India (including the Punjab) and the British territory of the Punjab, separately.

TABLE I.
Live-Stock in British India and the Punjab in 1935.

Animals.	BRITISH INDIA.* (Area : 1,040,350 Sq. Miles)		BRITISH PUNJAB. (Area : 99,200 Sq. Miles).	
	Total number.	No. per sq. mile.	Total number.	No. per sq. mile.
<i>Bovine—</i>				
Oxen ..	126,755,012	121·7	9,792,240	98·7
Buffaloes ..	34,180,327	32·9	6,048,261	60·9
<i>Ovine—</i>				
Sheep ..	24,043,985	23·2	4,424,147	44·6
Goats ..	37,112,274	35·7	6,164,496	62·1
<i>Equine—</i>				
Horses & Ponies ..	1,718,221	1·6	398,748	4·0
Mules ..	69,715	0·1	29,187	0·3
Donkeys ..	1,483,599	1·4	662,919	6·7
Camels ..	530,220	0·5	307,031	3·1
<i>Total</i> ..	<i>225,893,353</i>	<i>217·1</i>	<i>27,827,029</i>	<i>280·5</i>

* “British India” in the above statement includes Ajmer-Merwara, Assam, Bombay (including Sind), Burma, Central Provinces and Berar, Coorg, Delhi, Madras, North-West Frontier Province, Punjab, United Provinces, Bengal, and Bihar and Orissa. Figures of the last two provinces relate to 1929-30. (Cf. “Agricultural Statistics of India, 1934-35,” Vol. I, Table V.)

India is the largest producer of hides in the British Empire,* and the Punjab occupies a fairly conspicuous position among Indian provinces in this respect, there being 281 animals to the square mile in the Punjab as against 217 for India as a whole. The dry climate prevalent for the most part of the year, the numerous varieties of grasses that spring up after the rains, the somewhat calcareous soil in the east of the province, and the enormous demand for draft bullocks, all contribute towards maintaining a large number of animals which yield hides and skins of good quality. It will be observed from the foregoing statement that the Punjab has 160 bovines to the square mile as compared with 155 for India as a whole. The number of ovines per square mile in the Punjab is about twice that of India (107 and 59, respectively), that of horses and mules about three times (4.3 and 1.7), of donkeys about five times (6.7 and 1.4) and of camels over six times (3.1 and 0.5). The Punjab alone has more than half the total number of camels found in the whole of India.

The Punjab Districts.—The number of animals in each district of the Punjab is given in Statement II on the next page. It will be seen that Gurdaspur has the largest number of oxen per square mile (210), followed by Simla (197), Jullundur (193), Ambala (176), Sialkot (175), Hoshiarpur (157) and Ludhiana (155). The districts with the largest number of buffaloes to the square mile are (in descending order) Amritsar, Sialkot, Jullundur, Gurdaspur, Sheikhpura, Lyallpur, Gujranwala, Gujrat, Hoshiarpur, Ludhiana and Ambala (196, 161, 146, 137, 137, 132, 131, 130, 115, 108 and 103, respectively). It may be noted that the districts with a high "cattle factor" are situated mostly in the central or submontane parts of the province and the climate here is comparatively mild than in other parts. The annual rainfall varies between 20 and 35 inches, so that in normal times greer fodder grows in abundance. These districts contain from 319 to 71 human beings to the square mile, as against 238 in the British Punjab as a whole so that the demand for milk is high. Further, with heavy population pressure on land, holdings are small and wells are worked in large numbers to irrigate fields; hence there is a greater demand for cattle here than in other parts of the province.

The more important districts as regards the number of other animals to the square mile are given below:

Sheep: Sheikhpura (137), Gurdaspur (137), Gujranwal (132), Lahore (114), Shahpur (88) and Jhang (87)

*Cf. Appendix A,

Number of Domestic Animals in the British Territory of the Punjab in 1935.*

District.	Area in square miles.	BOVINE				OVINE			HORSES, MULES AND DONKEYS.		CAMELS.	
		OXEN.		BUFFALOES.		Total Sheep.	Total Goats.	Sheep and goats per sq. mile.	Total.	Per sq. mile.	Total.	Per sq. mile.
		Total.	Per sq. mile.	Total.	Per sq. mile.							
<i>Ambala Division.</i>												
Hissar ..	5,213	380,779	73	188,257	36	16,725	206,483	40	22,772	4	42,142	8
Rohtak ..	2,471	345,666	140	190,928	77	50,384	84,721	55	23,029	9	3,509	1
Gurgaon ..	2,263	330,545	146	188,047	83	45,885	150,970	87	24,902	11	4,515	2
Ambala ..	1,882	331,629	176	193,715	103	39,759	107,611	78	14,620	8	1,443	1
Karnal ..	3,125	482,606	154	283,468	91	88,939	115,625	65	26,297	8	1,990	..
Simla ..	101	19,915	197	2,118	21	3,481	4,870	83	271	3	..	..
<i>Jullundur Division.</i>												
Kangra ..	9,976	591,662	60	171,503	17	268,398	297,659	57	14,667	1	372	..
Hoshiarpur ..	2,247	353,208	157	259,344	115	14,986	148,618	73	19,864	9	2,778	1
Jullundur ..	1,431	275,870	193	208,881	146	12,067	82,953	66	18,361	13	3,216	2
Ludhiana ..	1,452	225,375	155	156,877	108	30,232	75,680	73	13,107	9	7,345	5
Ferozepore ..	4,290	383,601	89	316,028	74	141,331	211,982	82	38,526	9	32,351	8
<i>Lahore Division.</i>												
Lahore ..	2,682	306,280	114	346,661	129	153,591	99,626	94	51,612	19	3,506	1
Amritsar ..	1,593	223,431	140	311,473	196	29,808	115,640	91	47,170	3	2,041	1
Gurdaspur ..	1,889	396,550	210	258,836	137	52,286	136,269	100	34,252	18	801	..
Sialkot ..	1,578	253,607	175	274,553	161	21,919	52,560	47	21,121	13	635	..
Gujranwala ..	2,309	238,968	103	303,748	131	102,209	32,805	58	46,666	20	3,280	1
Sheikhupura ..	2,302	223,960	97	315,554	137	137,057	50,348	81	40,343	18	2,789	1
<i>Rawalpindi Division.</i>												
Gujrat ..	2,250	287,983	128	293,298	130	59,084	67,848	56	61,815	27	5,379	2
Shahpur ..	4,789	422,338	88	256,007	54	350,582	194,647	114	79,968	17	16,116	3
Jhelum ..	2,773	256,784	93	62,380	22	157,910	150,221	111	46,718	17	6,624	2
Rawalpindi ..	2,023	248,280	123	66,800	33	85,795	172,280	128	33,429	2	5,044	2
Attock ..	4,117	298,131	72	41,770	10	197,062	178,617	91	45,828	11	8,303	2
Mianwali ..	5,395	242,983	45	30,889	6	387,682	227,864	112	27,653	5	18,049	3
<i>Multan Division.</i>												
Montgomery ..	4,518	449,056	100	381,640	84	341,948	176,931	115	72,536	16	16,547	4
Lyallpur ..	3,224	354,412	110	424,638	132	212,437	157,710	82	47,503	15	14,581	5
Jhang ..	3,452	337,869	98	180,327	52	278,479	116,073	110	42,183	12	19,061	6
Multan ..	5,892	677,424	115	226,061	38	368,851	284,650	111	76,475	13	33,415	6
Muzaffargarh ..	6,052	476,128	79	62,736	10	336,869	264,114	99	40,045	7	28,042	5
D. G. Khan ..	5,325	377,860	71	42,717	8	273,371	191,121	..	37,265	7	23,127	4
<i>Total</i> ..	<i>99,200</i>	<i>9,792,240</i>	<i>99</i>	<i>6,048,261</i>	<i>61</i>	<i>4,424,147</i>	<i>6,164,496</i>	<i>107</i>	<i>1,090,854</i>	<i>11</i>	<i>307,031</i>	<i>3</i>

*Live Stock Census Report, 1935.

Goats: Rawalpindi (85), Gurdaspur (72), Amritsar (72), Gurgaon (67) and Hoshiarpur (66).

Equine: Amritsar (30), Gujrat (27), Gujranwala (20), Lahore (19) and Montgomery (16).

Camels: Hissar (9), Ferozepore (8), Multan and Jhang (each 6).

Production of Hides and Skins in the Punjab.—Statistics regarding the production of hides and skins in India are not available, and the Punjab is no exception in this respect. Experts have, however, made rough estimates from time to time. Mr. Arnold, for example, in his book "Hides and Skins" estimates the gross production of cattle hides in India during the post-war years as being between 15.7 and 25.2 million pieces, in years of the lowest and highest production.* The cattle population of British India then ranged between 157 and 161 million. On that basis the present production of hides in the Punjab now works out as between 1.6 and 2.5 million pieces in low and high years, respectively.

Another method of estimating the annual production would be to divide the total number of living animals by their average span of life in years; and the figures thus obtained are given below:

TABLE III
Estimated Annual Production of Hides and Skins in the British Territory of the Punjab in 1935.

Animals.	Total number.	Average span of life.†	Annual production of hides and skins.
	Million head.	Years.	Million pieces.
Cows and buffaloes ..	15.84	{ 4 6	3.96
Goats	6.16		3.6	2.64
Sheep	4.42	2.8	1.71
			1.58

It may not be possible to arrive at a figure which will be accepted as correct by all, for besides differences of opinion as to the average span of life for such animals, the number of deaths varies within wide limits according to the amount and distribution of rainfall during a year (which affects the fodder supply) and the occurrence of epidemics. Despite this difficulty, the foregoing figures may be taken as the basis of our calculation in the absence of any authoritative information.

Quality of Hides.—The quality of the hide or skin of an animal is determined by a number of factors, such as the conditions under

* Quoted in the Report of the Hide Cess Inquiry Committee (1930), page 12.
† As given in the above report.

which it has grown up, its health, age, whether "fallen" or slaughtered, and lastly, the time of the year when it died or was slaughtered. It has been said of sheep that their skins gain in thickness a few days after shearing.

It is an important feature of the tanning industry that the raw hides and skins are obtained as a bye-product, for nowhere in the world are animals killed in any large numbers simply for the sake of their skins. The hides of slaughtered animals yield leather of a better quality than those of animals meeting a natural death.

In the provinces where Hindus predominate kine are not slaughtered except in a few big towns, so that the hides are collected mostly from "fallen" animals. In the Punjab, however, the majority of the population consists of Muslims who are generally meat-eaters and there are a number of important cantonments where beef is served to the troops. Consequently a large proportion of the hides produced in the Punjab is obtained from slaughtered animals. The hides of the Punjab are considered very good because of their toughness and good substance. In this province cow leather is used mostly for the uppers of shoes, and from buffalo leather are made soles, beltings and washers.

Quality of Skins.—The Punjab skins are famous in many parts of the world for their quality, and are referred to in the foreign markets distinctively as the "Amritsar skins," after the name of the principal market of the province. The outer surface of these skins has a prominent grain, which adds to their beauty. The tanneries in Madras obtain large supplies of goat skins from the Punjab for the manufacture of superior varieties of leather, such as "Glance kid" and "Morocco" leather. Glance kid leather is used in the uppers of costly shoes for ladies and the Morocco leather for articles of upholstery and fancy goods. The sheep skins of the Punjab are, however, thin, so that finer qualities of leather cannot be manufactured out of them; they serve chiefly as lining material for shoes, hats, etc.

Slaughter of Animals in Towns.—Only 13 per cent. of the population in the British territory of the Punjab live in towns, i.e., a continuous collection of houses inhabited by not less than 5,000 persons.* Even after allowing for the greater per capita consumption of meat in towns, the number of animals, particularly of the smaller type, slaughtered in villages far outnumber those slaughtered in towns. There are 178 municipalities and small towns in the Punjab, and many of them do not keep any record of animal slaughter. In 36 towns 39,545 cows and buffaloes were slaughtered during the year 1935†. The list

* Punjab Census Report, 1931, p. 89.

† Cf. Appendix B.

is incomplete, particularly owing to absence of information about cantonments. In the slaughter-houses of 99 towns, 889 thousand goats and sheep were killed in 1935*. Lahore tops the list with 199 thousand animals, followed by Amritsar with 166 thousand, and then by Multan, Sialkot and Gujranwala.

Defects in Hides and Skins.—Great as are the resources of the Punjab in animal products, they are not utilised in the best manner. The animals are sadly neglected, and when dead most carelessly flayed. The methods of curing and processing are also primitive. The most common defects occurring in hides and skins while the animals are still alive, are given below.

(a) Defects due to pests and diseases: The warble fly, weevil and tick are the main pests.† According to an authority, "during the cold weather warble holes occur in from 10 to 70 per cent. of the hides, according to the districts in which they are produced," and he estimates that "of all the hides produced in the cold weather 40 per cent. are damaged by the warble holes. These hides are practically useless to the Indian tanner."‡ The chief diseases which disfigure the hides are small-pox, leprosy and mange.§

(b) Defects due to branding: The cattle intended for the supply of meat to the troops are branded by the government supply officers with a red hot iron, and this practice is said to be in vogue also in some municipal slaughter-houses. The military dairies and some zemindars also brand their cattle as a check against theft. The brand marks are usually made on the buttocks or shoulders, thus spoiling those parts of the hides from which the most presentable leather is prepared.

(c) Miscellaneous: Defects may be due to the starvation of cattle, or owing to jungle scratches and sores. The hides of plough and draft cattle have yoke marks on the neck, and some have bruises on the buttocks due to the cruel practice of using a goad having a nail or some kind of prick at the end.

The resultant loss to the industry from these sources is not generally comprehended. Mr. A. E. Corbett, one of the hide buyers at

* Cf. Appendix B.

† "The warble is prevalent in the north-west, and the north of the United Provinces. Hides from Meerut, Muzaffarnagar, Saharanpur and Delhi are badly affected by the warble. Further up the Punjab it is still worse." (Evidence of Mr. A. E. Corbett) Hide Cess Committee Report, Vol. II, page 32.

‡ Hide Cess Inquiry Committee Report, Vol. II, page 10. (Evidence of Mr. A. C. Inskip, of Messrs. Cooper Allen & Co., Cawnpore).

§ "The chief disease affecting the cattle is leprosy. I doubt if it can be eliminated. It has a very bad effect on hides. I reckon that 10 per cent. of the hides purchased in certain districts bear leprosy marks. The next important disease is mange. Under its effect the grain gets rattled up." (Ibid., page 32).

Cawnpore (U.P.), estimates the loss in value of Indian hides and skins to be : *

Cow hides	.. ..	From 30 to 50 per cent.
Buffalo hides	.. ..	From 24 to 40 per cent.
Goat and sheep skins	.. ..	From 25 to 33 per cent.

In the more advanced countries steps are being taken to free the hides from the defects mentioned above. A great obstacle in the way of taking similar steps in India arises from the fact that cattle here are owned in small numbers by innumerable zemindars most of whom have neither the inclination nor the knowledge to keep their animals free from pests and disease. Further, the price of an ordinary animal in India is much too low to permit of expensive methods of treatment. Last, though not least, is the custom in villages, particularly in the eastern parts of the province, of giving away the carcasses of dead animals free to **chuhras** and **chamars** (scavenging and leather worker castes) as one form of remuneration for customary services rendered to the village community. Naturally in such circumstances the owners of cattle have little to gain by devoting extra care to the skin hygiene of the animal.

Thus reform can only be gradual through the general education of the people to take better care of the animals. The practice of branding should, however, be checked, for at present it is done in a crude way and is of necessity painful. If in any case branding is considered indispensable, it should be done on the lower parts of the legs or on the ears.

Flaying and Curing.—Flaying is the process of skinning the carcass, and by curing is meant the initial treatment necessary to keep the hide in good condition until sold or tanned. Flaying is an unsavoury task, and in this country it has been relegated to a class of people who are sunk in poverty and ignorance. In villages flaying is often unnecessarily delayed. A case was noted in the Sialkot District where the chamars and chuhras took out the best portions of a carcass of a fallen ox for food, and deferred the flaying until two days later. Late flaying detracts from the value of a hide because of the decomposition which sets in.

Secondly, the flayers do not generally take proper care of the carcass when transporting it to the place where the flaying is to be done. The heavier carcasses are at times dragged rather than lifted or carted, which results in inflicting bruises and cuts in the hide and also spoils its grain. It is not sufficiently realised that even small defects are enough for an otherwise excellent piece to be classed as one of second quality, thus reducing its value by about 25 per cent.

* Hide Cess Report, page 30.

Yet another factor responsible for defective flaying is the use of blunt knives and their careless handling as a result of which marks, scores and cuts are inflicted on hides. Unskilled flayers, and they are many, do not give proper incisions and so spoil the shape of the hide. In slaughter-houses flaying is done very hurriedly, as payment is made per animal, and sometimes bad lighting in them also leads to poor flaying.

It was noted during the inquiry that dry hides generally sell in the market by weight and "green" slaughtered hides by number. This practice is also to a certain extent responsible for bad flaying. When flaying dead animals the hides of which are usually sold in *sukti* (dry) condition, pieces of fat and flesh are allowed to remain intact, and many a *gowara* (village) hide was seen with the hoofs and tailbone undetached. On the other hand, hides from slaughter-houses are sold green, and the flayers cut too close to the skin with a view to obtain the maximum amount of flesh of a rich, fatty look; knife marks are thus imparted to the hide. The manager of a tannery stated that his experience was that knife marks and scores are more common among the slaughtered hides than among the fallen hides.

The curing of hides, too, is not without serious defects. It was noted that except in the case of very good hides which are sold in a green condition to the framed-hide dealers, the hides are spread flat on the ground and dried in the sun; and dust is deliberately allowed to settle on them to add to their weight. Sometimes mud is plastered on the flesh side to conceal its defects and to "load" the hide. The direct rays of the sun, particularly during the summer, spoil and sometimes burn the gelatinous matter in the hide, while the dust and other extraneous matter accelerate the process of decomposition. Burns are occasionally caused while drying hides and skins over fires in wet weather. If and when the hides are salted the dirtiest salt is used for the purpose, and that seldom in the right quantity.

Suggestions.—It is very necessary that flayers and curers should be trained for their work. Some time back the Punjab Department of Industries started a class in flaying at Jullundur, but it did not receive a good response, and had to be closed. One of the reasons for the flayers not taking advantage of this opportunity seems to be that they are not paid higher wages for doing better work. Some authorities would therefore favour the introduction of a system of "bonuses" for good flaying. The following are some other suggestions for improving the present state of affairs:

1. Well selected flaying knives of an approved pattern should be made available to flayers.

2. Village societies should be encouraged to provide carts to the **chamars** for carrying away carcasses to the place of flaying. Many villages can well afford this expense from the **malba** fund (common fund of the village). These carts could also be used for carrying manure to the fields.

3. "Tail extractors" should be installed in important beef slaughter-houses. This is a simple contrivance consisting of four pieces of iron, riveted together loosely in the shape of a diamond with a clamp attached to secure the tail.

4. The slaughter-houses should be provided with adequate lighting arrangements.

5. The flayers should be advised to take off the hide soon after an animal dies. The fleshy and fatty matter should be completely removed. The hides should then be hung up for drying in an airy place not exposed to the sun, with the hair side downwards. To prevent shrinkage, the head and tail ends should be stretched out and nailed to a pole, the hoofs and legs being fastened with skewers on both sides.

6. The hide dealers should be advised to arsenicate such hides as are dried without applying salt in case they are to be stored for some time.

CHAPTER II

TANNING MATERIALS IN THE PUNJAB

When considering the potentialities of a tract for developing the tanning industry, a liberal supply of cheap and efficient tanning materials is a pre-requisite next in importance to the supply of raw hides and skins. Nature has been bountiful in providing the former to the Punjab, both in quantity and variety, yet owing to general ignorance only a few of the many available substances are at present used. An inquiry recently taken in hand by the Department of Industries, Punjab, into the tan stuffs of the province, should prove useful by making known the trees and plants from which tanning material may be secured, and hence tend to increase supplies, which in turn would make possible some reduction in the price of the stuffs now employed, as well as in improving the quality of the leather produced. A brief account is given below of the more important tanning materials commonly employed by the tanners in the Punjab.

1. **KIKAR (*Acacia arabica*).**—This moderate sized, evergreen tree is one of the commonest found in the Punjab plains and its cultivation has increased with the introduction of canals where it is sown along the banks. Seedlings spring up readily on fallow land and on the edges of fields although many are killed by frost in the central parts of the province. The tree attains its maximum height in the tract south of the Sutlej river, and the wood, being hard and very durable, is used widely for agricultural and domestic purposes.

The bark obtained when the tree is felled is the most important tanning material in northern India. It is estimated that about 64,000 maunds of kikar bark are consumed annually in the tanneries around Multan, 53,000 maunds in Kasur and 15,000 maunds around Lahore; these are among the more important tanning centres in the Punjab.* The average tanning content of the bark is 12 per cent.; that of the bole when cleanly taken will show up to 18 per cent. while the twig bark is poor, containing only 7 per cent.

At present Rajpura is the most important despatching station for kikar bark. As a result of the gradual felling of kikar trees, the price of the bark rose from Rs. 0-8-0 per maund in the beginning of the present century to Rs. 1-4-0 just before the War. The tanneries were then suddenly called upon to turn out enormous quantities of leather,

*Cf. Appendix D (c).

and the shortage in the supply of kikar bark was so keenly felt that Government had to intervene in order to bring it to the tanneries. The present price, in spite of the general agricultural slump, ranges between Rs. 1-8-0 and Rs. 2-4-0 per maund. It may, therefore, be concluded that it is not wise for the industry to lean on any one variety of tree for the supply of tan stuffs, particularly when the tree has to be felled in order to obtain the bark, except where this is a by-product from the yearly fellings for timber or fuel. A greater use of other materials is therefore recommended, and it is also suggested that larger plantations of kikar trees should be grown by the Forest Department.

In the Punjab kikar bark is used largely unmixed. Some tanneries at Cawnpore are reported to add from one-fifth to one-third the weight of black myrabolam in order to obtain denser liquors and to overcome the tendency of kikar bark to produce a dark coloured leather. The use of **kurund** (*Carissa carandas*) has been suggested.* This is an evergreen bush cultivated in gardens as a hedge. A quantity up to one-third in mixture with kikar bark is recommended as it not only strengthens the fibres and grain, but bleaches the red in the tanning liquor obtained from kikar.

2. **HARAR** (*Terminalia chebula*).—This tree occurs in the sub-Himalayan tract from the Ravi river eastwards, chiefly in the Kangra District. The fruit is the black myrabolam of commerce, and is used for tanning, dyeing and for medicinal purposes. There is scarcely a tannery in any part of the world, chrome tanneries excepted, which does not use this Indian tan stuff. The percentage of tannin in the Punjab myrabolam is from 35 to 40 per cent. In this province the use of myrabolam in admixture with kikar bark is restricted to preparing leather for harness or saddlery.

3. **CHIL** or **CHIR** (*Pinus longifolia*).—This large tree (pine) with a bark from one to two inches thick is found from Afghanistan along the Himalayas and Siwalik hills to Bhutan. Apart from the timber the chil is valuable for its resin. Its outer bark can be stripped without any serious damage to the tree, and in the North-West Frontier Province it is commonly used for tanning hides. The chil bark does not seem to be so efficacious as the kikar bark and the tanners there stated that the reason for their using it, was the high cost of transporting kikar bark from the Punjab. The chil bark imparts a brownish colour to the leather and this precludes it from being used in making shoes of high quality. The percentage of tannin in the

* "Indian Tan Stuffs and Their Tannage,"—Bulletin No. 1: Government Tannin Research Factory, Malhar.

bark, according to the records of the Forest Department, is about 13 per cent.

4. **DARAN** (*Punica granitum*).—This is a small tree growing mostly in the Salt Range and other low hills. The fruit shell, known in the bazar as *naspal*, has about 25 per cent. tannin, and is used for tanning donkey hides in the N.W.F. Province.

The tan stuffs mentioned above are in active use by the tanners. Some more, mentioned below, are not so well known, or were discarded when the *kikar* bark became less costly in transport.

5. **BAHERA** (*Terminalia belerica*).—This tree is fairly common in the sub-montane region from Rawalpindi District eastwards. The flesh of the fruit—*Beleric myrabolam*—may have up to 25 per cent. of tannin, and has the same bleaching property as possessed by true *myrabolam*; at the same time it has the advantage of cheapness.

6. **AMLA** (*Phyllanthus emblica*).—This tree is found in the Punjab up to the Indus. Its fruit is well known as *Emblica myrabolam*, and has astringent properties which are utilised alone, or in conjunction with other substances; the strength of tannin is about 40 per cent. The leaves are regarded as one of the best tans by the Bengal chamars and contain about 18 per cent. tannic acid. The bark is used for tanning in the Travancore State.

7. **TEA** (*Camellia thea*).—There are some tea orchards in the Kangra District. The leaves are reported to contain tannin up to 8.4 per cent. but the high price prohibits their use in tanning.

8. **JHARI BER** (*Zizyphus numularia*).—This self-propagating bush is very widely spread in the dry parts of the Punjab, and is not of much value except for its edible fruit and fodder for goats. The leaves carry about 9 per cent. of tannin, and the bark about 12 per cent. This tan stuff produces a plump and strong leather, but of a very poor colour.

9. **GHOUNT** (*Zizyphus xylopyra*).—The fruit of this large straggling bush which is found in the sub-Himalayan tract from the Sutlej eastwards, is used to impart a black colour to leather. Its tannin is reported to penetrate almost as rapidly as *turwad* (*Cassia auriculata*), mentioned later. The average amount of tannin is 16 per cent. and in view of this material being very cheap and widely distributed, it should commend itself to tanners.

10. **KHAIR** (*Acacia catechu*).—This tree occurs in the sub-Himalayan and outer-Himalayan tracts, usually as an undergrowth in *chil* forests. Its wood is in high demand for posts and for making charcoal. It is rich in tannin and from its extracts are prepared

kath and cutch, the former for chewing with betel and the latter for tanning and use in the textile industry. This tree is not found in any large numbers in the Punjab.

11. **AMALTAS (*Cassia fistula*)**.—A medium sized tree of the sub-Himalayan tract. The pulp of the fruit, which is used as a purgative, is collected and exported from the Kangra District. The bark is used for tanning, and the percentage of tannin varies from 3 to 15. In Southern India the amaltas bark is used mixed with turwad.

12. **BAKLI (*Anogeissus latifolia*)**.—A tall, whitish grey tree of the sub-Himalayan tract and the Siwalik hills. Its wood is used for tanning and the tree yields a gum which is used in calico printing. The mature leaves carry 16 per cent. tannin, while the young leaves sprouting in April, carry up to 55 per cent. The chamar of Central India has long used a mixture of the leaves and sticks of this tree in water, which he calls **noti**, and considers this mixture the quickest of all tanning agents. Later experiments have shown turwad to be quicker than the bakli liquor.

13. **ARJAN (*Terminalia arjuna*)**.—A large tree with smooth greenish-grey bark. It is indigenous to Central India, but is cultivated in gardens and on roadsides throughout the Punjab, especially in the Kangra District. The outer bark of this tree can be stripped without causing it much injury. According to an authority,* a mixture of bakli and arjan barks in the portion of 1 and 3, produces a perfect light fawn colour on leather suitable for harness work.

Among other trees containing tannin, which are found in the Punjab, are **BIL (*Aegle marmelos*)**—pulp 9 per cent; fruit 20 per cent; **TUN (*Cadrela favua*)**; **KHEMBAL (*Ordina wadier*)**—bark 9 per cent; **KANIAR (*Cassia auriculata*?)**—bark 9 to 13 per cent; **KACHNAR (*Bauhinia variegata*)**; **DHAWI (*Woodfordia floribunda*)**—flower 20 per cent; **HAND BAHERA (*Caraja jarborea*)**—bark 19 per cent; and **GADI KURI (*Bridelin retusa*)**—bark 40 per cent.

Some of these trees, rich in tannin, might be grown in waste lands, such as uncommanded lands in the Canal Colonies, both for their bark and for timber. It would also be useful to find out the most appropriate season for debarking trees and the most suitable age for the trees to be stripped, so as to obtain the maximum amount of tannin. The manner in which the bark is dried and stored is of very great importance. Each tan stuff has to be dried in its own peculiar way, and if not properly dried, it is liable to ferment, resulting in loss of tannin.

* "Indian Tan Stuffs and their Tannage," by Messrs. Plymoth and Pilgrim,

One more tan stuff needs to be mentioned, although it does not occur in the Punjab. It is *Cassia auriculata*, known by different names in the country, such as **Turwad, Avaram** and **Avla**. This bush grows wild in the south and west of India and in Rajputana. When two or three years old the branches or twigs which spring from the root are cut down, and the bark is stripped off to dry in small cornets. The coppiced root sends out a very large number of shoots, and a new harvest can be taken after a year. Avaram is considered to be one of the very best tanning materials in India,* the pre-eminence of Madras in the tanning industry being largely attributed to its prevalence in that Presidency. It has the further advantage of the same bush yielding a number of crops. Its cultivation in the United Provinces has met with success, and it is strongly recommended that measures should be taken for experimenting with its cultivation in the Punjab. The Forest Department might also experiment with Wattle, which is a cheap substitute for avaram.

*"Cassia auriculata is an ideal tanning agent for light leathers whereas wattle bark is more suitable for the heavier types such as sole leather." Hide Cess Inquiry Committee Report, Vol. II, p. 8.

CHAPTER III

LEATHER WORKERS

Census Figures.—It would have added considerably to the value of this report if the total number of tanners in the Punjab could have been given, but the task of ascertaining the number could not be accomplished singlehanded in the limited period available for the inquiry. In the census reports this important group of artisans has not been treated separately, but has been merged in the larger group of persons "Working in Leather," including tanners, curriers, leather dressers and dyers, and makers of leather articles such as trunks, water bags, saddlery and harness, but excluding articles of dress. The number of leather workers, according to the Census Report for 1931, is as follows:*

TABLE IV.
Leather Workers in Punjab in 1931.

	TOTAL PUNJAB.			BRITISH TERRITORY.		
	Males.	Females.	Total.	Males.	Females.	Total.
Earners: principal occupation ..	13,860	1,155	15,015	11,080	232	11,312
Working dependents	1,226	676	1,902	799	160	959
Earners with subsidiary occupation	1,156	31	1,187	1,023	28	1,051
<i>Total</i> ..	<i>16,242</i>	<i>1,862</i>	<i>18,104</i>	<i>12,902</i>	<i>420</i>	<i>13,322</i>

Details according to districts are shown on the next page. It is not clear how the occupations or means of livelihood were recorded by the census authorities; for example, only one man has been shown to be working in leather in the whole of the Multan District whereas during the inquiry more than sixty persons were found engaged in tanning in the city of Multan alone, where the industry has been long established.

* Vol. II, Table X, Group 51.

TABLE V.

Persons working in Leather in the Punjab by Districts in 1931.

District or State.	EARNERS : PRINCIPAL OCCUPATION.		WORKING DEPENDENTS.		WORKERS WITH SUBSIDIARY OCCUPATION.	
	Males.	Females.	Males.	Females.	Males.	Females.
<i>A.—British Territory—</i>						
Ambala Division—	2,422	43	129	108	490	9
Hissar ..	584	17	84	67	282	9
Rohtak ..	575	7	25	35	36	..
Gurgaon ..	293	5	4	4	25	..
Karnal ..	343	4	4	2	28	..
Ambala ..	627	10	12	..	119	..
Simla ..	..	..	..	..	..	..
Jullundur Division—	2,041	68	305	21	280	19
Kangra ..	..	1	..	1	..	..
Hoshiarpur ..	624	3	3	10	56	1
Jullundur ..	843	57	266	10	149	18
Ludhiana ..	175	2	16	..	40	..
Ferozepore ..	399	5	20	..	35	..
Lahore Division—	3,536	39	129	31	87	..
Lahore ..	1,348	33	5	6	14	..
Amritsar ..	462	1	20	..	28	..
Gurdaspur ..	289	..	19	25	15	..
Sialkot ..	1,283	5	80	..	9	..
Gujranwala ..	134	..	5	..	14	..
Sheikhupura ..	20	..	..	..	7	..
Rawalpindi Division—	745	64	90	..	8	..
Gujrat ..	211	10	3	..	4	..
Shahpur ..	57	4	2	..	..	..
Jhelum ..	423	50	75	..	1	..
Rawalpindi ..	34	..	3	..	1	..
Attock ..	20	..	7	..	1	..
Mianwali ..	..	..	..	..	1	..
Multan Division—	2,336	18	146	..	158	..
Montgomery ..	1,297	2	37	..	93	..
Lyallpur ..	556	1	92	..	44	..
Jhang ..	35	4	..	..	..	..
Multan ..	1	..	..	..	..	..
Muzaffargarh ..	232	..	15	..	17	..
D. G. Khan ..	215	11	2	..	4	..
<i>Total</i> ..	11,080	232	799	160	1,023	28
<i>B.—Punjab States</i> ..	2,780	923	427	516	133	3
<i>Grand Total</i> ..	13,860	1,155	1,226	676	1,156	31



Plate 2.

Dry Hides Arriving at a Godown.

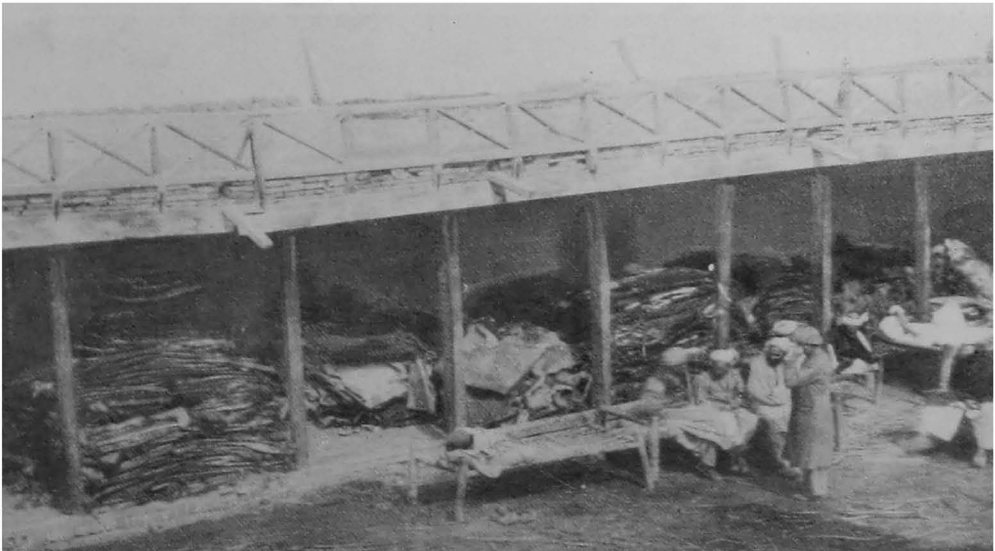


Plate 3.

Raw Hide Godown at Peshawar.



Plate 4.

Workers in a Punjab Tannery.
(See page 78.)



Plate 5.

"Fleshing."

The Census Report for 1931 deviates from the previous reports in the method of dealing with occupations and means of livelihood. The reports for 1911 and 1921 give separate figures for (a) tanners, curriers, and leather dressers and dyers, and (b) makers of leather articles except articles of dress. In the report for 1931 this classification has been abolished. There is also a difference in the classification of figures in each group. These factors stand in the way of clearly understanding the changes that have occurred in the profession during the last two decades. Figures have, however, been worked out below to make a rough comparison possible.

TABLE VI.
Leather Workers in different Census Years.

Year.	ACTUAL WORKERS.		TOTAL OF WORKERS AND DEPENDENTS.	
	Total Punjab.	British Territory.	Total Punjab.	British Territory.
1911—				
(i) Tanners, curriers, etc. . .	27,085	21,899	77,284	66,483
(ii) Makers of leather articles except articles of dress	3,687	3,535	12,094	11,725
<i>Total</i> ..	<i>30,772</i>	<i>25,434</i>	<i>89,378</i>	<i>78,208</i>
1921—				
(i) Tanners, curriers, etc. . .	16,932	13,452	53,041	43,123
(ii) Makers of leather articles except articles of dress	5,792	5,379	14,238	13,297
<i>Total</i> ..	<i>22,724</i>	<i>18,831</i>	<i>67,279</i>	<i>56,430</i>
	Earners : principal occupation.		Earners and working dependents.	
1931—				
Working in leather (including both classes) ..	15,015	11,312	18,104	13,322

The trend of the figures is downwards, and considering that the tanners constitute a major portion of the group, it may be concluded that their number had fallen considerably during the twenty years 1911-31.

Trend of the Tanning Industry.—The number of persons engaged in the industry is decreasing and this would indicate that the industry is on the decline. A large number of tanning regions which once hummed with activity are now lying idle and deserted, and only a

few tanning concerns have been started in recent years.* The imports of leather into the Punjab increased from 5,000 maunds per annum during the quinquennium 1909-10—1913-4 to 10,000 in 1914-5—1918-9 and 20,000 in 1934-5—1936-7. The corresponding figures for the export of leather are 26,000, 30,000 and 18,000 maunds, respectively.† The following reasons for the present state of the tanning industry suggest themselves.

1. Generally the hides of the Punjab are of superior quality, while the local requirement is chiefly for inferior leather, such as is needed for the jutis (shoes) worn in villages. Evidently it does not pay to manufacture cheap leather from costly hides. Further, the Punjab hides are strong and tough, suited for manufacture into heavy goods such as soles, belting and saddlery. If employed for the uppers of shoes and similar light articles, this leather has to be shaved from the inner side, and this results in the wastage of much valuable material.

2. There is a considerable export of leather from India to the United Kingdom (cf. Chapter V). Most of this leather is produced from the Punjab hides, yet it is tanned outside the Province. Chrome tanning is not practised in the Punjab ‡ and "bark tanning by pit method" is executed on a large scale only by the Wazirabad Tannery. "Bark tanning by bag method" is prevalent, because of its simplicity and quick turnover; hence the small investment required. It is, however, not possible to regulate the intensity of tanning by the "bag method" so as to produce leather of definite grades, nor can the intensity of tanning be raised to a high degree. Because of these shortcomings the leather ordinarily produced in the Province does not suit the requirements of foreign manufacturers, and the Punjab tanners are being gradually thrown out of employment.

3. The demand for shoes of the European type is on the increase to the detriment of sales of jutis, and this has reacted on the production of leather. The number of boot, shoe and sandal manufacturers in the Province is on the increase, but for the uppers they employ mostly leather manufactured outside.

Number of Boot, Shoe and Sandal Makers in the Punjab§

Year.	Total.	British Territory.
1911	193,552	167,971
1921	212,215	182,309
1931	244,161	193,133

* Cf. Pages 69-70.

† Figures compiled from "Accounts relating to Inland (Rail and River borne) Trade of India."

‡ The Northern India Tannery, Shahdara, which used to produce chrome leather, is not working now. The Upper India Leather Works, Sialkot, turns out chrome leather in small quantities, and this is almost wholly consumed in one sports factory in Sialkot.

§ Cf. The Census Reports.

4. The leather trade has been handicapped by the increasing use of cheap canvas and rubber shoes. During the period 1919—24, 604,000 pairs of such shoes were imported into India annually at the 'declared' value of Rs. 6-11-3 per pair. In 1934-5 the import of such foreign shoes increased to 4,256,000 pairs and the 'declared' price fell to Rs. 0-13-1 per pair.*

5. The shrinkage in the local demand for country leather has occurred from certain other directions as well. Lorries have largely displaced tongas and ekkas for long distance travel, with the result that the demand for harness leather has fallen. The Military Department has in recent years curtailed its requirements of harness and saddlery by employing to a greater extent mechanical modes of transport. Ginning factories are gradually taking to canvas beltings and cheap washers made from coir and cardboard. A cheap commodity known as "leatherette" has also lately come into the market as a substitute for leather.

6. The competition from other provinces which are more advanced industrially, has also to a certain extent affected prejudicially the Punjab industry.

7. It is a common complaint on the part of skin tanners that there is such a heavy demand for raw skins from across the seas and Madras, that they cannot purchase superior skins for tanning locally at a favourable price. An *artia* at Amritsar stated that the Madras merchants make heavy purchases of raw sheep skins from the Punjab, and from these the best are sold to Japan at very remunerative prices. The remainder are tanned in Madras and sold back to the Punjab and to certain other provinces to which the Punjab previously used to export. As a result, the sheep skin tanners of the Punjab have been hit hard. Madras has another advantage over the Punjab in having an abundant supply of *turwad* (*Cassia auriculata*) which provides an excellent tan stuff. It does not grow in the Province and because of its low price and bulky nature, it cannot bear transportation charges to the Punjab at the present railway tariff rates.

8. The tanning industry in the Punjab is followed mostly by Chamars in the villages, who, as a class, stand on the next to the lowest rung of the social ladder. They are illiterate, poor and unorganised. Having no land on the security of which to borrow in the open market, they are at the mercy of the *Khojas* (merchant middlemen in the hide and leather trade) who are usually utterly indifferent to the welfare of these cottage tanners.

* Cf. "Review of the Trade of India." The price per pair in 1935-6 came to Rs. 1-0-10, in 1936-7 to Rs. 1-8-1 and in 1937-8 to Rs. 1-14-3.

Tanning Castes.—The castes connected traditionally with the tanning of hides and skins are the Chamar, Mochi, Dabgar, Pasi, Chanal and Raigar.

The **Chamar** is the most important tanning caste, and is confined mostly to the eastern Punjab up to the Beas River. The Chamar is more than a leather worker; he is the indispensable agricultural labourer and the village **begari** (forced labourer) and sometimes a weaver. In Sandhwan village, two miles from the Behram railway station in the Jullundur District, the number of male chamars of working age was 58, and they eked out their living by the following means :

					Number
Tanning	..	..	..	..	13
Tanning and agricultural labour	..	..	..	..	4
Weaving	..	..	..	..	6
Agricultural labour	..	..	..	..	7
Tenant-cultivator	..	..	..	..	1
Shoe-making	..	..	..	..	4
Wood-cutting for fuel	..	..	..	..	6
Shoe-mending	..	..	..	..	2
Rope-making	..	..	..	..	1
Barbers of chamars	..	..	..	..	2
Employed in a tannery at Calcutta	..	..	..	..	1
Manual labour in town	..	..	..	..	4
Making bricks for kilns	..	..	..	..	5
No work on account of infirmity and old age	..	..	..	..	2
					<hr/>
				Total	58
					<hr/>

The **Mochis** are both Hindus and Muslims but the majority are Muslims. In the Eastern Punjab the term is applied to the more skilled workman making country shoes. In the western part, however, it is used to designate a Mohammedan worker in leather, be he a tanner or a shoemaker.

Khatik, as the term denotes, is the goat and sheep skin tanner (**Khal**=skin, and **thik karna**=to set right). In the eastern districts the khatiks are mostly Hindus and in the western, Muslims.

Chamrang is the Muslim hide tanner met with mostly in Sialkot and the districts to the north-west of that town.

Dabgar is an allied caste, mainly Muslim, whose traditional occupation is confined to a peculiar work in raw hides, viz., making of **kupas** (oil receptacles) from camel hides (see Plate 11), pans for hand-scales from cattle hides, covering the handles of cricket bats

hockey sticks and tennis rackets with transparent hide sheets, and making leather globes and vases. They were seen during the inquiry at Lahore, Jullundur, Sialkot, Multan and Jhang-Maghiana.

Chanals are professional skimmers of the Simla hills, and **Pasis** are village tanners in some of the eastern districts; the latter also keep pigs.

Raigars are traditionally salt-petre makers but in the Hissar District they also do tanning. Some of the **Bagrias** in Hissar also work as skin-tanners.

In Utmanzai, a village 21 miles from Peshawar, there are about a hundred families of Muslim tanners, who gave their castes as **Chamiar** and **Gujar**. The former class of people are landless labourers while the latter possess some plots of land. The tanners in that province suffer from no disabilities on the ground of their following this profession. In the Punjab also caste restrictions are not so rigid among the Muslims as among the Hindus; and, as will be seen in the next chapter, the Muslim tanners are drawn from various castes.

Prominence of Jullundur as a Tanning District.—Tanning is followed most extensively in the Jullundur District in the Punjab, and this predominance is not of a recent growth. The chamrangs of this tract have a reputation for efficient workmanship, and are employed in large numbers in tanneries all over the province and outside. The following are the probable reasons for Jullundur's prominence in this respect:

1. The chamars are most numerous in the Jullundur and Ambala Divisions; in 1931 they numbered 703,000 out of 772,000 in the total British territory of the Punjab.

2. The kikar tree reaches its best growth in this region, and is to be found in very large numbers. Considering that kikar bark is required to the extent of three times the weight of the raw hide to be tanned, it seems probable that the hides were sent here for tanning from districts where the kikar was sparse, rather than the bark transported from this area to distant places, particularly as the means of transport were poor until a few decades ago.

3. The eastern Punjab districts abound in cattle. The surplus supply of hides in normal times and frequent accumulation of large stocks resulting from epidemics and famines helped the development of the tanning industry on an extensive scale.

4. The process of tanning is but a series of baths in water containing certain ingredients. Jullundur has an abundant supply of water not far below the ground level and of a quality suitable for tanning purposes.

The Place of Leather Workers in Village Economy.—The Village Survey Reports,* published from time to time by the Board of Economic Inquiry, Punjab, contain references to the disposal of animal carcasses in villages, and the manner in which the villagers obtain their requirements of leather goods. Some extracts from the reports are given below.

Gaggar Bhana (Amritsar District)†.—“The owners of dead cattle do not sell the carcass. These are the right of the village menials of the lowest caste. The skin of the animal goes to the **chuhra** (sweeper) who skins the carcass, the vultures and village dogs eat the flesh, and the bones are taken away by an enterprising outsider who collects them and sells them to a bone dealer at the nearest railway station.” (Page 178.)

“The **chuhras** receive one rupee or one rupee eight annas in cash for skins which are given over to the **mochi**. The **mochi** is a true village menial. He has to repair all old shoes and also the harness for the yokes of the animals, and such other leather work as may be required. He is sometimes given the skins of dead animals which he tans, and when this is done, the owners of the skins are entitled to receive shoes from the **mochi** at a cheap rate of 8 annas per pair. (Page 24.)

“The only cottage industries of the village are the weaving of sheets and the making of shoes.” (Page 126.)

In this village there were 29 families (comprising 137 people) of **mochis**. Of these the heads of three families were **patwaris** and the remaining 26 families (128 persons) were mainly dependent on shoe-making for their living: seven other men had gone out to work as labourers in coal mines near Calcutta.

Gijhi (Rohtak District)‡.—“The **Chamars** and **Dhanaks** who together form 19.7 per cent. of the total population (of the village) and 43.3 per cent. of the non-owners (of land) perform agricultural labour for about four or five months in the year, and make shoes, etc., and weave cloth for the rest of the year.” (Page 10.)

“Every family is in debt and in each case it was incurred in a year of scarcity for buying food. Among the duties of the **chamar** as to supply “**begar**” (forced labour), to repair all leather work, to supply one pair of shoes to the owner at each crop, to supply the ox-goat and thongs when required, and to assist in weeding and reaping. Among his dues are 1/20th of the total crop of grain, and dead animals whose hide and flesh are shared with the **Dhanak**.” (Page 15.)

* A list of the publications of the Board is given at the end of the book.

† Publication No. 16 (Punjab Village Surveys No. 1).

‡ Publication No. 17 (Punjab Village Surveys No. 2).

Tehong (Jullundur District)*.—"A chamar or leather worker is also a field labourer Dead animals are taken by him, except those not weaned, which go to the sweeper." (Page 13.)

"A chamar is not expected to remain and await his owner's requirements except in certain seasons, e.g., during weeding, reaping and winnowing. Chamars here work in leather and trade in it, making shoes, etc., for sale." (Page 14.)

Naggal (Ambala District)†.—"There are fourteen families of chamars in the village and most of the men work as whole-time labourers. Two families also do the cobbler's work for which they receive cash payments. Skins of dead animals except young stock are his by right." (Page 20.)

Gajju Chak (Gujranwala District)‡.—"He (bhangi or sweeper) removes the skins of the dead animals for the owner, and charges from eight annas to one rupee per animal according to its size." (Page 14.)

"The mochi makes and repairs leather articles such as blinkers for cattle working the Persian wheel, and saddles. His dues depend on the amount of work done, varying from three to five sheaves of wheat annually." (Page 15.)

Suner (Ferozepore District)§.—"The carcass of any animal that may die in the house of a cultivator belongs by right to the vigari (chuhra in the village)." (Page 166.)

"The four (chamar) families of sixteen persons make shoes and sandals and other articles used by the cultivator, and are paid by the job." (Page 15.)

"Leather for shoes was obtained from Zira, a town some three miles away from the village." (Page 109.)

* Publication No. 18 (Punjab Village Surveys, No. 3).

† Publication No. 30 (Punjab Village Surveys, No. 5).

‡ Publication No. 31 (Punjab Village Surveys, No. 6).

§ Publication No. 48 (Punjab Village Surveys, No. 9).

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CHAPTER IV

ECONOMIC CONDITION OF TANNERS

Tanner Families Investigated.—During the course of the inquiry 104 families of tanners living in the following 22 towns and villages were examined in detail according to the Information Sheet V (Appendix G):

	Number.
Lahore (Kot Khawaja Said, 18; Ghore Shah, 12) ..	30
Amritsar	12
Multan (including 4 in Basti Berar)	9
Dande (Amritsar District)	6
Nakodar (Jullundur), Hansi (Hissar), 5 each ..	10
Jhang, Gujrat (including 2 in Saroki village), Sandhwan (Jullundur), Delhi, Rewari (Gurgaon), 4 each	20
Sialkot, Gujranwala, Hissar, 3 each	9
Kasur (Lahore), Gujar Khan (Rawalpindi), Kartarpur, 2 each	6
Wazirabad (Gujranwala), Ambala, 1 each ..	2
Total	104

Religion and Caste.—Of the 104 families engaged in tanning 65 were Hindus, 36 Muslims, and 3 Christians. That the profession draws men from diverse castes may be seen from the statement given below :

A.—Hindus—	No. of Families.
Chamar*	47
Raigar	8
Khatik	5
Jatia	4
Bagri	1
Total	65

* Including 6 Sikhs. Many Chamars style themselves as "Ad-Dharmi" or "Ramdasi."

B.—Muslims—				No. of Families.
Jat	..	..	..	7
Khatik	..	..	..	7
Ranh	..	..	..	4
Chamrang	..	..	..	3
Mochi	..	..	..	2
Shinmar	..	..	..	2
Arain	..	..	..	2
Saqqā	..	..	..	2
Joiya, Kataria, Wangar, Lakkhan, Khokhar, Kashmiri, Sheikh (one each)				7
				<hr/>
		Total	.. ..	36
				<hr/>
C.—Christians—				
Chamar, Jat and Chuhra (one each)	..	..	..	3
				<hr/>
		Grand Total	.. ..	104
				<hr/>

Among the Hindu Khatiks, one person gave his caste as Bhalla, and among Muslim Khatiks two styled themselves as Dulo Bagri, two as Paswal and one each as Arbi Jat and Sindhu Jat. The Khatiks tan sheep and goat skins. A Sheikh at Kartarpur and a Kashmiri at Amritsar were also found engaged in this work. The last mentioned is a young man who received his training from the Government Institute, Jullundur. The Jantias of Rewari tan mostly camel hides. The remaining castes usually work on cow and buffalo hides and occasionally on the hides of camels, horses and donkeys. The two saqqas included in the list given above were employed in tanneries to supply water.

Mobility of Labour.—Tanners as a class are not reluctant to leave their villages to find employment outside; they are, however, more pushed out by force of circumstances than pulled to the towns by the lure of higher wages. Only two tanners said that they owned land, and five of them were reported to have worked as tenant-cultivators. Their social status in the village is much lower than that of the poorest landowner, and they have to face many disabilities. This is, to some extent, responsible for their being wedded to their homes to a less degree than other classes in villages.

Out of the 30 workmen whose cases were recorded in Lahore, 14 belonged to the town or the suburbs, 4 came from Amritsar District, 2 from Jullundur District, and one each from Gujranwala, Sialkot and Rawalpindi Districts. Seven persons came from outside the

Punjab: three from Jaipur State, and two each from Meerut and Moradabad Districts in the United Provinces.

From among 18 workmen in other towns who did not belong to the place where they were working, 11 came from Jullundur villages, 4 from Sialkot District and one each from Jhelum and Meerut Districts and the Delhi Province. Chamars (in all numbering about 60) carrying on the craft in the village Dande (Amritsar District) stated that their forefathers migrated from Muzaffargarh (U.P.), and that they still occasionally visited their ancestral home.

Actual Workers.—These 104 families supplied 172 whole-time workers, an average of 1.65 per family. Of these workers 98 worked independently, and 74 were employed in tanneries or by men of their own craft requiring extra labour. It is admitted that the classification of the members of a family into workers and non-workers is somewhat arbitrary, and particularly cottage workers, among whom every grown-up member in the family does some work in connection with the family occupation. The maximum age of any person who recorded himself as a worker was 70 years, a Jatia chamar of Rewari; the next in order were a Ranh of nearly the same age working in Basti Berar (Multan) and a chamar of the Sandhwan village (Jullundur). The youngest boy working in a tannery was at Maghiana; he was 10 years old and assisted his father at the same time learning the work. Seven persons working in tanneries said that they began when between 11 and 13 years of age.

Work of Women.—The women give little assistance to their men when the latter are employed in tanneries. The only exception noted was that of a wife powdering *sajji* (barilla) in a tannery at Hansi on a monthly salary of Rs. 6, by the side of her husband who was employed in the same place. The village tanners, however, expect their women to bring the water needed for tanning and to assist them in pounding the kikar bark. In towns the kikar bark is prepared in grinding mills. It was noted at Basti Berar (Multan) that the wives and daughters of tanners did the work of embroidering with gold thread the uppers of country shoes. A widow of a tanner was seen selling flowers in the town. The women of Khatiks at Kartarpur, Saroki (Gujrat) and Gujar Khan spun wool, and some at Hansi were seen preparing *lahi* (paste needed in skin tanning). In the Jullundur District the women are accustomed to cut grass for sale whenever green fodder is scarce.

Civil Condition.—Of the 104 heads of families who were questioned, 90 were married, 8 unmarried, and 6 widowers. Among the bachelors 4 were below 20 years of age, and the oldest was 35. The youngest widower was aged 28 years, the next two were 38 and 48,

and the remaining three were past 60. Marriage is almost universal, for besides the force of custom, poor people find in their wives and children a source of cheap labour.

Size of Family.—The total number of persons in the 104 families was 588 : 318 males and 270 females. To collect detailed information regarding their ages would have been beyond the scope of the present inquiry. For a rough classification they have been placed under the following three categories : (a) those below 7 years, i.e., incapable of doing remunerative work, (b) 7 to below 15 years, i.e., working dependents, and (c) 15 years and above, i.e., workers. The figures in each group are given below.

TABLE VII.
Classification of Tanners by Age-Groups.

Age Groups.	MALES.		FEMALES.	
	Number.	Average per family.	Number.	Average per family.
Below 7 ..	76	0·7	71	0·7
7 and below 15 ..	57	0·5	46	0·4
15 and above ..	185	1·8	153	1·5
<i>Total</i> ..	<i>318</i>	<i>3·0</i>	<i>270</i>	<i>2·7</i>

The average size of a family in the Punjab, according to the Census Report for 1931, is 4.8 persons, as compared with 5.6 persons shown in the present inquiry. The higher figure in the second case may be due to the inclusion of temporarily absent members and taking two or more brothers working jointly as one family although they might be living separately.

It may be noted that although the number of males of 15 years and above was 185, the workers engaged in tanning were only 172. Not all the grown-up members of a tanner's family are absorbed in the industry; some work as agricultural labourers; others make shoes or do manual labour in towns. One person was employed as a clerk in a Deputy Commissioner's office, another was a school teacher, and a third was working in the Terminal Tax Department.

The tanners as a class are very backward in literacy, but with the encouragement which the Government is giving to the depressed classes by providing free education up to the Matriculation standard they should now make more progress.

The following statement classifies the tanners' families according to the number of persons found in each.

TABLE VIII.
Size of the Families of Tanners.

Families with—	FAMILIES.		PERSONS.	
	Number.	Percentage to total.	Number.	Percentage to total.
1 person ..	4	3·9	4	0·7
2 persons ..	14	13·5	28	4·9
3 „ ..	10	9·7	30	5·1
4 „ ..	17	16·5	68	11·5
5 „ ..	13	12·5	65	11·0
6 „ ..	11	10·7	66	11·2
7 „ ..	12	11·6	84	14·2
8 „ ..	8	7·7	64	10·9
9 „ ..	4	3·9	36	6·1
10 „ ..	3	3·0	30	5·1
11 „ ..	2	2·0	22	3·8
12 „ ..	2	2·0	24	4·1
16 „ ..	2	2·0	32	5·4
17 „ ..	1	1·0	17	2·9
18 „ ..	1	1·0	18	3·1
<i>Total</i> ..	<i>104</i>	<i>100·0</i>	<i>588</i>	<i>100·0</i>

Families having six persons or less form 60·8 per cent. of the total, but they contain only 44·4 per cent. of the persons enumerated; 55·6 per cent. of the people live in families of seven persons or more. The largest family consisted of 18 persons.

Income.—An attempt was made to find out the monthly income of these families. The information was invariably given in round figures, based on the quantity of leather tanned, and in many cases the original statement was modified on cross-examination. The

following information may, however, be taken to be roughly correct; one tanner would not give any information about his income.

TABLE IX.
Monthly Income of Tanners.

	No. of Families.	No. of Workers.	MONTHLY INCOME.		
			Total.	Average per family.	Average per worker.
Hide Tanners—			Rs.	Rs. a. p.	Rs. a. p.
(i) Working independently	37	78	1,050	28 6 1	13 5 4
(ii) In service ..	51	68	933	18 4 8	13 11 6
Skin Tanners—					
(i) Working independently	11	19	364	33 1 5	19 2 6
(ii) In service ..	4	6	85	21 4 0	14 2 8

The skin tanners have to deal with a more delicate material and require great care in their work; probably there is a greater profit in tanning skins. The independent workers may reasonably be expected to make more money than that shown in the foregoing statement as they eliminate one middleman, but at the same time their slender means do not permit them to work at full limit; it generally takes about one month to convert a hide into leather and full occupation for a tanner requires hides in different stages of preparation to be handled. Most of the independent workers were under-employed, besides being steeped in debt owing to frequent spoiling of hides in the process of tanning.

Indebtedness.—The tanners were found to be ready beyond expectation to tell their tales of indebtedness; only one person refused to give information. Quite a large number of them seemed to be fairly exact in giving details.

Of the 103 families, 43 were free from debt, and the remaining 60 owed Rs. 22,738, which gives an average of Rs. 219 per family or Rs. 376 per indebted family. The families are arranged below according to the amount of debt.

TABLE
Extent of Indebtedness among Tanners.

Amount of debt. Rs.	No. of families.	Percentage to total.
Nil	43	41·7
Up to 100	25	24·3
101 to 200	13	12·6
201 to 300	8	7·8
301 to 400	5	4·9
401 to 500	2	1·9
Over 500	7	6·8
<i>Total</i> ..	<u>103</u>	<u>100·0</u>

The highest amount of debt which a family had to pay was Rs. 5,450, and this was in the case of two chamar brothers living jointly; the family consisted of 12 persons. They owned a house in a bazar at Amritsar, and this had been pledged for a loan of Rs. 3,250; two sums of Rs. 150 each were owed to two different hide dealers of Lahore, Rs. 1,100 to a Khoja of Amritsar, and Rs. 800 to a dealer at Rajpura for kikar bark.

The second most involved family was in a village near Multan, and consisted of two brothers, Ranh (Muslim) by caste, living jointly and had ten persons. The family was indebted to the extent of Rs. 3,000; a debt of about Rs. 1,000 had been incurred in litigation and the rest represented losses in trade and expenses in connection with marriages and other ceremonies.

The third most heavily indebted family was one of three chamar brothers living jointly at Hissar with 16 members. They owed Rs. 1,050 to a bania. The original loan was of Rs. 600 taken about seventeen years ago and the present amount was the net balance of many transactions. An arrangement had been made to pay off the debt in instalments of Rs. 225 per annum.

Joint families seemed to be in debt to a greater extent than single families. The larger the number of male members, the greater their earning capacity, with the result that the creditor found a greater security for his loan in a bigger family than in the case of a single person or a small family. Further, joint families are sometimes the result of the head of the family passing away when the children are still young, which leads to the survivors living together in adversity and the tie endures even when they have come to the working age. Money has to be borrowed in the absence of the bread-winner when the children are young and the debt accumulates as time passes. Thirdly, when a debt is in the name of a number of persons, the incentive to repay is less than when the responsibility is undivided. The money-lenders do not object to a debt accumulating in such cases. A tanner was met at Nakodar who, in spite of earning a reasonable living, was not paying back his father's debt. On inquiry it was learnt that he had two brothers, as yet children, and he was awaiting their coming of age so that all the three might share equally the burden of repayment.

Purposes of Borrowing.—It was difficult to find out exactly the purposes for which debts were incurred, as all the loans taken from the Khoja, who is the general financier of the chamar, were generally labelled as 'business expenses' even though a portion or the whole of the amount was spent on the daily requirements of the family.

The following table should, therefore, be taken only as a rough analysis of the indebtedness of the sixty families examined.

TABLE XI.
Causes of Indebtedness.

<i>Causes.</i>	<i>Amount.</i>	<i>Percentage to total.</i>
	Rs.	
1. Purchases of materials or loss in business	10,147	45.0
2. Marriage	5,435	24.2
3. Ancestral debts	2,300	10.2
4. House building	1,000	4.4
5. Litigation	1,000	4.4
6. Other ceremonies	819	3.7
7. Illness	410	1.8
8. Food	257	1.1
9. Purchase of milch cattle	180	0.7
10. Seed	25	0.1
11. House rent	30	0.1
12. Miscellaneous	964	4.3
<i>Total</i>	<i>22,558*</i>	<i>100.0</i>

Purchase of materials and losses in business are the main causes of the tanners' indebtedness. Many and diverse are the methods adopted by the Khoja to exploit him, e.g., by retaining the rebate in the price of raw hides given by the seller and due to the tanner-buyer; charging him *arat* (commission) ordinarily due from the seller; selling supplies to him at exorbitant rates; and restricting the tanner's power to sell leather elsewhere than through the Khoja and charging a heavy commission on sales. These methods will be dealt with later in the report. Still another cause of frequent loss to the tanner is the time lag between the purchase of raw materials and sale of the finished product: should the prices fall during this period the tanner does not have money enough to withhold goods until prices revive. Added to these is the loss due to not infrequent spoiling of leather through mishandling, application of wrong doses of chemicals and wrong selection of raw hides or skins.

Marriage and ceremonies form another drain on the slender resources of the tanners. Expense on liquor is the chief item of expense on such occasions. There is hardly a *chamar* who is not addicted to drinking, and some even think that wine is a necessity in the dirty surroundings in which they have to work. Be that as it may, it is one of the chief factors responsible for his wretched condition.

* Details of Rs. 180 are wanting. The total amount of debt as stated in the previous paragraph was Rs. 22,738.

The general creditor class of the tanners is the **Khoja** and he is also the middleman. In fact he is more of an extortioner than the bania, since the law does not provide the same amount of protection to the chamar against his creditor as it does to the zemindar. Most of the credit given by the Khoja is in the form of raw leather and materials, and no sooner does he find that a chamar has exceeded his power to repay the loan than he drives the latter to work for him either at his own place or in the tannery. More than half the employees in the tanneries were once independent workmen and were dragged into service much against their will. There they are paid the minimum allowance necessary for their daily family requirements and the balance goes to liquidate their debt accounts. A graphic description of the state of mind of these people was given by some chamars working in a tannery at Jullundur who, when asked if they were content with the treatment of the tannery owner, said :

“Jel bhugat rahe han,
Qismat da nam lachari hai.”

(“We are in a prison house; fate is another name for helplessness.”)

Creditor Classes.—Apart from the Khoja, the tanner borrows from his own well-to-do relations as well as from **sahukars** and zemindars. There are in the Punjab about sixty Co-operative Societies of shoemakers and tanners, and three of these were visited at Dande (Amritsar), Saroki (Gujrat) and Gujranwala. In general the co-operative societies have touched only the fringe of the huge mass of indebtedness, and not much relief is afforded to the tanners from this source. None of these three societies had granted fresh loans during the previous three years, and none of them was doing well.

Interest.—The rates of interest at which the tanners borrow vary from 12 to 37½ per cent. per annum. The most usual rate of interest, at Gujar Khan and Gujrat, was found to be 12 per cent.; it was 15 per cent. at Kartarpur, 16 per cent. at Rewari and Hansi, 18¾ at Amritsar, Multan, Jhang and Gujranwala, 18 to 24 per cent. at Lahore, and 37½ per cent. at Dande. An extreme case was that of a chamar who borrowed Rs. 100 about a year and a half ago at 5 per cent. per month. The chamar had paid back Rs. 40 out of the principal as also the interest due for the period, but the creditor still insisted on charging Rs. 5 as the monthly interest, which on Rs. 60, the balance due, works out to 100 per cent. per annum.

Social Position.—The tanners in the towns are artisans pure and simple and have to face little disability by virtue of their caste or the nature of their profession. But in villages they come under the status of menials. None of the tanners met with, owned land, except

one who came from outside the Punjab. The chamars, in general, have to perform certain customary duties, e.g., supplying *nar* and *santa* to the zemindars and rendering services at harvesting seasons and undertaking *begar* work. For this labour the chamars are paid in kind provided the harvest does not fail or is not very poor. The chamars are given dwelling sites and working premises on the common land either free or on a nominal rental, but they cannot sell or mortgage these. If they desert the village they lose all claims to their houses.

In the villages where the number of chamar families is small, they manage to live in meek submission. But where they live in large colonies, and devote themselves to tanning alone, doing no work for the zemindars, the latter often turn against the tanners and at times attempts are made to oust them from the village. The position of chamars in four villages is described below.

1. **Mangoo Behram.**—This village is seven miles from Sialkot, and has a total population of about forty families of whom seven are **Saprah** by caste and follow tanning. None of them owns or cultivates land. They, however, render *sep* (customary service) to the zemindars, one item of it being the supply of shoes. As these people cannot make shoes they take the leather prepared by them to the *mochis* to have the shoes made for the zemindars. The **Isais** (lit. Christians: reference to converts from lower classes) are entitled to the hides of fallen cattle, yet some of the more orthodox among Hindu zemindars insist on burying the dead cattle. The tanners purchase raw hides from the **Isais** or from the Sialkot market. Sometimes the *mochis* (shoe-makers) bring hides to the **Saprahs** for tanning and give them one-third the weight of leather as their wages. *Kikar* bark is obtained mostly from the **tarkhans** (carpenters) of surrounding villages and lime and *sajji* is bought from a *khoja* on credit. The village exports about 60 maunds of leather to Sialkot every month. The landowners of the village are mostly Sikhs and they look down upon the **Saprahs** as untouchables. The tanners receive no help from zemindars in times of need and are resolutely resisting the attempts that are being made to shift them to a place half a mile away from the village. Three families of **Saprahs** have migrated to towns and are not expected to return.

2. **Basti Berar**, a village about two miles from Multan City.—A tanning precinct known as “**Karkhana Chamrangan**” is owned jointly by 14 families of Muslim tanners, **Ranh** by caste. The land was given to them by Government about the year 1860. Now only four households carry on the industry as the others have taken to working in tanneries.

Until about 1930 the chamrangs made cash payments for the hides they bought from Multan and they had to pay nothing by way of market charges. The rates for leather then fell and kept at a low level for a long time, as a result of which the tanners sustained heavy losses and many were forced to seek employment in tanneries. Now these people have to buy hides on credit, and pay Re. 1 per maund as *munafa* (profit) to the *khoja*. When selling leather they have to pay Rs. 4-14-0 per hundred rupees worth of goods to the *khojas* as marketing charge as against Rs. 4-11-0 paid by the other sellers.

Taking advantage of the weak position of the tanners the land-owners have refused them the right of way to the tanning places hoping thereby to force them to vacate the working quarters. The litigation on this issue was still going on when the village was visited and much money had already been spent.

3. **Dande.**—This village with a population of about 1,000 is situated about a mile and a half from the Atari railway station and is accessible by a narrow *kachcha* path from the Grand Trunk Road running between Lahore and Amritsar. About sixty families of *chamar* tanners carry on the industry in the village turning out about 400 maunds of leather in a month. Commercially the village is connected with Lahore. No *chamar* in the village has anything to do with agricultural operations. Seventeen boys of *chamars* attended the school at Atari. The carcasses of cattle are given free to the *chuhra*s who sell them to the *chamars*; sometimes they are sold to the shoe-makers who get them tanned by the *chamar*, giving as tanning charge a quarter of the weight of leather.

The *chamars* live and work on the outskirts of the village site. About a year ago the *zemindars* applied to the District Board and the *Tahsildar* to shift the *chamars* to a place further away from the village *abadi*. The case dragged on in the court for ten months when it was decided not to disturb the *chamars*. Another complaint related to there being no usable road from the Grand Trunk Road to the tanners quarters.

The tanners have dug a small pond for the supply of water needed for their work. Previously they used to fill this pond from the canal distributary, which runs adjacent to the village, on payment of some money to the *zemindars*. The *zemindars* have now refused the supply of water to this pond, with the result that when it runs dry during summer their work suffers.

When the house of a *chamar* falls down and he wants to rebuild it, he has to pay a fee to the *zemindars* before he is permitted to do so. The *zemindars* further prevent the *chamars* from selling the *malba* (tannery refuse) which has some manurial value, to outside

cultivators; nor will the zemindars carry it to their own fields. Fearing that they may be taken to task by the District Health staff for accumulating filth, the chamars themselves spread the refuse on the fields of the local landowners without getting anything in return.

4. **Amin.**—This village is about two miles away from the railway station of the same name on the Kalka-Delhi line. About fifty families of chamars do tanning here; almost all of them are occupancy tenants but none of them cultivates the soil with his own hands. Twelve chamar boys attended the village school and another who had passed the vernacular middle examination was in search of employment. There is also a girls' school in the village, but the daughters of the chamars are not allowed to attend it. Besides doing tanning the chamars prepare jutis which are sold at the hats (weekly fairs) held in the surrounding villages. Sometimes they barter leather for twice the weight of sukta hide.

The relations between the zemindars and the chamars are anything but amicable. Two cases were decided recently by the law courts, both in favour of the chamars. One of these related to the chamars refusing **begar** work on the ground that the zemindars did not give the dues as specified in the **Wajab-ul-arz**. The second case originated when the zemindars forcibly closed up the lime pits of the tanners which were within the village **abadi**. The chamars were willing to close down the pits provided they were given a suitable plot of land for their work outside the village, and this the zemindars were not prepared to do. The court, therefore, allowed the chamars to work on in the existing premises. -

Angered by the adverse decisions of the court, the zemindars boycotted the chamars and placed a ban on their making purchases from the village banias. The zemindars also prevented them from collecting fuel from the waste land and grazing their cattle on the common land. At long last normal conditions were restored through the intervention of an official, who brought about a compromise.

The presence of tanning areas within, or adjoining, village sites is undoubtedly injurious to health. At the same time the chamars are loath to move out of the village because of the inconvenience caused and the greater danger of theft. These difficulties are, however, not insurmountable, and in most cases it should be possible to shift the tanners' premises away from human habitation and nearer to the main road of the village to facilitate the transport of goods. The Canal Department would render a definite service to the tanners by making available to them the use of canal water particularly when they are willing to pay for it. The soaking and delimiting of hides in the village ponds is a pernicious practice, for not only does the leather get spoiled, but the vicinity is rendered unhealthy. Steps should be taken to put a stop to this practice.

CHAPTER V

TRADE

Exports.—In order that the part played by the Punjab in the trade in hides and skins be understood in the right perspective, it may be useful to have an idea of India's external trade in these goods. The quantities and values of hides and skins exported in raw and tanned condition from India in 1913-14 and during each of the years from 1932-3 to 1936-7, are shown in the following table:

TABLE XII.
*Exports of Hides and Skins from India.**

Items.	QUANTITY (IN THOUSANDS OF TONS).						VALUE (IN LAKHS OF RUPEES)				
	1913-14	1932-33	1933-34	1934-35	1935-36	1936-37	1913-14	1932-33	1933-34	1934-35	1935-36
RAW—											
Cow hides ..	37.2	11.4	16.9	19.3	19.5	19.4	591	54	87	95	91
Buffalo hides ..	17.3	1.6	2.9	2.8	2.7	4.5	220	6	12	12	1
Other hides ..	1.3	0.3	0.5	0.5	0.5	0.3	19	2	3	2	.
Goat skins ..	22.7	12.2	18.2	13.9	20.1	18.0	313	179	277	181	27
Sheep skins ..	1.6	0.6	1.2	1.2	0.9	0.6	28	5	11	16	1
Other skins ..	..	0.5	0.5	0.1	0.2	0.3	..	30	35	6	.
<i>Total</i> † ..	<i>80.1</i>	<i>26.6</i>	<i>40.2</i>	<i>37.8</i>	<i>43.9</i>	<i>43.1</i>	<i>1169</i>	<i>276</i>	<i>425</i>	<i>312</i>	<i>41</i>
TANNED—											
Cow hides ..	7.9	7.9	11.4	9.6	11.8	14.9	147	140	208	163	18
Buffalo hides ..	0.8	0.4	0.8	0.7	1.2	1.4	11	6	12	13	1
Other hides ..	..	0.7	1.0	1.1	1.0	1.6	..	16	21	22	2
Goat skins ..	3.7	2.9	3.5	3.6	3.1	3.8	161	169	173	183	14
Sheep skins ..	2.5	2.5	2.9	2.8	3.1	3.6	96	120	136	134	14
Other skins ..	0.3	0.1	0.1	0.1	0.1	0.1	7	15	15	7	.
<i>Total</i> ..	<i>15.2</i>	<i>14.5</i>	<i>19.7</i>	<i>17.9</i>	<i>20.3</i>	<i>25.4</i>	<i>422</i>	<i>466</i>	<i>565</i>	<i>522</i>	<i>52</i>
GRAND TOTAL	95.3	41.1	59.9	55.7	64.2	68.5	1591	742	990	834	93

*From "Review of the Trade of India."

† Excluding cuttings.

Since 1932 leather has generally occupied the seventh position in value among the articles exported from India, and raw hides and skins the eighth. Together they comprise over 5 per cent. of the total value of exports. Quantitatively cow hides are the most important article of skin export; goat skins occupy the second position, sheep skins the third and buffalo hides the last.

Quinquennial average values of the exports of raw hides and skins and leather, are given below (triennial average for years 1934-35 to 1936-37). The total exports were at their highest during the war period, 1914-19. The quinquennium following witnessed a fall, but there was a slight revival during 1924-29, again followed by a decline. The export value of raw hides and skins decreased continuously from Rs. 1,032 lakhs in the quinquennium 1909-14 to Rs. 390 lakhs in 1934-37; that of tanned hides and skins and leather, on the other hand, has been comparatively regular, and with the gradual industrialisation of the country there is a tendency to export hides and skins in the tanned form.

TABLE XIII.

*Average Annual Value of Exports from India.**

Period.	RAW HIDES AND SKINS.		TANNED HIDES AND SKINS AND LEATHER.		TOTAL. Value Rs. (Lakhs).
	Value Rs. (Lakhs.)	Percentage to total.	Value Rs. (Lakhs.)	Percentage to total.	
1909-10 to 1913-14 ..	1,032	70·6	430	29·4	1,462
1914-15 to 1918-19 ..	988	57·9	719	42·1	1,707
1919-20 to 1923-24 ..	945	60·2	624	39·8	1,569
1924-25 to 1928-29 ..	791	49·4	811	50·6	1,602
1929-30 to 1933-34 ..	483	44·2	610	55·8	1,093
1934-35 to 1936-37 ..	390	38·8	616	61·2	1,006

Direction of Exports.—The next table shows the quantities of hides, skins and leather exported from India to the United Kingdom, the British Empire, and foreign countries.

*Cf. "Review of the Trade of India," Table 7.

CHAPTER V

TRADE

Exports.—In order that the part played by the Punjab in the trade in hides and skins be understood in the right perspective, it may be useful to have an idea of India's external trade in these goods. The quantities and values of hides and skins exported in raw and tanned condition from India in 1913-14 and during each of the years from 1932-3 to 1936-7, are shown in the following table:

TABLE XII.
*Exports of Hides and Skins from India.**

Items.	QUANTITY (IN THOUSANDS OF TONS).						VALUE (IN LAKHS OF RUPEES). ¹					
	1913-14	1932-33	1933-34	1934-35	1935-36	1936-37	1913-14	1932-33	1933-34	1934-35	1935-36	1936-37
RAW—												
Cow hides ..	37.2	11.4	16.9	19.3	19.5	19.4	591	54	87	95	98	10
Buffalo hides ..	17.3	1.6	2.9	2.8	2.7	4.5	220	6	12	12	11	2
Other hides ..	1.3	0.3	0.5	0.5	0.5	0.3	19	2	3	2	4	
Goat skins ..	22.7	12.2	18.2	13.9	20.1	18.0	313	179	277	181	278	27
Sheep skins ..	1.6	0.6	1.2	1.2	0.9	0.6	26	5	11	16	14	1
Other skins ..	..	0.5	0.5	0.1	0.2	0.3	..	30	35	6	5	
<i>Total</i> † ..	<i>80.1</i>	<i>26.6</i>	<i>40.2</i>	<i>37.8</i>	<i>43.9</i>	<i>43.1</i>	<i>1169</i>	<i>276</i>	<i>425</i>	<i>312</i>	<i>410</i>	<i>43</i>
TANNED—												
Cow hides ..	7.9	7.9	11.4	9.6	11.8	14.9	147	140	208	163	187	25
Buffalo hides ..	0.8	0.4	0.8	0.7	1.2	1.4	11	6	12	13	19	2
Other hides ..	..	0.7	1.0	1.1	1.0	1.6	..	16	21	22	23	3
Goat skins ..	3.7	2.9	3.5	3.6	3.1	3.8	161	169	173	183	142	18
Sheep skins ..	2.5	2.5	2.9	2.8	3.1	3.6	96	120	136	134	143	16
Other skins ..	0.3	0.1	0.1	0.1	0.1	0.1	7	15	15	7	6	
<i>Total</i> ..	<i>15.2</i>	<i>14.5</i>	<i>19.7</i>	<i>17.9</i>	<i>20.3</i>	<i>25.4</i>	<i>422</i>	<i>466</i>	<i>565</i>	<i>522</i>	<i>520</i>	<i>67</i>
GRAND TOTAL	95.3	41.1	59.9	55.7	64.2	68.5	1591	742	990	834	930	110

*From "Review of the Trade of India."

† Excluding cuttings.

Since 1932 leather has generally occupied the seventh position in value among the articles exported from India, and raw hides and skins the eighth. Together they comprise over 5 per cent. of the total value of exports. Quantitatively cow hides are the most important article of skin export; goat skins occupy the second position, sheep skins the third and buffalo hides the last.

Quinquennial average values of the exports of raw hides and skins and leather, are given below (triennial average for years 1934-35 to 1936-37). The total exports were at their highest during the war period, 1914-19. The quinquennium following witnessed a fall, but there was a slight revival during 1924-29, again followed by a decline. The export value of raw hides and skins decreased continuously from Rs. 1,032 lakhs in the quinquennium 1909-14 to Rs. 390 lakhs in 1934-37; that of tanned hides and skins and leather, on the other hand, has been comparatively regular, and with the gradual industrialisation of the country there is a tendency to export hides and skins in the tanned form.

TABLE XIII.

*Average Annual Value of Exports from India.**

Period.	RAW HIDES AND SKINS.		TANNED HIDES AND SKINS AND LEATHER.		TOTAL. Value Rs. (Lakhs).
	Value Rs. (Lakhs.)	Percentage to total.	Value Rs. (Lakhs.)	Percentage to total.	
1909-10 to 1913-14 ..	1,032	70.6	430	29.4	1,462
1914-15 to 1918-19 ..	988	57.9	719	42.1	1,707
1919-20 to 1923-24 ..	945	60.2	624	39.8	1,569
1924-25 to 1928-29 ..	791	49.4	811	50.6	1,602
1929-30 to 1933-34 ..	483	44.2	610	55.8	1,093
1934-35 to 1936-37 ..	390	38.8	616	61.2	1,006

Direction of Exports.—The next table shows the quantities of hides, skins and leather exported from India to the United Kingdom, the British Empire, and foreign countries.

*Cf. "Review of the Trade of India," Table 7.

TABLE XIV.

*Direction of Exports from India of Hides, Skins and Leather.**

Article and the Country to which sent—	1934-35	1935-36	1936-37
HIDES AND SKINS, RAW.—	Tons.	Tons.	Tons.
1. Buffalo Hides :			
United Kingdom	379	467	278
Total British Empire	384	487	330
Germany	357	530	775
Bulgaria	218	193	597
Greece	609	220	548
Egypt	357	199	644
Total Foreign Countries	2,454	2,206	4,150
<i>Grand Total</i>	<u>2,838</u>	<u>2,693</u>	<u>4,480</u>
2. Cow Hides :			
United Kingdom	2,839	4,258	5,149
Total British Empire	2,875	4,342	5,223
Finland	1,216	1,073	1,025
Germany	4,841	5,878	6,547
Italy	4,681	2,239	1,570
Greece	797	787	1,064
Total Foreign Countries	16,396	15,120	14,194
<i>Grand Total</i>	<u>19,271</u>	<u>19,462</u>	<u>19,417</u>
3. Buffalo and Cow Calf Skins :			
United Kingdom	18	18	34
Total British Empire	19	18	36
Total Foreign Countries	461	504	278
<i>Grand Total</i>	<u>480</u>	<u>522</u>	<u>314</u>
4. Goat Skins :			
United Kingdom	2,475	4,358	4,158
Total British Empire	2,904	4,851	4,664
United States of America	9,604	13,583	11,410
Total Foreign Countries	10,969	15,257	13,321
<i>Grand Total</i>	<u>13,873</u>	<u>20,108</u>	<u>17,985</u>
5. Sheep Skins :			
United Kingdom	65	56	73
Total British Empire	75	82	85
Germany	173	329	145
Italy	797	277	37
Total Foreign Countries	1,101	851	518
<i>Grand Total</i>	<u>1,176</u>	<u>933</u>	<u>603</u>

* "Annual Statement of the Sea-Borne Trade of British India with British Empire and Foreign Countries," for the Fiscal Year ending 31st March, 1937: Table 11.

TABLE XIII.—(contd.)

Article and the Country to which sent—	1934-35	1935-36	1936-37
LEATHER (TANNED OR DRESSED)—	Tons.	Tons.	Tons.
1. Buffalo Hides :			
United Kingdom	638	824	975
Total British Empire	668	831	1,015
Total Foreign Countries	79	95	40
<i>Grand Total</i>	<u>745</u>	<u>1,195</u>	<u>1,445</u>
2. Cow Hides :			
United Kingdom	9,486	11,722	14,787
Total British Empire	9,516	11,728	14,814
Total Foreign Countries	63	46	53
<i>Grand Total</i>	<u>9,579</u>	<u>11,774</u>	<u>14,867</u>
3. Buffalo and Cow Calf Skins :			
United Kingdom	1,046	1,066	1,509
4. Goat Skins :			
United Kingdom	3,506	2,908	3,550
5. Sheep Skins :			
United Kingdom	2,106	2,541	2,981
Total British Empire	3,200	2,589	3,020
Japan	596	471	539
Total Foreign Countries	632	482	546
<i>Grand Total</i>	<u>3,832</u>	<u>3,071</u>	<u>3,566</u>

Imports.—The imports of hides and skins into India are much less in value than the exports, but they are not inconsiderable. The figures are given below.

TABLE XV.
*Value of Imports into India.**

Period.	Hides and Skins, Raw or Undressed.	Hides and Skins, Tanned or Dressed and Leather.
	Rs. (lakhs).	Rs. (lakhs).
1909-10 to 1913-14	14	45
1914-15 to 1918-19	16	36
1919-20 to 1923-24	13	71
1924-25 to 1928-29	21	54
1929-30 to 1933-34	16	52
1934-35	10	54
1935-36	10	55
1936-37	12	51

Inter-Provincial Trade.—The figures on this subject have been compiled from the monthly issues of the "Review of Inland Trade,"

* Cf. "Review of the Trade of India," Table 4.

the publication of which was discontinued in 1922 but resumed in 1933. Until April 1937 the Punjab, Delhi and the North-West Frontier Province were included in one "block," and the figures for the four years ending 31st March 1937, given below, show that the area was a net exporter of raw hides and skins each year and a net importer of tanned hides and skins and leather in three of the four years.

TABLE XVI.
Annual Exports and Imports of the Punjab 'Block,' 1936-37.
(In Maunds.)

	1933-34.	1934-35.	1935-36.	1936-37.
Raw hides :				
Exports	106,149	92,851	108,578	172,781
Imports	38,054	74,812	59,149	67,421
<i>Balance</i> ..	<i>68,095</i>	<i>18,039</i>	<i>49,429</i>	<i>105,360</i>
Raw skins :				
Exports	225,410	186,957	226, 018	237,249
Imports	94,235	104,688	108, 650	98,181
<i>Balance</i> ..	<i>131,175</i>	<i>82,269</i>	<i>117,368</i>	<i>139,068</i>
Tanned hides and skins and leather :				
Exports	28,496	19,233	17,446	18,009
Imports	20,467	22,084	18,382	19,434
<i>Balance</i> ..	<i>-8,029</i>	<i>-2,851</i>	<i>-936</i>	<i>-1,425</i>

In the issue for April 1937 the number of trade blocks in India was increased and separate figures were given for the Punjab Province for the first time. These, for 1937-38, together with those for the former Punjab "block," calculated by adding together the individual figures of the Punjab, Delhi and the N.W.F.P., and deducting their mutual trade, are given below; the Punjab figures are also expressed as a percentage of the "block" figures.

TABLE XVII.
Trade of the Punjab Province and the Punjab 'Block,' 1937-38.

	PUNJAB PROVINCE.		PUNJAB 'BLOCK.'		'PROVINCIAL' TRADE AS A PERCENTAGE OF 'BLOCK' TRADE	
	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.
	Mds.	Mds.	Mds.	Mds.		
Raw hides ..	116,824	84,366	164,386	63,179	71·6	133·5
Raw skins ..	168,761	53,742	241,571	88,742	69·8	60·3
Tanned hides and skins and leather	45,883	16,115	19,605	20,902	234·0	77·1

The Punjab Province accounts for about nine-tenths the area and population of the old Punjab "block,"* and in the absence of separate information the figures for the larger area might be taken as approximately correct for the province. The North-West Frontier Province is, however, noted for its exports of raw hides and imports of leather; while Delhi does an almost entirely entrepot trade;† hence two different impressions received when the Punjab is studied separately and as a part of the "block."

On the assumption that the relative trade position of the Punjab in the block was the same as it was in 1937-38, the exports and imports of the Punjab Province for the four years, 1933-34 to 1936-37, would be as follows:

The figures have been obtained by multiplying the trade figures of the Punjab "Block" with the corresponding percentages as shown in the previous table.

TABLE XVIII.
Assumed Exports and Imports of the Punjab Province.
(In Maunds.)

	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.
Raw hides :					
Exports ..	76,003	66,481	77,742	123,711	116,824
Imports ..	50,802	99,874	78,964	90,007	84,366
<i>Balance</i> ..	<i>25,201</i>	<i>-33,393</i>	<i>-1,222</i>	<i>33,704</i>	<i>32,458</i>
Raw skins :					
Exports ..	157,336	130,496	157,761	165,600	168,761
Imports ..	56,824	63,127	65,223	59,203	53,472
<i>Balance</i> ..	<i>100,512</i>	<i>67,369</i>	<i>62,538</i>	<i>106,397</i>	<i>115,289</i>
Tanned hides and skins and leather :					
Exports ..	66,781	45,005	40,824	42,141	45,883
Imports ..	15,780	17,026	14,173	14,983	16,115
<i>Balance</i> ..	<i>51,001</i>	<i>27,979</i>	<i>26,651</i>	<i>27,158</i>	<i>29,768</i>

*Cf. All-India Census Report, 1931.

		Area. (Sq. Miles.)	Population.
Punjab	..	136,261	28,490,857
N.-W. F. Province	..	13,518	2,425,076
Delhi	..	513	636,246
† N.-W. F. Province :		Raw hides.	Raw skins.
		Mds.	Mds.
Exports ..	..	78,012	32,773
Imports ..	..	1,396	1,060
Tanned hides, skins and leather.			Mds.
Exports ..	..	23,749	77,484
Imports ..	..	31,616	71,687
			827
			33,069
			4,305
			3,128

The figures are arbitrary, based on a wide assumption but it is not improbable that there is a small net export of leather from the Punjab annually, and that in some years the province is a net importer of raw hides.

Punjab Trade in 1937-8.—The weight of goods sent to, and received from, the Punjab by the different "trade blocks" in each month of 1937-8 are presented in the form of six statements appearing in Appendix C. The more important features of the trade are noted below.

Raw Hides.—Monthly exports and imports of the Punjab in 1937-8 were as follows :

TABLE XIX.
Punjab Trade in Raw Hides, 1937-38.
(In Maunds.)

Month.	EXPORTS.			IMPORTS.	
	Total.	To Karachi.	To Calcutta.	Total.	From N.-W.F.P.
1937—					
April ..	15,990	8,812	4,299	10,551	4,373
May ..	11,117	3,485	5,317	9,248	3,307
June ..	5,355	1,502	2,620	9,889	3,349
July ..	4,196	2,991	327	6,486	2,231
August ..	5,465	4,216	..	5,265	2,558
September ..	2,816	1,109	..	3,642	2,092
October ..	4,579	526	1,800	4,253	2,672
November ..	4,442	1,659	900	6,726	4,481
December ..	15,390	10,415	2,529	7,867	5,234
1938—					
January ..	21,096	10,148	8,368	5,936	3,921
February ..	13,458	8,150	2,881	7,495	4,858
March ..	12,920	8,081	2,916	7,008	4,124
<i>Total ..</i>	<i>116,824</i>	<i>61,094</i>	<i>31,957</i>	<i>84,365</i>	<i>43,200</i>

The excess of exports over imports amounted to 32,458 maunds. About 77 per cent. of the total exports were effected during the six months, April, May and December of 1937, and January to March of 1938; and according to the hide merchants this is a regular feature of the Punjab hide trade. The seasonal variations are not so well marked on the import side.

Karachi and Calcutta together took about 80 per cent. of the exports; and more than half the imports came from the North-West Frontier Province. This is again said to be the normal direction of trade.

Among other trade blocks selling hides to the Punjab were Rajputana (9,858 maunds), the United Provinces (9,579), Bombay (6,517), Sind (5,142) and Delhi (3,911); among the buyers the United Provinces (9,100 maunds), Delhi (5,706) and Madras city (2,650) may be mentioned.

Raw Skins.—Monthly export and import figures for 1937-38 are given below:

TABLE XX.
Punjab Trade in Raw Skins, 1937-38.
(In Maunds.)

Month.	EXPORTS.			IMPORTS.		
	Total.	To Karachi.	To Madras.	Total.	From N.W.F.P.	From Sind.
1937—						
April ..	56,676	53,280	1,811	4,690	2,496	1,650
May ..	10,267	7,330	1,662	3,655	2,311	867
June ..	11,065	8,912	996	3,908	1,728	1,777
July ..	10,710	7,717	1,309	4,402	2,515	1,131
August ..	11,851	8,835	1,344	5,012	3,183	1,595
September ..	13,555	9,636	1,384	5,769	3,891	1,413
October ..	10,729	7,418	1,736	4,973	2,670	1,479
November ..	9,615	7,729	1,073	3,527	2,080	1,250
December ..	9,298	6,468	1,393	4,333	2,162	1,882
1938—						
January ..	5,836	3,076	1,176	5,177	3,223	1,570
February ..	6,486	5,293	..	3,994	2,413	1,141
March ..	12,670	9,574	2,019	4,032	2,518	1,164
<i>Total ..</i>	<i>168,761</i>	<i>135,268</i>	<i>15,903</i>	<i>53,472</i>	<i>31,190</i>	<i>16,919</i>

From the above it will be seen that the Punjab exports exceeded the imports by 74,939 maunds. The year commenced with a heavy export in April, probably because of overseas orders, while January and February were comparatively lean months. The imports were more evenly distributed over the whole year. About 90 per cent. of the exports were to Karachi and Madras (city), and 8 per cent. to the United Provinces and Delhi. North-West Frontier Province and Sind were responsible for about 90 per cent. of the imports.

Tanned Hides and Skins and Leather.—The monthly trade figures are given below and they show that the Punjab had a net export of 291,768 maunds of leather during the year. Only one maund in seven of the total hides and skins exported, however, was tanned, and this in spite of the good quality of the Punjab hides and skins and the availability of tanning materials in large quantities.

TABLE XXI.
Punjab Trade in Tanned Hides and Skins and Leather, 1937-38.
(In Maunds.)

Month.	EXPORTS.		IMPORTS.		
	Total.	To N.-W.F.P.	Total.	From U. P.	From Calcutta.
1937—					
April ..	4,438	2,978	1,016	614	284
May ..	4,151	2,732	1,616	963	379
June ..	4,285	2,692	1,708	976	432
July ..	4,637	3,267	1,437	819	369
August ..	3,200	2,073	1,268	850	247
September ..	3,937	2,507	1,303	848	233
October ..	3,882	2,512	1,418	651	417
November ..	4,500	2,558	1,383	961	300
December ..	2,704	1,765	1,414	708	366
1938—					
January ..	3,762	2,566	1,312	747	314
February ..	2,695	1,546	1,053	675	237
March ..	3,687	2,461	1,187	528	449
<i>Total</i> ..	<i>45,878</i>	<i>29,657</i>	<i>16,115</i>	<i>9,340</i>	<i>4,027</i>

The most important market for Punjab leather is the North-West Frontier Province which took about two-thirds of the total exports. Among other buyers were Sind (5,551 maunds), the United Provinces (4,923), Rajputana (2,073) and Calcutta (2,014). The United Provinces and Calcutta together were responsible for 83 per cent. of the total imports of leather into the Punjab.

Trade with N.W.F.P.—Two important features about the North-West Frontier Province are the surplus of hides and skins and want of suitable tanning materials. There is a butcher in almost every village in that province, and the demand for beef and mutton is so great that besides sending the weak and ailing animals to the block there is a regular inflow of cattle from the Punjab for food all the year round. The tanning industry has not developed to any great extent because pine bark, which is the chief tanning material available, lends a crude brownish colour to the leather and this effects its quality. Sole leather for *jutis* (Indian shoes) and *chapolis* (sandals) is prepared locally. Secondly, the local demand is chiefly for cheap leather. It would not be remunerative to manufacture from local hides, which are generally of superior quality, and because of their thickness yield less surface area per maund. The province consequently exports large quantities of raw hides and skins and imports the leather required for uppers of shoes and other similar uses. The following figures of despatches from the more important railway stations were supplied by the Assistant Marketing Officer posted at Peshawar:

Despatches from Peshawar Cantonment Railway Station.

		1935.	
		Mds.	Srs.
Hides :			
Cow—Dry	.. ..	6,947	38
Wet	.. ..	1,826	20
Buffalo—Dry	.. ..	20,383	19
Wet	.. ..	4,925	24
Skins :			
Sheep—Dry	.. ..	7,000	18
Wet	.. ..	166	23
Goat—Dry	.. ..	5,428	33
Wet	.. ..	156	18

Despatches from Other Stations in the N.W.F.P.

		1934-35.	
		Cow and Buffalo Hides.	Goat and Sheep Skins.
		Mds.	Mds.
Nowshera Cantt.	.. ..	2,451	194
Jahangira Road	.. ..	1,074	110
Kabul River	.. ..	48	1,022
Mardan	.. ..	4,573	639
Durgai	.. ..	2,371	344
Kohat	.. ..	1,507	2,976
Thal	.. ..	1,213	1,521
Bannu	.. ..	493	3,253
Tank	.. ..	1,096	927
Havelian	.. ..	3,975	1,282
Daryakhan	.. ..	295	1,465

Hides from the Peshawar Cantonment Station were sent almost exclusively to Wazirabad; but a few consignments were also sent to Lahore and Amritsar. The skins were despatched mostly to Amritsar, Kasur, Multan, Sillanwali (Sialkot), Gujarkhan, Mianwali, Sargodha, Bhalwal and Bhera (Shahpur), Wazirabad (Gujranwala), Jhang, Lahore and Lyallpur Stations.

Arrivals of goods at the Peshawar Cantonment Station during the calendar year 1935 were as follows:

			Mds.	Srs.
Leather—				
Chrome	..	..	855	26
Common	..	..	8,278	28
Boots, shoes, etc.	..	..	502	21
Hides—				
Dry and wet	..	..	491	31
Skins—				
Coloured	..	..	86	14
Full-tanned	..	..	230	14

The stations despatching these goods were, in order of importance, Sambrial (Sialkot), Wazirabad (Gujranwala), Qila Sobha Singh (Sialkot), Jullundur, Sialkot, Narowal (Sialkot), Pasrur (Sialkot), Amritsar, Howrah, Cawnpore and Delhi. An important manufacturer of leather goods stated that the leather from Ahmednagar was generally used in the uppers of chaplis, that from Sialkot District and Wazirabad for uppers and soles of shoes, but the leather from Jullundur side was fit only for making soles. The locally tanned leather is used in making jutis for which Peshawar is a very important producing centre—(see Plate 10).

Trade within the Province.—It is roughly estimated that about half the amount of hides and skins produced in the Punjab villages is tanned directly to meet the local requirements; it is mostly the surplus, or the hides of good quality, which enter the trade and find their way to the principal markets, described in the next chapter.

Terminal Tax and Octroi Rates.—A letter was addressed to all the municipalities and small towns in the Punjab inquiring the rates of Terminal Tax or Octroi charged on hides, skins, leather and kikar bark, and the quantities imported into these towns during the year 1935. Replies to this inquiry were received from 138 towns out of a total of 227 in the province, from which inquiries were made.

The replies from 79 towns* were to the effect that no tax was levied on the articles mentioned above, and among them are all the municipalities and small towns in the Kangra, Hoshiarpur, Sheikhpura, Attock, Muzaffargarh and Dera Ghazi Khan Districts. This leaves 59 towns which charged octroi or terminal tax on these goods,† and the information about these is presented in the form of three tables shown in Appendix D; they deal with octroi, terminal tax and the extent of trade, respectively. The third table could not be drawn up fully owing to the replies being very incomplete.

* The following list shows by districts, the towns with no tax on hides, skins and leather.

District.	Towns.
Hissar	.. Budlada, Kalanwali, Jakhal, Mandi Dabwali, Tohana.
Rohtak	.. Mehm.
Gurgaon	.. Faridabad.
Karnal	.. Pundri.
Ambala	.. Babyal.
Simla	.. Kasumpti.
Kangra	.. Dharamsala, Palampur, Kangra, Nurpur.
Hoshiarpur	.. Garhdiwala, Mukerian, Dasuya, Jaijon, Garshankar.
Jullundur	.. Kartarpur.
Ludhiana	.. Samrala.
Ferozepore	.. Giddarbaha, Moga.
Lahore	.. Kot Rai Buta Mal, Sur Singh, Ichhra, Khudian, Baghbanpura.
Amritsar	.. Majitha, Ramdas, Sultanwind.
Gurdaspur	.. Dalhousie, Dera Baba Nanak, Dhariwal, Narot Jaimal Singh, Sri Hargobindpur, Fatehgarh.
Sialkot	.. Sankhatra, Nitranwali, Bhopalwali, Kalaswala, Jamke, Sambarial, Zafarwal, Chawinda, Sahawala.
Gujranwala	.. Emanabad, Ramnagar, Pindi Bhatian, Sodhra.
Sheikhpura	Sheikhpura, Khangah Dogran.
Gujrat	.. Shadiwal, Malakwal, Lalamusa.
Shahpur	.. Shahpur, Sillanwali, Nurpur Thal.
Rawalpindi	Murree, Gujar Khan.
Attock	.. Makhad, Fateh Jang, Campbellpur.
Mianwali	.. Kallurkot, Kalabagh, Bhakkar.
Jhang	.. Shorkot, Lalian.
Multan	.. Khanewal, Mian Channu, Kabirwala, Jalapur Pirwala, Kahrur Pakka, Mailsi, Tulamba.
Muzaffargarh	Leiah.
D. G. Khan	Rajanpur, Taunsa, Vahoa, Kot Chhutta.

†Octroi is a tax on animals or goods brought within octroi limits for consumption or use within those limits, and is charged 'ad valorem.' A terminal tax, on the other hand, is a 'specific' tax on goods imported into, or exported from, a municipality, differing from octroi, when imposed on imports, in that no refunds are given in respect of goods re-exported.

CHAPTER VI

FINANCE AND MARKETING

Introductory.—Like many other products in this country the hides and skins pass through a long and circuitous route before reaching the final stage of manufacture. The village *chuhra* or *chamar* is the first middleman of fallen hides if the cultivator hands the carcass over to him free. Otherwise the *chamar* receives wages for flaying it,* and is generally given the option to buy the hide from the cultivator and sell it at a profit, or to arrange for its sale. If the village be close to an important market town or a tannery, he takes it straight there; but most of the hides are sold to itinerant hide collectors who in turn sell to town dealers; at times a buyer is found in the village *mochi* who turns the hide into leather from which to prepare *jutis*. Since the number of hides available in any one village is small and the supply irregular, and there is little competition among hide collectors, the *chamar* seldom receives a fair price for the hides.

The small producer's dependence on the primary collector is a characteristic feature of such trade all over the world, especially where the exporting market or the consuming centre lies far away or the conditions under which the trade is carried on are complex.† The town dealer sells the inferior hides to the small-scale tanners and despatches the better hides to the central markets, such as those at Lahore or Multan, for sale through *artias* (commission agents). The buyers in the central markets are the agents of shippers, the tannery owners and wholesale dealers. Hides from slaughter-houses are purchased by dealers in framed hides, and these after the necessary treatment are sold to shippers or to higher class tanneries.

The passage of skins through the market is comparatively simple. The goat skins go directly from the slaughter-house to the dealers who process them for sale. The sheep skins are usually dewooled, and the wool and pelt (known in the market as *papra*) are sold separately.

Credit Transactions.—A marked feature of the trade in hides and skins both in the raw and the tanned condition, is that cash transactions are few in number and small in quantity as compared with credit sales. Speculation and future dealings are, however, not practised in this line, probably because the bulk of the goods is sold ungraded.

* The charges for flaying are usually 12 annas for a bullock, 8 annas for a cow or buffalo and 4 annas for a calf.

† Cf. Hide Cess Inquiry Committee Report, Chapter V.

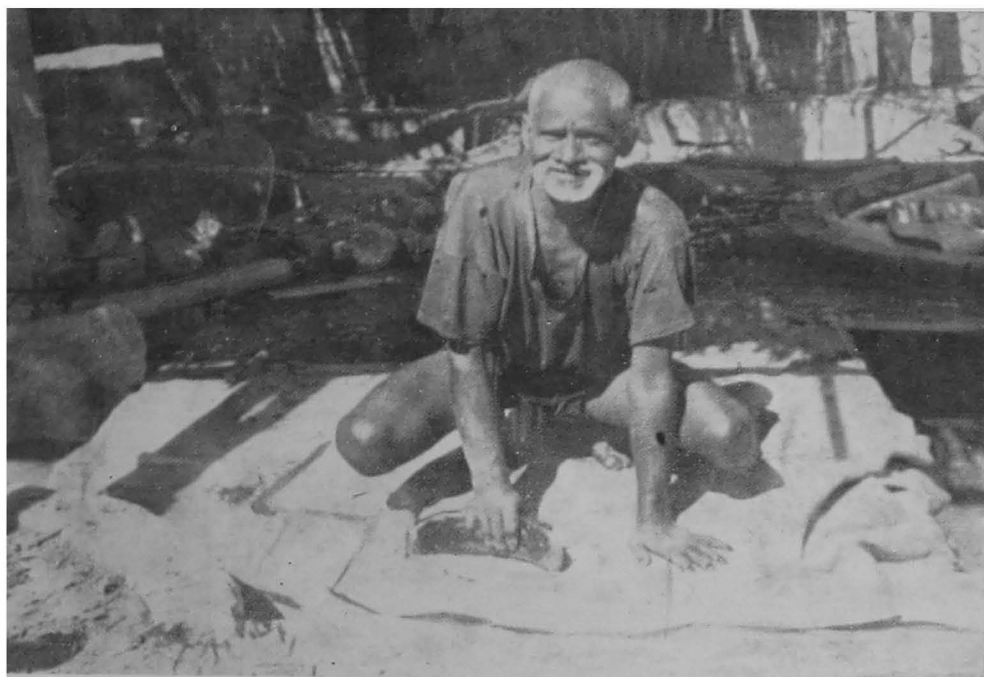


Plate 6.

"Scudding."
(See page 79.)

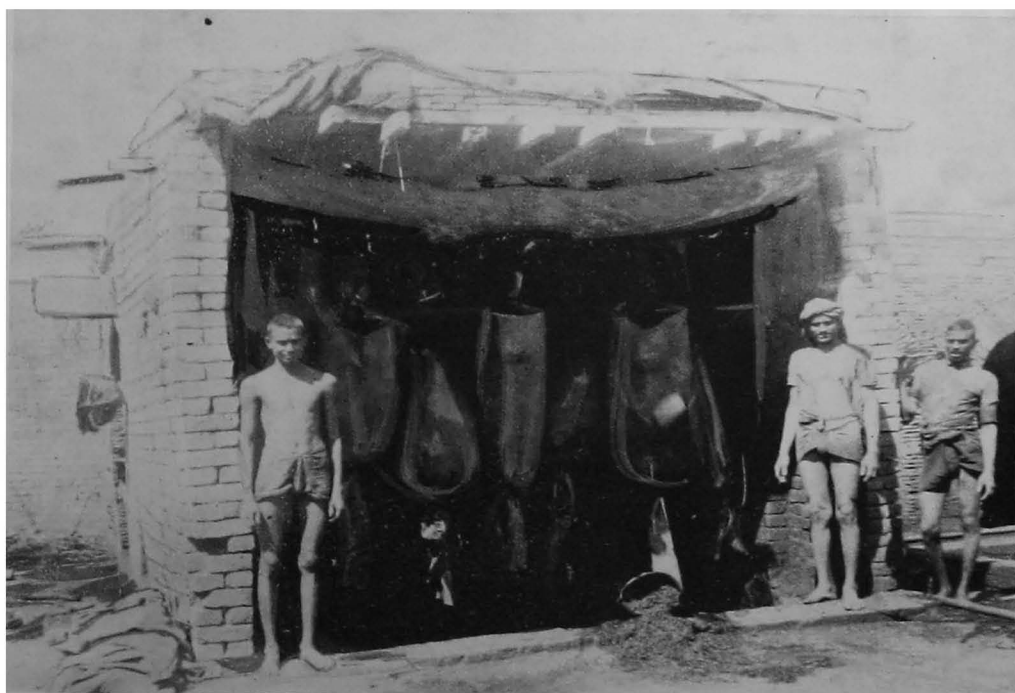


Plate 7.

"Bag-tanning."
(See page 81.)



Plate 8.

"Finishing."
(See page 81.)



Plate 9. **Sheep Skin Tanner at Peshawar.**

The primary hide collector is financed in most cases by the town dealer, who on depositing goods for sale with the artia obtains a part of the market value in cash, even though the sale is effected a fortnight or a month later. The chamars invariably buy raw hides on credit, and the payment is deferred until the leather prepared has been sold. Most of the buyers of leather also find it difficult to pay in cash. The entire credit is furnished by the artias and wholesale dealers, who consequently enjoy a strong bargaining position in the market, and charge heavily for their services.

Forms of Raw Hides and Skins.—Raw hides are available in the market in five different forms according to differences in the methods of processing. These are described below:

1. **Kamela**, or freshly flayed hides from the slaughter-house. These hides provide the best material for tanning because of their being in the natural form; they are, however, available in large quantities only in cantonments and large towns where beef slaughter-houses are found, or villages in the neighbourhood of market towns. Kamela are either sent to tanneries, or dried in frames for export.

2. **Wet-Salted Hides.**—These are hides preserved with salt and kept semi-moist. Buffalo hides are treated in this manner in the North-West Frontier Province and the Punjab districts adjoining it, and are sent mostly to the tanneries at Cawnpore. A German firm here is stated to restrict its purchases to wet-salted cow hides in summer. These hides are, however, not popular among the general Punjab buyers, because of the extra cost in transport (hides when wet-salted are about three times as heavy as hides dried without applying any salt) and the necessity of liming them without delay. Wet-salted hides are sold by count and not by weight.

3. **Dry-Salted Hides.**—These are hides dried after applying salt to them and sell at a heavy discount in the Punjab markets, because the practice is to sell them by weight, and the amount of salt applied is a net loss to the tanner.

4. **Framed Hides.**—Hides without the headskin, hoofs and tails, cleaned of superfluous flesh, and dried in air when still stretched on the frames, are known as "framed" hides. The shippers purchase raw hides in this form, for any defects then become visible and the quality can be rightly judged. In every town where hides are brought for sale there are some dealers whose chief business is to purchase kamela or green hides of "fallen" animals from surrounding villages and sell them after curing on the frames. The framed hides meant for long storage, or export, are arsenicated or "poisoned." One seer of white arsenic and two seers of caustic soda are boiled to a solution

in water and then mixed in fresh water in a cemented tank through which the dry hides are passed. This quantity of chemicals is sufficient for 80 to 100 hides and costs Rs. 1-8-0. Usually three men are needed for this process and the different firms gave as their expense for treating 100 hides between Rs. 3-0-0 and Rs. 3-8-0, inclusive of chemicals and labour.

5. Sukti or Gowara Hides, i.e., hides dried in the sun right after flaying.—This is the most common form in which hides are brought to the market, being the product of the only method in which hides produced in villages are cured, excepting the very few which are brought to towns when still "green." These hides are not washed after flaying in order to remove the stains of blood, dung and dirt, nor is the flesh side shaved so as to reduce the matter in which bacterial action is liable to start. The hoofs and tail are often left intact to add to the weight of the hide. Without applying any preservative, such as common salt, they are spread out on dust or boulders to dry in the sun. When still moist they are folded along the line of the vertebral column. Those sent from the Hazara side are well folded, with hoofs, tails and head skin all tucked in, not infrequently along with some pebbles. The sun-dried hides become almost as hard to the touch as stone, and until thoroughly soaked cannot be opened out easily.

Air-curing is the simplest and cheapest of all methods, and has the additional advantage of lightness in transport. If properly carried out, preferably in the shade, it enables the hide to be kept indefinitely, particularly in a dry climate such as the Punjab has for most of the year. But the crude and careless manner in which air-curing is done in the Punjab leads to serious defects. The presence of foreign matter gives to the hides a dirty appearance and causes difficulty in a proper evaluation of the article particularly in summer when sun-blisters and burns are common and the hide is apt to crumple up and hence depreciate in value. Considering the magnitude of the trade the loss to the province through faulty methods of curing must be enormous.

Markets in the Punjab.—More activity is evinced in the marketing of raw hides and skins than leather, because the Province is an important exporter of the former class of goods. Further, most of the tanneries themselves arrange for the sale of leather manufactured by them. Brief notes about the more important trade centres are given in the following pages in the hope that they may be of some practical value to some readers.

Lahore.—Lahore is the most important market for raw hides in the Punjab and comes second only to Delhi in Northern India.

Beyond the railway line along the Grand Trunk Road there is a row of imposing buildings where fourteen firms of artias transact business in raw hides, and the locality is known as "Chamra Mandi." The oldest existing firm was started in 1895. There is an organisation located inside the Akbari Gate known as the "Anjuman Tajran-i-Charam" designed to settle differences among the hide dealers and for mutual aid. There is no regular marketing organisation for leather.

Amritsar.—This is the leading market for sheep skins in the Punjab. Until a few years ago it was also the most important market for goat skins, but lack of confidence among buyers consequent upon the failure of some firms and the unfair dealings of others, has led to the dispersion of a part of this business to Delhi, Multan, Lahore and Gujranwala. At the time of writing this report there were nineteen artias for raw hides and skins in the town, and eighteen dealers in leather, who for the purpose of wholesale buying of leather had organised themselves under the title of the "Haji General Leather Company." Near the municipal beef slaughter-house there were six dealers in framed hides.

Kasur.—Because of this town being a centre for making jutis there is a brisk trade in hides and leather. In the locality known as Kot Din Garh there were seven shops of artias for raw hides and skins while another two dealt exclusively in raw skins. Tanned hides were sold through six artias near the Pathanwala Gate and tanned skins by another two artias.

The town exports "jerked" beef to Burma and in winter about a dozen cattle are slaughtered in the "Laghar Khana" daily for this purpose. The local chuhras purchase decrepit animals from the surrounding villages and sell their hides to the framed-hide dealers, of whom there are seven in the town, and the carcasses to the "jerked" beef makers.

Multan.—There were ten artias in this town, most of whom, besides arranging for the sale of raw hides and skins, got the hides tanned by the chamrangs working in their own homes in a colony not far from the town, to whom tanning charges amounting to 30 per cent. of the sale proceeds of the leather were paid. Two among the artias also prepared framed hides.

Jullundur.—Jullundur is chiefly a distribution centre of the United Provinces hides which are here tanned into cheap country leather. Some ten artias dealt in raw hides and skins in the city, and another fifteen, dealing mostly in leather, had their shops in a suburb known as Basti Nau.

Sialkot.—The sports industry of this town requires a large supply of leather of good quality, and this is partly provided by local tanneries. Another reason for the town being an important trade centre is its proximity to the Jammu State which normally has a surplus of hides and skins. There were in this town five artia shops for raw hides and skins, nine important dealers in leather and nine dealers in framed hides.

Among the markets of second rate importance visited during the inquiry were Gujar Khan (3 dealers in skins), Wazirabad (3 artias for raw hides, 3 dealers in framed hides and 3 in leather), Jhelum (3 general dealers), Gujrat (6 skin dealers who also did tanning), Lyallpur (3 dealers in raw hides and skins and 3 in leather), Maghiana (7 general dealers), Kartarpur (4 dealers in hides and one in skins), Nakodar (2 dealers in leather), Rewari (8 dealers in raw camel hides and 3 in leather), Hansi (2 dealers in leather) and Hissar (7 dealers in hides and skins).

Peshawar.—Peshawar is a very important trade centre for raw hides, skins and furs. Goods are sent to this market from such distant places as Quetta, Sawat, Badakshan, Mohmund, Tibet and Afghanistan. The Cawnpore tanneries obtain a large portion of their supply of wet-salted buffalo hides from here through their local agents, and European firms also purchase cow hides in large quantities. There were five important dealers in hides and eight in skins; most of these also acted as artias. Six dealers in furs acted as agents to foreign buyers.

The manufacture of jutis and chaplis, mostly for export to Afghanistan, is an important industry of the town. It was stated that Afghanistan recently imposed a heavy duty on the import of these articles; but even then it was estimated that about two thousand pairs were prepared here daily. The leather needed for these articles was obtained mostly from Ahmednagar, Wazirabad and Jullundur. There was, however, no artia for leather in Peshawar and the wholesale dealers made their purchases directly from the local artias.

Delhi.—The tanning industry has not developed to any appreciable extent here although it is an important commercial centre in Northern India. There were fourteen large dealers and artias in raw hides, and about the same number dealt in raw skins, all in Sadar Bazar. Over thirty firms dealt in furs and some of these had branches in foreign countries. More than twenty shops of leather dealers and artias were scattered over the city.

Peculiarities of the Hide Market.—The practices followed in these markets resemble those in the markets for agricultural products, a subject which has been dealt with in some of the previous reports

of the Board of Economic Inquiry, Punjab. A few points of contrast need only be noted here:

1. Whereas the shops of grain artias are usually centralised in a market place specially designed for the purpose, those for hides and skins are scattered or at best situated close to each other along the same roadway. The advantages of centralised markets are too obvious to need any elaboration.

2. Hides and skins being commodities saleable only to leather-workers, the buyers are far too limited both in numbers and means to permit a consignment being sold as soon as it arrives. The khojas have, therefore, a freer hand in settling prices than the grain artias, and the sellers allege that in most cases their interests are not guarded because of their poverty and lack of organisation.

3. There are no dalals (brokers) in the hide market, and the buyers deal with the artias directly.

4. Because hides are a bulky commodity they are always weighed on a beam-scale and the hand-scale of the grain market is not used. Nowhere does the practice obtain of checking these weights and scales, with the exception of Lahore where the branch managers of the European companies check and correct them in the various hide godowns from which they make purchases. In view of the unsatisfactory condition of weights and scales used in the Province* it is imperative that the practice of periodical checking should be extended to other markets.

5. In certain markets such as Lahore and Multan no discount is given to buyers for cash payment, although the period of credit is as long as two months. The khojas hold that the cash discount amounts to usury which is forbidden by the Muslim religion. The cash buyers are compensated indirectly by a reduction in the price and also more allowance in weight, and the incidence of these falls on the seller. In the Kasur, Gujranwala, Wazirabad and Sialkot markets this orthodoxy does not prevail and katoti (rebate on cash payment) is given to cash buyers.

It was also noted that arat was charged at a higher rate from dealers who had obtained some advance from the khojas in order to collect hides, instead of the straight and easily comprehensible method of charging interest on the amount.

Wholesale dealers and artias of Jullundur have evolved a complicated mode of business with the chamars. They charge the seller

* Of the 12,474 weights checked in thirteen areas during an inquiry conducted by the Board of Economic Inquiry, Punjab, in 1927—31, 51.2 per cent. were found correct; 41.0 per cent. were deficient and 7.8 per cent. were extra-heavy. Of the 3,486 scales checked with pans 'loaded' with equal weight, 64.1 per cent. were found incorrect. Cf. Publication No. 42.

the usual dues for arranging for the sale of hides. If the buyer belongs to the merchant community he is given goods on thirty days' credit without any extra fee. But should a chamar buy goods on credit the artia charges him Re. 1 per maund of hides extra as *munafa* (profit), and that too on the condition that the leather will be sold through his shop for which service he has to pay *arat* at Rs. 6-4-0 per Rs. 100 worth of leather sold. When a chamar pays cash for the hides he has to pay no extra fee but the rate of *arat* (commission) for the sale of leather is enhanced to Rs. 9-6-0 per Rs. 100. How far the artia is justified in holding out the bait of lower rates of commission on leather when the hides have been bought on credit, it is for the reader to judge; his extra profits are, however, evident. Let us suppose that the market price of hides is Rs. 18 per maund and that for leather Rs. 26. When a chamar makes a credit purchase he has to pay to the artia for one maund of hides Re. 1 extra as *munafa* and Rs. 1-10-0 as *arat* on the sale of leather; total Rs. 2-10-0. If the chamar pays cash for the hide, it comes to only Rs. 2-7-0 (*arat* at Rs. 9-6-0 per cent.), i.e., Rs. 0-3-0 less than in the previous case; and there are also chances for a chamar in this case to purchase hides from one shop and to sell leather to another. So not only does the artia charge more for credit sales than for cash sales, but he also secures the sale of the leather through his shop. The chamars realise the disadvantage of such credit transactions, but they are helpless because of their poverty and lack of organisation.

A few cases were noted in the Lahore market of chamars accompanied by servants of artias coming from Jullundur to buy hides. The servants simply stood surety for the payment of the money and charged Re. 1 extra per maund on hides purchased by the chamars.

Marketing Charges.—The *khoja* is not merely a commission agent, he is the chief financier in the business. The standing of the clients counts a good deal in the hide market. Such sellers as have obtained an advance of money from the artia have naturally to pay more by way of *arat* than others, and the chamars as buyers seldom receive the same facilities as independent merchants.

A cut-and-dried schedule of market charges is not to be had for any town. It was noticed that even when the composite charge of two firms was the same, the proportion of demand under individual items differed: leniency in *arat* may be made up by heavier godown and weighing charges. Some firms in Lahore levy godown charges invariably, while others do so only when goods have remained unsold for over one month. Further, different kinds of hides are assessed differently according to the animals from which they are obtained and the treatment it has received. The following schedule was supplied by a firm at Lahore.

Marketing Charges in Lahore.

Payable by the seller :

1. Arat :

				Rs	a.	p.	
Buffalo hides—							
Wet salted	..	..	..	0	8	0	per maund.
Sukti	..	..	..	1	0	0	„ „
Framed	..	..	..	4	1	0	„ score.
Cow hides—							
Wet salted	..	..	..	0	8	0	„ maund.
Sukti	..	..	..	1	0	0	„ „
				or	5	0	0 „ score.
Framed	..	..	..	4	1	0	„ „
Sukti <i>pahari</i>	..	..	..	3	8	0	„ „
Buffalo and cow calf skins	..	..	..	1	4	0	„ „
Camel hides	..	..	..	1	0	0	„ maund.
Camel, horse and donkey—							
Ordinary hides..	..	..	..	5	0	0	„ score.
Pahari	..	..	..	3	8	0	„ „

2. Weighing charges :

Buffalo hides	..	..	..	0	3	6	per score.
Cow	„	..	..	0	2	6	„ „
Calf skins	..	..	..	0	1	6	„ „

3. Godown charges (only if goods lie unsold for one month) :

Buffalo hides	..	..	..	0	4	0	per score.
Cow	„	..	..	0	3	0	„ „
Calf skins	..	..	..	0	1	0	„ „

4. If hides are arsenicated by the artia the charges are :

Buffalo hides	..	..	..	0	11	0	per score.
Cow	„	..	..	0	9	0	„ „
Calf skins	..	..	..	0	5	0	„ „

5. When goods arriving by train are taken delivery of by the artia, the charges per bundle, weighing from 3 to 3½ maunds, are:

For paying the station staff	..	..	..	0	4	0	
„ carting	..	..	..	0	1	6	
„ coolie	..	..	..	0	1	6	
<i>Total</i>	..	..	..	<u>0</u>	<u>7</u>	<u>0</u>	

Payable by the buyer :

- Masjid (charity) 0 1 0 per Rs. 100 worth of goods.
- When a client from outstation orders goods he is charged :

Buffalo hides	..	..	..	2	0	0	per score.
Cow	„	..	..	1	0	0	„ „
Buffalo and calf skins	..	..	..	0	10	0	„ „
Camel hides	..	..	..	2	0	0	„ „
Horses and donkey hides	..	..	..	1	0	0	„ „
- Extra charges if goods are packed and sent to the railway station 0 12 0 per bundle of about 4 maunds.

Lahore is an important centre in which to obtain hides for export to foreign countries, and according to an artia, the shippers buy 75 per cent. of arrivals in the town during the six months, November to April, and about 25 per cent. in the summer months.

The schedule of market charges, generally applicable to the Amritsar Market, as supplied by a well known Amritsar firm, are as follows:—

Marketing Charges in Amritsar.

1. Arat (payable by seller):		Rs.	a.	p.	
Buffalo hides—					
Sukti	.. ..	1	4	0	per maund.
Framed	.. ..	1	4	0	.. ..
Cow—					
Sukti heavy	.. ..	1	4	0	.. ..
.. light	.. ..	3	4	0	.. score.
Framed	.. ..	3	12	0	.. maund.
Buffalo and cow calf skins	.. ..	1	9	0	.. score.
Siramma (head hide)	.. ..	0	8	0	.. maund.
Goat skins—					
Gowara	.. ..	3	4	0	.. hundred.*
Wet	.. ..	6	4	0	.. ..
Sheep skins—					
Gowara	.. ..	1	12	0	.. ..
Wet	.. ..	6	4	0	.. ..
Goat and sheep skins—tanned	.. ..	6	4	0	.. ..
2. Weighing charges (payable by seller)--					
Hides of all sorts	.. ..	0	1	0	.. score.
3. Godown charges (payable by seller)—					
Goat and sheep skins	.. ..	0	2	0	.. ..
Hides	.. ..	Nil.			
4. Cash discount given to buyer on price .. Re. 1 per Rs. 100.					
5. Charity (payable by buyer) .. 0 1 0 per Rs. 100 worth of goods.					

Space does not permit giving the market charges of all the towns visited during the inquiry, but a very concise statement of six important markets appears on the next page which should provide a rough comparison for the reader interested in the subject. In Multan the commission is charged invariably on the value of goods sold. In other towns sheep and goat skins are charged according to the number of pieces sold, and hides either by weight or count.

* Equal to 102.

TABLE XXII

Marketing Charges for Raw Hides and Skins prevalent in Six Important Markets.

Charges.	Multan.	Gujranwala.	Sialkot.	Kasur.	Peshawar.	Delhi.
<i>Charge on Seller :</i>						
1. Arat—						
Cow—Green ..	Rs. 4-11-0 per Rs. 100.	..	..	Rs. 0-0-9 per rupee.	..	..
Sukti ..	Do.	Rs. 5 per 20.	Rs. 3-2-0 per 20.	Re. 1 per maund.	Rs. 3-2-0 per 20.	Rs. 3-12-0 per 20.
Framed ..	Do.	Re. 1 per md.	Do.	..	..	..
Buffalo—Green ..	Do.	..	..	Rs. 0-0-9 per rupee.	..	..
Sukti ..	Do.	Rs. 7-8-0 per 20.	Rs. 3-2-0 to 4 per 20.	Re. 1 per maund.	Rs. 5 per 20.	Rs. 5 per 20.
Framed ..	Do.	Re. 1 per md.	Rs. 3-2-0 per 20.	..	..	..
Goat—Wet ..	Do.	..	..	Rs. 1-4-0 per 20.	Rs. 0-10-0 to Rs. 1-4-0 per 20.	..
Dry ..	Do.	Rs. 1-4-0 to 1-14-0 per 20.	Re. 1 per 20.	Do.	..	Rs. 4 per 100.
Sheep—Wet ..	Do.	..	..	Do.	Rs. 0-10-0 to Rs. 1-4-0 per 20.	..
Dry ..	Do.	Same as Goat (dry).	Re. 1 per 20.	Do.	..	Rs. 3-2-0 per 100.
2. For Weighing—						
Cow ..	..	..	Framed hides 0-1-0 per 20 (also from buyer).	..	Rs. 0-1-0 per Rs. 100 from buyer also.	Rs. 0-6-0 per md.
3. For Godown—						
Buffalo ..	..	..	..	..	..	Do.
Cow ..	..	Rs. 0-4-0 per Rs. 100.	..	..	..	Rs. 0-6-0 as <i>chithiana</i> and <i>munshiana</i> and Rs. 0-1-6 per md. for labour.
Buffalo ..	..	Do.	..	..	..	..
<i>Charge on Buyer :</i>						
Masjid ..	..	Rs. 0-2-0 per Rs. 100.	Framed hides 0-1-0 per 20 (also from seller).	Rs. 0-2-0 per 100.	..	..
Cash discount to buyer	Rs. 2 per Rs. 100 ; Re. 1 if paid in one month.	Only on tanned hides. Rs. 3-2-0 per Rs. 100. Up to 5 days 2 per cent.	Re. 0-10-0 per 20 hides.	..	..	Hides Rs. 0-8-0 per 20, Skins Re. 1 per 100, if paid within 1½ months.

Extra Weight and Allowance for Adulteration.—At Amritsar, Jullundur and Multan the buyer receives the full 40 seers of sukti hides for every maund for which he pays. One maund is, however, taken as 40½ seers in Lahore, Wazirabad, Gujranwala and Kasur, 41 seers at Sialkot and Delhi and 42 seers at Peshawar. This is for the genuine, unadulterated hides. Should they, however, be found to contain any extra 'load' or adulteration the buyer claims an allowance which is usually given as a discount in weight. A transaction was noted in Lahore: 11 hides weighed 4 maunds and 26 seers but the buyer paid for 3 maunds 33 seers (allowance at 3 seers per hide).

The term 'load' is used to denote such parts of the animal which should be, but are not, removed from the hide, e.g., blood, flesh, fat, tail, horns and hoofs. It may also mean fixing or plastering of foreign matter on the raw hides. In the words of the Hide Cess Inquiry Committee, "the range and variety of such loading matter is amazing." Not only dung, blood and lumps of flesh and fat, but articles like lead, cement, mud, clay, sand, impure and spent salt, earth, flour, kanji and even steel shavings have been pressed into service as loading materials.* Loading is done with one of two objects: to conceal defects or to gain weight. The popular form of adulteration is to wet the stock before bringing it to the market.

Marketing of Leather.—Most of the tanneries, as previously stated, themselves arrange for the sale of leather. The case of the cottage tanners is, however, different. Their day-to-day output is small and their scanty means do not permit them to hold up their stock to sell at advantage. Further, those among them who obtain the raw material on credit are often bound to sell through the creditors. All these factors force the chamars to seek the aid of merchant-middlemen for marketing country leather. Kasur and Amritsar are the typical markets for this and a detailed study of their sale methods was made.

Kasur.—The daily production of leather by the tanners in Kasur is deposited in the godowns of the six artias inside the city. Sales are effected in the afternoons, and the buyers are mostly local leather dealers and manufacturers. The buyers go to each artia's godown en bloc where the daily arrivals are auctioned. This is known in the vernacular as Bai.

The different lots of leather, each having a slip signifying the seller, are sold one by one. The artia's assistant spreads the pieces in a lot on the floor to enable the prospective buyers to inspect the goods, and any inferior pieces are removed to be sold separately. After

* Page 66 of the Report.

judging the quality points, which is done very quickly, they note down their bids (rate per maund) confidentially on slips of paper. The artia then invites the bids, shouting as he collects the slips: **Lanji awaz? Awaz lanji?**" (I invite offers). When all the slips are in his hand, the practice demands that he should ask any experienced buyer: **"Deo ji awaz tagra"** (Please speak out your considered bid). The different slips are then read out aloud and the highest bidder is declared to be the buyer for the lot. The lot is weighed subsequently and sent to the buyer's place.

Should the artia, however, think that the offers are not adequate, he has the right to refuse them, after which higher bids are invited, in which case the artia also competes. The previous highest bidder is entitled to claim Rs. 0-7-0 per maund of leather in the lot, which amount is debited to the seller, for had the fresh bids not been invited, the seller would not have had the advantage of a higher price. The exercise of this power of the artia to ask for fresh bids is known in the market as **Mor**.

The right to give **bai** (make a bid) is restricted to the well-established dealers and manufacturers of the town. Casual buyers can purchase goods not in the open market, but directly from the dealers. The artia also sells such goods as he purchases in the **bai** to them; it was stated that about half the amount of leather sold by **bai** is resold within the artia's godown to casual buyers. Evidently any restrictions placed on the free sale of goods adversely affect the seller.

The various dues charged in the town for marketing leather are given below.

	Rs.	a.	p.	
Payable by seller—				
1. Arat	4	11	0	per Rs. 100.
2. Tulai (weighing charges)	0	2	0	per <i>nawan</i> of about 1½ maunds.
3. Anjuman (charity)	0	1	0	per Rs. 100.
4. Mor (if bids are invited a second time, when the amount is paid to the previous highest bidder)	0	7	0	per maund.
5. Godown charges	Nil.			Goods are sold the same day as received.
Payable by buyer—				
1. When a casual buyer purchases on credit ..	1	9	0	per Rs. 100.
2. <i>Chithiana</i> (postage charge from outstation customer)	0	1	0	„ „ „
3. For packing and delivery at the railway station	1	0	0	per packet.
Receivable by buyer from artia—				
1. Cash discount for local buyer	2	8	0	per Rs. 100.
2. „ „ „ outstation buyer.	1	9	0	„ „ „

For every maund of leather the buyer receives 41 seers.

Amritsar.—The information contained in this section was obtained from sixteen chamars working independently in a colony known as Mandi Chamrangan outside the city and was later verified from the leather dealers in the town. All these chamars tan only cow hides.

The raw hides are bought from the artias who have their shops outside the Rambagh Gardens. When sold on credit the artias usually dispose of hides which they have purchased on their own account and not those of their clients, and not having a strong buyer position the chamars have to buy whatever they are offered. The raw hide artias do not deal in leather.

Prior to 1934 there was no arat for leather in the town and the leather merchants visited the chamars' quarters to purchase leather, delivery being given at the chamars' shops. In 1934 the various dealers of the town organised into one firm for the purpose of buying country leather. With a joint capital of Rs. 40,000 they floated a concern which has at present eighteen shareholders, all leather merchants. Now the chamars have themselves to carry leather to the office of this company, where the daily arrivals are sold in the afternoon by bai; the practice of mor described for Kasur, does not obtain here. On the other hand, should a seller not agree to part with his goods at the highest price offered to him, he has to pay Rs. 0-1-0 per piece of leather in the lot to the highest bidder, and arrange for the sale somewhere else.

Previous to the establishment of this organisation the chamars used to get the price of leather in cash. Now the local chamars are paid four days after the sale, but the sellers coming from distant villages are usually paid the same day. The buyer is given the facility of making payment within 50 days of the purchase. The leather tanned in Amritsar is sold per piece, while that coming from the villages is sold by weight, one maund being taken as 41 seers.

The seller has to pay to the company a fee of Rs. 7 for Rs. 100 worth of goods sold through it, as detailed below:

	Per Rs. 100.		
Arat (commission)	6 4 0
Munshiana (clerical charges)	0 8 0
Mazduri (labour charges)	0 4 0
Total			<u>7 0 0</u>

From these Rs. 7, the buyer is given Rs. 4 as rebate in prices. The daily sales by the Company average Rs. 800. Its expenses on house rent, clerks and coolies are met out of the munshiana and mazduri charges; the Manager works honorarily. The profits are distributed among the members.

Conclusion.—Normally in an open competitive market the two opposing forces of self-interest on the part of the seller and the buyer get balanced. The seller is satisfied at receiving a reasonable price for the goods he parts with and the buyer is satisfied at receiving a good return for his money.

This conception is not true about the hide and country leather markets. Here we have a teeming population of chamars, low in social status, poor, ignorant and utterly unorganised. On the other side is a well-disciplined, well-informed and wealthy merchant class, shrewd in business and conscious of its power. The artia is supposed to watch the interests of the sellers, but he can hardly perform this function, when, as is not unusual, he himself happens to be the buyer. Further, the merchants have organised themselves on lines akin to the "guilds" and try to get the most out of the chamars. The result is that far from receiving a fair deal in the market the chamar finds himself a helpless victim. He has to buy what is offered to him, and sell for what he can get. Many of them are mere tools in the hands of the financiers and their lives are one of unceasing toil of which someone else enjoys the fruits.

CHAPTER VII

LAMB AND KID PELTS

History.—A small and secret trade with foreign countries in the pelts of lambs and kids (mostly still-born) has existed for a fairly long time in Peshawar. In 1932 the demand for these pelts increased suddenly, with the result that the secret filtered out and the trade is now carried on extensively in the Punjab and N. W. F. Province. The centre of the trade has gradually shifted from Peshawar to Delhi and Multan. The causes responsible for this change were stated to be, firstly, the expulsion of the Jews, who are the chief business men in this line, from Afghanistan; secondly, the number of sheep and goats in the N. W. F. Province was inadequate to meet the increased demand; and thirdly, the remote situation of Peshawar.

Central Markets.—Delhi and Multan are at present the central markets for lamb and kid pelts in Northern India, just as Cawnpore and Calcutta are for crocodile and snake skins. Kasur, Sialkot, Amritsar and Jullundur are the feeder markets and the dealers in these towns are mostly khatiks and qasais. Delhi is slightly more important than Multan because of its being near the Jaipur and Tank States and the tract known as Naulgarh, where the best pelts are produced. There are about sixteen firms dealing in these articles in Delhi and the daily arrivals averaged 15,000 pelts in March, 1937, including 9,000 lambs. Multan has ten firms which despatched about 8,000 lamb skins and 4,000 kid skins daily in January 1937, mostly coming from Sind, the Canal Colonies and the Thal. The brisk season for this trade is from October to April as this is the time of the year when most lambs and kids are born.

Destination.—Lamb skins go mostly to England from whence they are distributed to European countries; kid skins are sent mostly to the United States. India at the present time leads among the countries which supply these pelts; other countries sharing in it are Persia, Afghanistan, Arabia, Abyssinia and Russia. The principal buyers in India are the Jews, some of whom are agents of European firms; recently some Indian firms have established direct connections with foreign buyers.

Pelts.—There are three ways in which pelts are obtained: first, by slaughtering pregnant animals and taking the fetus; second, by administering certain medicines to the pregnant animals so as to result in abortion;* and third, by slaying the newly born lamb or kid. The market value of a pelt depends firstly upon the character of the wave on the fur and secondly whether it was obtained from a 'born' or 'unborn' lamb or kid. The unborn lamb has a very soft skin and more curly hair than the born one. The skin of a still-born kid on the other hand is inferior to that removed from a newly born kid.

Processing.—The village khatik or qasai is on the look out for young lambs with beautiful curls or pregnant sheep which he purchases from zemindars or herdsmen. He slays the animal and sells the pelt to the town dealer, who sends it in an undressed form to an artia in the central market. There the pelts are soaked in water for some hours, then washed with soap and cleaned with a knife, and finally fixed against wooden boards with the hair side inside. The flesh side is exposed to the sun until dry when the pelts are removed and are ready for export. No chemical is used in the process. In Delhi some dealers produce artificial designs on the hair while still moist by the use of acacia gum and alum with a view to obtaining a higher price. The expense of washing and dressing is about Rs. 6-4-0 per hundred pelts, and for making artificial designs from Rs. 10 to Rs. 12 per hundred. The trade is lucrative and offers good profits to the middlemen and dealers.

Prices.—The average price of lamb pelts at Multan in January 1937, was Rs. 6 each, and the best quality sold for Rs. 13. A lot of 73 pieces of lamb skins sold by a Delhi artia realised Rs. 263 for 17 pieces, Rs. 126 for 6, Rs. 40 for 5 and Rs. 97 for 39 skins: an average of about Rs. 7 each. The kid pelts seldom fetch more than Rs. 2 per piece.

The grades of lamb skins are determined by the character of the fur, e.g., **nazugcha**, **guldar**, **moire**. The kid skins are classed according to colour, e.g., black, white, spotted. The following rates

* The actual process of bringing about abortion could not be witnessed because it is done very secretly. The primary dealers, mostly khatiks and qasais, were, however, persuaded to describe how it is done. The dealers who keep a flock with the main idea of obtaining the lamb pelts, note the date on which a particular sheep was covered. Three or four days before the expected lambing it is made to drink a solution of soap in warm water and pressure is applied on its belly which results in abortion. Some people administer **sana** (a squirrel-like animal) fried in oil instead of the soap solution. Sometimes the expectant sheep throws down the lamb through fright at the rough treatment it receives. Should it sustain serious injuries during the operation, it is slaughtered and the meat sold to villagers in the ordinary way.

were being charged by the artias in Delhi for selling lamb skins :

			Rs.	a.	p.	
Arat	(from seller)	..	0	1	0	per piece.
Mazduri	(„ „)	..	0	1	0	„ 20 pieces.
Hisabana	(„ „)	..	0	1	0	„ Rs. 100.
Chhut	(remission given to buyer)	..	Price of one skin if the lot consists of from 11 to 74 pieces, and of 2 skins if from 75 to 100 ; in addition 10 per cent. of the skins are given at a nominal price of Re. 1 per skin.			

Desirability of Control.—All the leading business men were of the opinion that the trade in lamb and kid skins is capable of great expansion, provided the practice of giving them artificial waves does not gain further popularity. They assert that this is a fresh avenue of income opened to India.

On the other hand there are interests which are adversely affected by the growing trade in lamb skins, viz., sheep skin dealers and tanners, wool dealers and the meat-eating public; many others who are opposed to the trade on the ground of cruelty. Ordinarily the herdsmen sell most of the male stock for meat and keep the females to continue the stock; that is how the sheep and goats have withstood for ages the heavy drain of supplying human food. Now that young pregnant females have begun to be slain, their further progeny is lost to the country and also young female lambs are not allowed to grow up to maturity in anything like the previous numbers. The Punjab Live Stock Census of 1935, commenting on the fall in the number of sheep (from 4,457,786 in 1929-30 to 4,424,147 in 1935) says:

“The fall is due to restriction of grazing facilities, the spread of epidemic diseases, and the departure of migratory flocks, and to a certain extent also the forced abortion of pregnant sheep for the purpose of trade in lamb skins. . . . The trade in lamb skins has not yet assumed large enough proportions to produce an appreciable effect on the flocks. . . . Its ultimate effect, however, will be very harmful if the inhuman methods practised in obtaining the skins continue unchecked.”*

This depletion in the flocks cannot be carried on without damaging the future interests of the country. Incidentally it might be mentioned that sheep dung is a powerful manure and the Punjab is essentially an agricultural province. Killing of pregnant animals is prohibited in the municipal slaughter-houses and the interests of the Province demand that this measure should also be rigidly enforced in rural areas.

*Ibid, pages 4, 7.

The desirability of penalising the slaughter of pregnant sheep is readily conceded even by the dealers. They claim, however, that by bringing about abortion no damage is done to their kid-bearing capacity. On the other hand, they assert that by weaning the lamb the mother sheep comes in heat soon, and in this way she brings forth two lambs in a year instead of one in the natural course of things. This statement does not seem to be entirely true, for many an animal dies under the pain of this gruesome practice, and a far greater number are rendered sterile. The killing of male infant lambs will not be harmful to the stock.

It is, therefore, desirable that the trade in **shikmi** pelts (obtained when within the mother animal) should be declared an offence. Since such pelts are easily recognisable from appearance and there are only two central markets in Northern India where all goods collected in the Province must be sent for ultimate sale, it should not be difficult to secure effective control over this trade.

Gosalla.—Akin to this trade in lamb and kid pelts is the one relating to the skins of 'unborn' cow-calves, known in the market as **gosalla**. Because of the heavy external demand this trade is also growing and is harmful to the best interests of the country.

In an artia's godown at Delhi a stock of about 800 gosallas was seen being sold for export; and this was said to be a common transaction. The artia refused to give any particulars about their sale but a butcher who seemed to be well acquainted with the business was of opinion that it was profitable to kill even the best of pregnant cows and sell the gosalla beef and hide separately. His opinion was based on the following estimates :

A cow that might yield about 8 seers of milk per day on calving can be had for about Rs. 50 about a fortnight before calving. On slaying it will yield the following articles:

				Rs.	a.	p.
1.	Beef worth about	..	..	25	0	0
2.	Offal (tripe, liver, kidneys, heart, brain, tongue)			2	8	0
3.	Gn's	..	..	0	8	0
4.	Horns and bones	..	..	1	0	0
5.	Fat	..	..	8	0	0
6.	Hide	..	..	8	0	0
7.	Gosalla (skin of unborn calf)			10	0	0
	<i>Total</i>	..		<u>55</u>	<u>0</u>	<u>0</u>

Strong measures should be taken to stop the killing of pregnant cows; the trade is so remunerative that if left unrestricted, it may some day lead to a serious shortage in draught cattle and the milk supply.

CHAPTER VIII

TANNERIES AND ORGANISATION OF LABOUR

Introductory.—The word “tannery” as used in this report denotes any place where tanning is carried out by paid labour. There is no marked difference between an independent tanner’s working premises and an ordinary “tannery.” In both the cases the power is supplied by man, and the tanning materials are used in much the same manner. A tannery proprietor, however, does no manual work and the labourer’s income is not affected by the day-to-day fluctuations in market prices. Further, there is a division of labour in a tannery because of large-scale production, and the work is done systematically. Factories on modern lines are few in the Punjab, and the leather requirements of the rural areas are met mostly by the local small-scale tanners working in their own locality. In the whole of the Province only two tanneries come under the control of the Factories Act, 1934, one in Wazirabad, and the other in Sialkot.

During the inquiry, detailed particulars were obtained for 33 tanneries—(see Information Sheet 4, Appendix G); 11 of these were in Lahore, 4 in Nakodar, 3 each in Sialkot and Multan, 2 each in Amritsar, Lyallpur, Wazirabad and Gujar Khan, and one each in Hansi, Kasur, Gujranwala and Maghiana.

Description of a Typical Tannery.—A typical tannery is found in an old building over which neglect in upkeep is writ large. Situated away from the bustle of the town, by the side of a kachcha road, a tannery is conspicuous from afar by the stray dogs lounging in the vicinity and the kites hovering low in the sky above it. Usually more than one such compound, each on an area of about 3 kanals, lie side by side, and nearby are the shops of bone and horn dealers and yards for frame-drying the green hides. Here and there some creaking ox-carts may be seen bringing dry hides from the **chamra mandi** or freshly flayed hides from the slaughter-house, or taking away the tanned goods. Kikar bark packed in jute bags is another familiar article found lying in the compounds or alleyways. A tannery has hardly any need of a signboard for the wet leather hung on the roof to dry and the foul smell from the stinking pool of wash-water give only too strong a publicity to the undertaking. (See frontispiece.)

The only entrance to a tannery is through a massive, covered gateway, big enough for a bullock-cart to pass through. On each side

of the gate there is a large room serving as a godown, and the **munshi** sits on a charpoy in the roofed passage with a collection of account books around him, and a heavy beam scale hanging on a wooden post nearby. This is his office as well as the resting place for labourers during the hot hours in summer. The proprietor pays a brief visit to the tannery in the afternoon to check the accounts and give instructions for the following day.

Behind the godown is an open earth-floored compound with rows of thatched sheds on either side and a passage between, lined with unbricked drains to carry the wash-water to the back of the compound. The only redeeming feature amidst the general filth and foulness of the place is the used-up kicar bark spread out on the ground to dry, so that dust may not rise. In one corner there is a well with the **bhisti** drawing water needed in large quantities for the brick-lined pits of various designs—rectangular, square and round. The brims of these are level with the ground and some of them are covered with mattresses to prevent dust from getting in.

Liming, deliming and fleshing are done in the open space at the back of the compound, and a few workmen may be seen bent low handling the hides in the lime pits, while a few yards away from them there is a flesher working on a hide spread on a stone-slab, and smoking his **hookah**, in utter disregard of the filthiness of his surroundings.

Adjoining the series of lime pits, there is another cemented pit into which fleshings are thrown for days together to putrefy in water and create bacteria. This mixture is employed for deliming the hides—a practice followed commonly in the Central Punjab.

In most of the tanneries sufficient attention is not paid to cleanliness, and the workmen seem to be inured to their dirty surroundings. The spent lime is generally thrown in a corner and the fleshings are thrown over the back wall: whatever escapes from the stray dogs and vultures is accumulated in another corner after it has dried. The wash-water finds its way to a shallow pool which is never cleaned.

The operations following the scudding are done in the shade. In one shed are a series of round cemented pits where the preliminary tanning is done. Stitching of semi-tanned pelts into bags is usually entrusted to old men and young children who sit round the compound in any available space and finally the bags are filled with bark and hung on tripods or horizontal bars in a shed which faces the shed containing the pits mentioned above—(see Plate 7). In the afternoon workmen are seen dressing the semi-dry leather spread out in the sun during the morning.

In contrast to what has been said above there are also tanneries of a better type, though their number in the Province is very small. Such tanneries are lodged in suitable buildings which are kept neat and clean. The different processes connected with tanning are executed in separate apartments and care is taken to protect the operations from the injurious effects of the chemicals. The hours of labour are fixed and wages are paid by a time-scale. Some of the tanneries employ modern methods of tanning and consequently turn out leather of superior quality.

Forms of Proprietorship.—Out of the 33 tanneries only one (Northern Indian Tannery at Shahdara) was a Public Joint Stock Company and another was a private Limited concern. Six tanneries were run by individual proprietors. The remaining 25 concerns were run by partners and of these there were only three cases in which the partners bore no blood relationship to one another.

Thus the majority of the tanneries are family concerns, and are partitioned like other property. A concrete instance is given below to illustrate how this is done. The sole proprietor of a tannery situated in Kot Khawaja Said (Lahore) and owner of two houses in the city, had five sons who may be named A, B, C, D and E. On the death of the father, the three youngest sons (C, D and E) separated, the partition of the family property having been effected in such a way as to leave the tannery building divided equally between the two elder sons, A and B. D is a school teacher and E runs an independent leather shop inside the city. B gets some leather tanned in the half portion of the tannery which came to him. A and C work jointly in the other half though the latter has no share in the ownership of the tannery building. They have appointed a manager for their concern on a profit-sharing basis of which the profits are shared as follows :

		Share per rupee of profits.	
		Rs.	a. p.
1.	A—As owner of the building and yard	..	0 2 6
	As partner in the concern ..	..	0 5 3
	<i>Total share</i>	..	<u>0 7 9</u>
2.	C. .. ..	..	0 5 3
3.	Manager .. ..	..	0 3 0
	<i>Total</i>	..	<u>1 0 0</u>

Caste of Proprietors.—Leaving out three tanneries (one of which was owned by three partners belonging to different castes, and the other two by companies) the proprietors belonged to the following castes :

Khoja (Muslim)	..	..	17
Sheikh ( „ )	..	..	5
Jat ( „ )	..	..	1
Rajput ( „ )	..	..	1
Kashmiri ( „ )	..	..	1
Chamar (Hindu)	..	..	5
<i>Total</i>			..
			30

The word Khoja* is our old friend “Khawaja” of the Arabian Nights in a new disguise, and means simply a man of wealth and respectability. There does not appear to be any true caste of Khojas; any Hindu trader converted to Islam acquires that title. In the north-west Punjab and the North-West Frontier Province, the word “Paracha” is preferred to Khoja by Hindu traders on conversion to Islam. The more enlightened among the Khojas style themselves as “Sheikhs”—an equally heterogeneous caste. Owing to prejudice against handling animal products the trade in hides, skins and leather and the financing of the industry are almost exclusively a monopoly of the Khojas, although some Chamars are also engaged in the work, most of whom are handicapped for want of capital.

“Age” of Tanneries.—One of the questions put to the owners was “the year in which the tannery was started, or taken over by the present proprietors” (whichever was the more recent). The following shows the “age” of the tanneries :

<i>Period under present owners.</i>		<i>No. of tanneries.</i>	
Up to 2 years	2
More than 2 years to 5 years	9
“ “ 5 “ “ 10	“	..	3
“ “ 10 “ “ 15	“	..	5
“ “ 15 “ “ 20	“	..	2
“ “ 20 “ “ 30	“	..	3
“ “ 30 “ “ 40	“	..	1
“ “ 40 “ “ 50	“	..	5
“ “ 50 “ “ ..	“	..	3
<i>Total</i>			..
			33

Lahore seems to be the oldest centre for commercial tanning in the Punjab; other centres according to age are Jullundur, Amritsar,

* For detailed information, see “Glossary of the Tribes and Castes of the Punjab and N. W. F. P.,” Vol. II., pp. 536—38.

Multan and Wazirabad. Of the three tanneries more than fifty years old, two are situated in Lahore and one at Wazirabad. Four out of the five tanneries working for from 40 to 50 years are in Lahore and the fifth is in Amritsar. The only tannery between 30 and 40 years old is in Multan. There are ten tanneries in the 10 to 30 years group: 6 at Lahore and one each at Wazirabad, Amritsar, Gujar Khan and Jullundur. Sialkot, Gujar Khan and Hansi have one tannery each in the group "5 to 10 years."

A rough indication as to the remunerative nature or otherwise of the industry and its prospects in the near future is provided by the type of new concerns entering the field. Nine tanneries were started from 2 to 5 years ago: 3 in Lahore, 4 in Nakodar, and one each in Multan and Maghiana. A new tannery has been started at Gujranwala and another at Multan within the last two years. The new concerns do not compare favourably with the older ones as regards capital investments and working capacity. None has been equipped with machinery, and as many as five were lodged in rented buildings.

Capital Investment.—One who is accustomed to think in terms of modern industrial concerns will feel disillusioned at the small size of Punjab tanneries. The figures given below in this section are only estimates, since the concerns do not usually prepare balance sheets. Out of 33 tanneries the proprietors of as many as five could not give reliable information regarding their capital investments. The investments of another two concerns could not be classified under any head.* This leaves us with 26 tanneries, and their investment in land, building, machinery and stock in hand is given below :

1. **Land.**—Five tanneries were lodged in rented buildings, two were located on land taken on lease, and one on Government land, and still another was owned jointly by several families of chamars. The existing value of the land of 19 tanneries was estimated at Rs. 59,750, which gives an average of Rs. 3,145 per tannery.

2. **Buildings.**—Two tanneries were built on rented land and the land for another was granted by Government. These along with the above 19, built on the land of the proprietors, had an estimated value of Rs. 2,09,600. This amount includes the expenditure on buildings, liming and tanning pits, and also wells, if dug, within the compound. The average expenditure on this item comes to Rs. 9,527 per tannery (excluding the price of land).

3. **Machinery.**—Only three tanneries were equipped with power-driven machinery (excluding the Northern India Tannery, Ltd.,

* The Northern India Tannery, Ltd., Shahdara, acquired the entire factory site, building and machinery from the Department of Industries, Punjab, for Rs. 75,000; and the factory of the Upper India Leather Works, Sialkot, was not yet completed although Rs. 50,000 were reported to have been invested in it, including the value of materials in the different stages of tanning.

Shahdara, which is equipped with machinery for all stages of tanning). The cost of machinery in two Lahore tanneries was estimated at Rs. 3,000 and Rs. 1,000, respectively, and that of the Wazirabad Tannery at Rs. 25,000. Two more tanneries had small drums worked by hand, and a small-scale tanner and leather goods manufacturer at Sialkot was seen using his own device for making imitation crocodile leather.

4. **Stock in Hand.**—Under this head are included raw hides and skins, hides and skins in preparation and freshly tanned leather awaiting sale, as also the materials needed in tanning, e.g., lime, kikar bark, sajji. The total value of these articles lying in 26 tanneries amounted to Rs. 1,78,100, which gives an average of Rs. 6,850 per tannery.

Monthly Output.—The 33 tanneries turned out on an average, 5,367 maunds of hide leather and 126 maunds of skin leather per month. If the production of those five firms, which could not provide estimates of their outlay, be excluded, the figures are reduced to 4,480 maunds of hide leather and 111 maunds of skin leather. This is the monthly production of 28 tanneries against an investment of Rs. 6,01,450.* The outturn of an average tannery works out to 164 maunds of leather per month against a capital investment of Rs. 21,480. It was suggested by the people in the trade that two to three thousand rupees are required to equip a tannery capable of turning out one maund of leather every day, on the assumption that all materials are bought in cash. According to the calculations made above Rs. 3,930 have been invested in order to turn out leather at a speed of one maund per day. The production of leather has fallen in recent years owing to the general depression and certain other factors peculiar to the trade. Consequently the figures of capital investment have become unduly inflated; much more leather can be produced and was, in fact, being produced previously in the existing tanning compounds with about the same amount of capital investment.

Of all the tanneries in the Punjab, only the one at Shahdara seems to have equipment needed for chrome tanning.† All other tanneries are engaged in bark tanning and by the bag method, except one in Sialkot and another in Wazirabad which follow pit tanning and also have arrangements for "alum tanning." A large number of

* 26 Tanneries—					
On land	..	..	..	..	59,750
On building	..	..	..	..	2,09,600
On machinery	..	..	..	..	29,000
On stock	..	..	..	..	1,78,100
2 Tanneries : Total	..	..	..	..	1,25,000
					6,01,450
				Total for 28 tanneries	.. 6,01,450

† The difference in the various methods of tanning will be made clear in Chapter IX.

tanneries turn out country leather of about the same ordinary quality as do the village chamars. Four of the tanneries in Lahore, however, give an extra process to the leather and make it pliable by applying tallow so that it can be used in saddlery manufacture.*

Labour.—In the 33 tanneries examined 578 labourers were employed both for the more technical work and for the supply of water, sweeping and guarding the factory precincts. The tanneries are classed below according to the amount of labour employed :

TABLE XXIII
Tanneries classified according to Number of Labourers Employed.

<i>Tanneries employing—</i>	<i>Number of such tanneries.</i>	<i>Total number of labourers employed.</i>
From 2 to 4 labourers ..	3	8
„ 5 „ 9 „ ..	12	82
„ 10 „ 14 „ ..	4	42
„ 15 „ 19 „ ..	5	84
„ 20 „ 29 „ ..	4	92
„ 30 „ 39 „ ..	..	..
„ 40 „ 49 „ ..	2	85
„ 50 „ 59 „ ..	1	55
„ 60 „ 69 „ ..	1	60
„ 70 „ ..	1	70
<i>Total ..</i>	<i>33</i>	<i>578</i>

It will be observed that as many as 15 tanneries out of 33 employ less than ten labourers each and that 308 labourers (i.e., over 53 per cent.) work in tanneries employing up to 29 persons each. The minimum number employed in a tannery was two and the maximum seventy.

Mode of Employment.—The three tanneries which manufacture bark-tanned leather by the pit method engage labour directly on a monthly salary basis. All other tanneries engage labour on a piece-

* The following is a list of articles prepared by a small-scale tanner at Sialkot who manufactured sundry articles out of the leather produced in his own tannery :

1. Suit cases and attache cases.
2. Belts.
3. Holdalls.
4. Knife cases.
5. Spectacle cases.
6. Saddle covers.
7. Carrier straps.
8. Hat straps.
9. School bags.
10. Cycle tool bags.
11. Cycle frame bags.
12. Dog collars.
13. Small footballs.

Excepting suit cases and attache cases all other articles were prepared from slightly defective leather which could not be sold at a remunerative price in the market, or from "siramma" (the head piece) or from the tail pieces. This is a good example for other tanners to follow.

wage system. Labourers work usually in groups of four—the **mistri** (chief workman), the **malniwala** (general assistant), the **chhilleia** (flesher and scudder) and a paid apprentice who is learning the work. The **bokdar** (waterman for keeping leather moist when in bag form) works independently of the mistri. (See plate 4.)

The mistri is the most important workman, as he is responsible for returning the hide in a well-tanned condition. He directs and supervises the work in the various stages (covering about four weeks) and is constantly consulted by the assistants. Usually he is allowed to select his own assistants, some of whom are members of his own family, and apportions among them the wages received from the proprietor.

Unit for Payment.—The wages paid in tanneries at different towns vary and will be dealt with in the next chapter. The wages usually paid in Lahore tanneries are given as an illustration. Eight maunds of dry hides constitute a **wegar** which is divided into six equal **nawans**. A group of workmen take up a fresh nawan ($1\frac{1}{3}$ maunds) of raw hides every day and turn out an equal amount of tanned leather every day—the cycle occupying about thirty days. But in actual practice they seldom tan more than 20 nawans in a month, and their income should be calculated on this basis. The mistri is paid by the proprietor Rs. 2 for tanning one nawan which amount is shared among workmen as below :

			Rs. a. p.
Mistri	..	..	.. 0 15 0
Malniwala	..	..	.. 0 10 0
Chhilleia	..	..	.. 0 5 0
Boys rendering sundry assistance			.. 0 2 0
<i>Total</i>			<u>.. 2 0 0</u>

The bokdars are paid by the proprietors : those working during the day receive Rs. 0-7-0 per nawan in summer and Rs. 0-8-9 in winter. The rates for the night bokdars are Rs. 0-5-3 and Rs. 0-7-0 per nawan, in summer and winter respectively.

In actual practice all the workmen receive money from the proprietor as and when needed. The wage bill, however, is never cleared. Most of the workmen are in debt to the employer and are paid in a niggardly fashion, the balance being credited to the loan account.

Among the employees who are not artisans are the **bhisti** (water carrier), the **safaiwala** (sweeper), and sometimes the **chaukidar** (watchman). The wages for carrying water vary according to the distance of the well. Some big tanneries instal Persian

wheels worked by bullocks, while most of the others pay the bhisti Rs. 6-4-0 per month for each group of labourers that he serves. The safaiwala gets about Rs. 12 per month.

Transport Charges.—A good deal of carting is associated with the tanning business, yet none of the tanneries visited had a cart of its own—(see Plate 2). The following was the schedule of carting rates at Kot Khawaja Said, Lahore :

	Rs.	a.	p.	
Dry hides from Chamra Mandi ..	0	4	0	per 20 maunds.
Kikar bark from railway goods yard ..	0	0	6	per maund.
Leather to the railway goods yard ..	0	4	0	per bundle weighing about 4 maunds.

Working Hours.—Only two tanneries in the Punjab come within the purview of the Factories Act; the others remain open from sunrise to sunset and the workmen pass almost the whole day there. Since they are not employed on a time-wage basis only a very mild control is exercised over their output. On the other hand their chief grievance is that they are not given sufficient work and remain under-employed. The nature of their work is such that they cannot take a day off occasionally, since even if a fresh nawan is not given every day there are many in the course of preparation which need their attention.

The proprietor of a tannery considers it to his interest to employ more men than are actually needed, since he has only to pay for the actual work done by them. Thus he can cope with any fresh orders without looking for extra hands, and when they are idle he can put them on such work as they might refuse to do when busy. The handling of hides and skins is essentially an unpleasant task and because of the neglect of sanitary requirements it has become still more offensive. It is highly desirable that steps should be taken to make less irksome the lot of these workmen most of whom are powerless to help themselves. The Public Health authorities can do much good work by devoting greater attention to tanneries, and insisting on the following points :

- (a) Pools of filthy water should be cleaned regularly. It is desirable that brick-lined tanks be made for receiving the wash-water.
- (b) Adequate drainage arrangements should be secured.
- (c) Latrine accommodation and washing arrangements should be provided for labourers; also a clean place for taking the mid-day meals and rest.
- (d) Labourers should be discouraged from sleeping inside the tannery during the night.

CHAPTER IX

THE PROCESS AND COST OF TANNING HIDES*

It has never been the intention of the Board of Economic Inquiry, Punjab, to publish text-books on the technical side of an industry; the chief interest in its reports centres around a general description of the industry as a whole, the economic conditions of the workers engaged in it, the examination of the costs of production and an estimate of the profits. With these things in mind this chapter attempts to give a brief elucidation of the principles of the chemistry of tanning; the process of manufacture as followed in this province; estimates of costs; and finally some suggestions for improvements in the existing conditions.

Chemistry of Tanning.—The term “skin” as used in this Chapter includes hides. Tanning is really the work of combining with the skins an astringent called “tannin” or “tannic acid” so as to convert them into a substance insoluble in water and incapable of putrefaction, which product is known as “leather.”

The skin consists of two different layers: (1) the outer surface known as scarf skin, epidermis or cuticle, and (2) the true skin known as corium or cutis. The cuticle is insoluble in water or dilute acids, but even dilute solutions of caustic alkalis such as soda and potash freely dissolve it. The cutis or true skin is almost wholly soluble in boiling water, and the solution when cold forms a jelly called gelatine. It is this substance in skin which, when submitted to the action of tannic acid, constitutes leather. The cuticle or scarf skin is not of any great thickness in any animal and is completely removed during the process of tanning. The cutis or true skin is of varying thickness and is the real substance from which leather is produced on combining chemically with tannic acid.

One point which a tanner should never lose sight of is that if some lime is allowed to remain in the skin when subjecting it to the influence of tannin, a tannate of lime is formed which destroys the suppleness of the leather and renders it dry and brittle. Secondly, although a higher yield of leather may be obtained by placing the prepared skin, (i. e., skin which has been soaked in milk of lime and then freed from it as well as from the cuticle and hair) in a strong solution

*A list of towns and villages in the Punjab, where tanning is done, is given in Appendix E.

of tannin all at once, a supple and durable leather of higher quality can only be produced if the strength of the solution is increased gradually. Thirdly, the absorption of the tanning material is more powerful on the flesh side than on the grain side of the skin, since the direction of the secreted fluids from the sweat and hair glands is outwards.

Process of Manufacture.—The hides undergo the following series of operations before passing out as leather:

1. Preliminary operations.
2. Liming.
3. Unhairing and Fleshing.
4. Deliming and Scudding.
5. Tanning.

Washing in plain water is done in between the different stages; in fact tanning is almost a series of baths in plain water and water in different solutions. While the main operations are identical, there are variations in details and in the time taken in each process, according as the industry is carried on by the sheer judgment of uneducated workmen scattered in villages, or by technicians in well organised tanneries. The following description should, therefore, be taken to be only broadly true of the industry in general; only glaring differences in the method of executing a process found in different localities have been mentioned.

1. Preliminary Operations.—A major portion of the hides tanned in the Punjab are *sukti* (hides mostly of the fallen cattle, dried carelessly on the ground). *Nimki* or dry-salted hides are sometimes brought for tanning in summer. Some tanneries which are situated near big towns where beef slaughter-houses exist purchase *kamela* (fresh slaughtered hides) in small quantities for making into harness leather.

The dry hides (both *sukti* and *nimki*) are kept immersed in plain cold water for a day or two until they become supple and all dirt and salt is washed off. In tanneries fitted with machinery they are afterwards worked in rotating drums for an hour or so, to make them more pliant. The main idea behind this operation is to bring the hides back to the original form.

Green hides are spread out on the floor and cleaned from the flesh side of the traces of fat and flesh that might be sticking to them. Common salt is next sprinkled and gently rubbed on the flesh side; a full-grown buffalo hide requires seven seers of salt and a cow hide about five seers. A number of such hides are laid one above the other

and left undisturbed for the night to allow blood and redundant watery matter to drain away. They are washed in plain water the next day and are then ready for liming.

2. Liming or Depilation.—The hides are next subjected to the action of milk of lime, i. e., recently slaked lime dissolved in water. The process of liming brings about the following results:—

- (i) The epidermis together with the hair is loosened from the cutis.
- (ii) The fatty and fleshy matter of the under-portion becomes easily separable by the operation of the fleshing knife. A portion of the fat is thus liberated as soapy matter.
- (iii) The cutis swells and its pores open out to receive the tannic acid.

Liming is the oldest method known for depilation and is universally followed in the Punjab even though it has the disadvantage of some loss in gelatinous matter. Liming is done in three different ways in the province, each of which is described below.

(a) **Single-Pit Country Method.**—Leather of superior quality cannot be obtained by this method, but it is followed by the village tanners generally and also by unprogressive tanneries. Fresh lime, one-sixth the dry weight of the hide, and *sajji* * (barilla) half the weight of lime are thrown into a pit and water is added to make a solution. Hides from the soak-pits are transferred to this pit, care being taken to spread them out as flat as possible. They are then “handled” every second day, and it takes about three weeks in summer and four weeks in winter to complete the process of liming.

(b) **Single-Pit Method adopted by Tanneries.**—There is no difference between this method and the one described above except that about the same quantity of lime is added by instalments and not all at once. The following description is based on a detailed study of an important tannery at Kot Khawaja Said, near Lahore. Eight maunds of dry hides were dealt with in this particular case.

In a cemented pit, six feet long, four-and-a-half feet wide and five feet deep, 25 seers of freshly slaked lime was dissolved in water waist-deep. Hides from the soak-pit were transferred to it, as previously

* The exclusive use of lime, according to a Jhelum tanner, makes the hide dry; *sajji* makes it swell more and consequently increases the yield of leather. Sometimes the amount of *sajji* is reduced to 2½ seers and that of lime increased to 15 seers per maund of hide. At Hissar 20 seers of lime to a maund of hide is employed. In the Jullundur District, *Cawnpore matti* or saline efflorescence which sells at Rs. 0-1-6 per seer is used for liming, and at Amin a tanner said he used 15 seers of lime and 2 seers of washing soda for a maund of hide. The latter practice also prevails in Delhi. At Hansi burnt *rori* (the material used for road making) is used for liming in equal weight with the hide.

described. The hides were taken out the next day, 25 seers more lime was dissolved in the same mixture, and the hides were replaced. On the third day the hides were again taken out. About 25 seers of freshly slaked lime was placed by the side of the pit and from it some lime was sprinkled on each hide as it was lowered into the pit. They were left undisturbed for the next two days. On the third day they were taken out; the mixture was stirred to the bottom and the hides were thrown in pell-mell. This process of handling was repeated on alternate days till the twentieth day.

On the twenty-first day the hides were taken out finally and examined by the mistri. The pit was emptied and thoroughly cleaned. Each sheet was now spread on the bottom of the pit, and powdered sajji and lime was sprinkled on it. When the whole of the hides had thus been laid out, fresh water was put into the pit and by the next morning the hides had been completely limed. They were then washed in plain water and handed over to another set of workmen for unhairing.

These observations were made early in October of 1936. The mistri said that the process of liming is prolonged in winter, sometime even to five weeks. The unwieldy hides of grown-up animals are cut into two pieces along the spinal line about the fourteenth day of liming when they are called *dhori* (half piece). The practice is, however, not looked upon with favour in certain towns such as Sialkot, Multan, Ambala and Hissar, where even the bull hides are tanned in one piece, in which form they are known as *charsa*.

Because of the hides of different varieties being limed indiscriminately in the same pits they mature for unhairing in unequal periods. Therefore, when handling them in lime pits after the fourteenth day, each piece is examined separately to find out if it is ready for unhairing. The course of liming is shortened by increasing the strength of the lime solution when the tanner has to meet an urgent demand for leather. It will probably be beneficial to the industry to grade the hides before liming to obviate the chance of over-liming some.

The desirability of reducing the period given to liming cannot be over-emphasised. The longer the hides are kept in lime pits the greater would be the loss in gelatinous matter of the hide and the smaller would be the turnover. In most cases liming has to be prolonged because of the previous soaking being defective. Hides are generally soaked in stale water and in many villages they are thrown in dirty ponds where the water contains many harmful bacteria. Even when soaking is done in pits, no suitable chemical is added to the water, nor is any mechanical aid provided. The Department of Industries is trying to bring about improvements in this direction through demonstration parties working in villages, who are educating the

chamars to the need of using fresh water for soaking, and in the use of sodium sulphide, which not only entails less expense but brings about depilation in a shorter period. The objections to the use of this chemical are that it is not produced in India and is not easily available in villages.

(c): **Progressive Liming.**—Three tanneries were observed during the course of the inquiry which adopted this method of liming, and these were engaged in turning out superior qualities of leather. In the tannery at Wazirabad only lime is used for depilation. It has a row of twenty pits and one of these is emptied and refilled with fresh milk of lime every day by rotation. The hides from the soak pits are first immersed in the lime solution twenty days old, and are then daily transferred to pits containing the more recently made lime solution until the twentieth day when it is absolutely fresh and hence the strongest. Subjecting the hides to action of lime progressively has a wholesome effect on the quality of leather turned out.

The other two tanneries, one at Shahdara and the other at Sialkot, did not have this long array of lime pits. By adding suitable quantities of sodium sulphide—(one of them used arsenic sulphide for superior hides)—they cut down the period of liming to ten days for cow hides and twelve to fourteen days for buffalo hides. Cow hides meant for chrome tanning are limed for three or four days only.

Unhairing.—The limed hides are washed in plain water. They are then spread on the floor one by one, and the hair is taken off by rubbing with a **thikri** (potsherd), **jhanwan** (piece of nitrified brick) or a blunt blade of iron. The use of the unhairing knife, with a blunt curved blade and worked on a convex-shaped support, called the “beam,” was limited to the three tanneries mentioned in the previous paragraphs. The process of unhairing is called in the vernacular **gharorna**.

Fleshing.—After unhairing, the hides are again washed and thrown into fresh water for some time. Fleshing is generally done on slabs of stone, two or three feet square, laid on the ground. The hide is brought over the **sil** (slab) portion by portion as the **chhillecia** (flesher) with his **rambi** (one-piece T-shaped knife) scrapes off the fat and inner skin (**jhilli** or **chichhra**). This process is referred to by the Punjab tanner as **chhilai**. (See Plate 5.)

Deliming.—The reasons for making the pelts free of lime before subjecting them to the action of the tanning liquor has been explained earlier in the Chapter. Deliming is brought about in either of the following two ways:

(1) By immersing the pelts in such solutions, which, by liberating chlorine or suitable bacteria, dissolve the lime, or (2) by giving the pelts a thorough washing in plain water.

1. In Lahore, Kasur, Amritsar and Sialkot the chhichhra or the layer of fleshy and fatty matter shaved off during chhilai is thrown into a pit containing plain water, and allowed to ferment and putrefy for about a week. In this liquid the pelts are introduced and kept for about six hours in summer, and up to twenty-four hours in winter. The judgment of the *mistri* is most needed in deciding when the pelts should be taken out of the delimiting pit. If taken out before the lime is completely released, the result is a dry leather and if kept overlong the pelt decomposes and tears off during subsequent operations.

In Jhelum caustic soda is added to the delimiting mixture described above. In Jhang-Maghiana the leaves of *ak* plant (milk weed) are used instead of fleshings. In Wazirabad, Multan and Rewari the pelts are delimited in wheat bran which is soaked in water for 24 hours in summer and 48 hours in winter before use. About 5 seers of bran is enough for a maund of hides. Sometimes cheap wheat flour is used instead of bran, and because of the smaller quantity needed, the cost is about the same in both the cases. It takes about twenty-four hours to delimit the pelts in bran, and there is less risk of spoiling them even if kept longer.

2. In Delhi mellow liquid from the tanning pits is used for the purpose of delimiting and equally satisfactory results are obtained at practically no cost. It was noted at Utmanzai (near Peshawar) that pelts were washed in a stream in order to release the lime. They were afterwards immersed for a night in a mild tanning liquor and then wrung out until thoroughly dry. The usual method of wringing the skin dry is to place it round a thick forked branch of a tree firmly embedded in the ground and then twist it tightly with a stick so as to squeeze out all the moisture.

A person who had considerable experience in tanning was of the opinion that provided there is a sufficient supply of cheap soft water the best method for delimiting the pelts is to wash them thoroughly in plain water and then to immerse them in old spent-up tanning liquor. He further stated that in the Madras tanneries which export half-tanned leather, the pelts are washed and trampled in plain water and scudded at intervals before tanning, and that the practice of delimiting by chemicals or by any other means is not followed there.

Scudding.—The object of scudding is to remove any trace of lime still in the pelt and to open out its pores to receive freely the tanning liquor. Scudding is generally done on a cemented floor, failing which sheets of jute cloth are spread on the floor on which the pelts are washed and scraped with a blunt knife. (See Plate 6).



Plate 10.

Frontier-made Shoes at Peshawar.



Plate 11.

Oil Cruses of Raw Leather.



Plate 12.

Cleaning of Sheep Skins.



Plate 13.

Tanning of Sheep Skins.

Tanning.—Chrome tanning is done in such small quantities in the Punjab that it can be safely omitted from the present report. In the villages and towns alike, the hides are tanned with **kikar** bark (*Acacia arabica*) chopped fine, by the 'bag method.' In a factory at Wazirabad hides are tanned with **kikar** bark 'in pits.' By this treatment not only does the tannin go right through the hide, but makes a thorough chemical combination with the gelatine. Further, tanning done according to this method is capable of turning out leather of different grades, but it may take anywhere from three to nine months for completion. The process of bark tanning commonly followed in the province is described below.

Tanning is done in two stages: in **kunals** (round cemented vats, about four feet in diameter and two feet deep) and on the **lag** (horizontal wooden beam on which leather bags are hung). It is assumed that the pack of pelts dealt with is the outcome of one maund of **sukti** hides.

There is a set of **kunals** in the tanning yard, and the delimed and scudded pelts are steeped in one of these containing used bark liquor. This initial tanning is known as **duya karna**. After one hour they are transferred to another **kunal** in which 30 seers of **kikar** bark has been mixed in about four maunds of fresh water. The pelts are worked vigorously with hands and feet, and the process is called **malni karna**. The pelts are then left undisturbed for a night or two and in winter for even three nights until the bark ferments and the liquor bubbles to the brim of the **kunal**. The pelts are now handled several times each day.

After a few days when the previous bark looks entirely used up, the pelts are taken out and another parcel of 30 seers of bark is mixed into the same liquor, and the pelts are replaced. This stage is known among the workmen as **nushkar**. The **malni** and **nushkar** take about five days in summer and ten in winter.

With a view to finding out if the tanning liquor has been absorbed right through the pelt, a slice is cut from a corner, and the colour of the freshly cut surface is noted. If it is uniformly brown the pelts are taken out and sewn with reeds into bags which are about the height of a man, the flesh side being kept inside.

The bags are filled with fresh bark and adjusted to a wooden beam by means of a hook. In some tanneries conical stands are provided to support the bags into which water is poured. Tanning extract is liberated from the bark and the water oozes out from the pores of the pelts. The same water which trickles down into a cemented tank below the bags is again poured into the bags, every half hour or so. After twenty-four hours

the bags are inverted, the opening which was at the top being sewn up and a fresh small opening made in what is now the upper part of the sack. The same process is repeated for a day, so that tannin gets absorbed uniformly throughout the pelt. The process of hanging the bags is known as *bharai*; and that of inverting it, *chhikawa*. These two processes are completed in 48 hours in summer and 72 hours in winter. At Kasur and Multan it was noted that tanning in the bag form was finished in one day. (See Plate 7.)

About three maunds of kikar bark is required for a maund of hides and sells from Rs. 1-4-0 to Rs. 1-12-0 per maund in different towns. The bark from the trunk is used in the bags and that from the branches is used in *malni*. The latter is considered to be a better variety and sells at a little higher price.

Generally the leather manufactured at Sialkot is of a better quality than that of other towns, because of its use in the manufacture of sports goods. In a tannery there it was noted that 5 seers of *naspal* (pomegranate shell) was added to the kikar bark in the *malni* stage, as it is considered to contain tanning material of softer and better quality than the kikar bark. This product sells for Rs. 3-8-0 a maund.

It was stated that some tanners in Kangra use green oak leaves instead of kikar bark. Leaves of *Chhal* (*Conocarpus latifolia*), a hill grass, and *Amla* (*Embllica phyllanthus*) are sometimes used along with the kikar bark in the submontane districts. At Multan the bark of *Jand tree* (*Prosopis spicigera*) is employed for preliminary tanning and the kikar bark for the final tanning. Towards the Rawalpindi side some chamars employ *Malla* (*Zizyphus nummularia*) or *Ber* (*Zizyphus jujuba*) and at Utmanzai the tanners use the bark of *Chir* (*Pinus longifolia*) which is found in abundance in the neighbouring forests. The price of pine bark in February 1937 was Rs. 2 per maund, and two maunds were said to be needed for a maund of hide.

Finishing.—After the tanning is complete, the leather is washed in fresh water and spread out to dry. While still moist a mixture of salt and rice husk is applied on the flesh side. (About 3 seers of salt and 5 seers of rice husk per maund of leather are considered to be enough in Lahore.) When dry, the leather is vigorously rubbed with a small wooden instrument called *doi*, and the superfluous rice husk is brushed off. This finishes the process of manufacturing country leather. (See Plate 8.)

It may be noted that during all this long process the hides or pelts are never allowed to dry, nor is the hair side exposed to the sun.

Yield.—Dry *sukti* hides yield about the same quantity of leather, if properly tanned and thoroughly dried; cow hides sometimes lose

about three or four seers a maund on tanning, and buffalo hides gain two or three seers, while freshly slaughtered cow hides are reduced to about one-third and buffalo hides to about two-fifths the original weight.

Leather is unfortunately not a standardised commodity in this country. By applying salt in larger doses and by incomplete drying, the weight is often increased fraudulently. In a tannery at Utmanzai, for instance, it was stated to be the common practice to apply 12 seers of common salt to a maund of leather when in a moist condition. At Kasur and Multan leather is brought to the market the same evening as it is removed from the lag, after exposing it to the sun for a few hours, and there is nothing extraordinary about a tanner returning one-and-a-half maunds of leather for a maund of hide purchased by him. This explains the anomaly that at times leather sells cheaper than the hide in the wholesale market.

Cost of Tanning.—Tanning is a long process, and it was not possible during the course of the inquiry to find out experimentally what it cost to convert a maund of hide into leather; thus there was no alternative to obtaining estimates from different tanneries and to accept them after due scrutiny. Typical estimates of tanning in certain towns are given below.

Jullundur.—The following estimate has been worked out from the records of the Government Tanning Institute, Jullundur. As no paid labour is employed there, the expense on this item has been assumed by the Tanning Expert to be a quarter of the expense on material.

TABLE XXIV.
*Cost of converting one maund of Hide into Leather at the
Tanning Institute, Jullundur.*

		Quantity.	Cost.
			Rs. a. p.
Sodium sulphide	.. ..	.. 1 $\frac{1}{4}$ seers	.. 0 5 0
Lime	.. ..	.. 10 "	.. 0 5 0
Wheat bran	.. ..	.. 5 "	.. 0 3 9
Kikar bark	.. ..	.. 3 maunds	.. 5 13 0
Chhal leaves	.. ..	.. 6 seers	.. 0 3 3
Munj	.. ..	.. 1 "	.. 0 1 3
Myrabolams	.. ..	.. 2 "	.. 0 5 0
Mustard oil	.. ..	.. 1 $\frac{1}{4}$ "	.. 1 0 0
Fat	.. ..	.. 10 chhataks	.. 0 8 0
			8 12 3
Labour @ 25 per cent. of above	.. ..	..	.. 2 3 9
			Total .. 11 0 0

Lahore.—In most tanneries, leather is not carried to a really high-standard of finish; consequently there is no expense on oil and fat, which are usually applied when preparing harness leather. The following estimates collected from two tanneries in Lahore are for sole leather.

TABLE XXV.

Cost of Tanning per Nawan of Hides in Two Tanneries at Lahore,

(In tannery A, Nawan= $1\frac{1}{2}$ maunds of dry Hides.)

(" " B, Nawan= $1\frac{1}{2}$ " " " ")

	TANNERY A.			TANNERY B.				
	Quantity.	Cost.		Quantity.	Cost.			
		Rs.	a.	p.		Rs.	a.	p.
Sajji	.. 6 seers	.. 0	6	0	3 seers	.. 0	3	0
Lime	.. 13 "	.. 0	4	0	20 "	.. 0	6	0
Kikar bark	.. 4 maunds	.. 5	8	0	4 maunds	.. 6	0	0
Munj	.. 1 seer	.. 0	2	0	1 seer	.. 0	2	0
Salt*	.. 4 seers	.. 0	3	6	5 seers	.. 0	1	6
Rice husk	.. 10 "	.. 0	2	6	10 "	.. 0	2	6
Chamrang	.. ..	.. 2	0	0	..	.. 2	0	0
Bokdar	.. ..	.. 0	13	0	..	.. 0	14	0
Watermen	.. ..	.. 0	4	0	..	.. 0	4	0
Sweeper, munshi, carting, miscellaneous	.. ..	.. 1	0	0	..	.. 1	0	0
<i>Total</i>	..	<u>10</u>	<u>11</u>	<u>0</u>	<i>Total</i>	..	<u>11</u>	<u>1 0</u>

The tanning cost works out to Rs. 8 per maund of hide tanned in the case of Tannery A, and Rs. 7-6-0 in the case of Tannery B.

Sialkot.—The major portion of the hides tanned in this town is consumed in the manufacture of sports goods, e.g., cricket-balls, foot-balls, volley-balls, basket-balls. For the manufacture of these articles bag-tanned leather is generally considered more suitable than the pit-tanned leather because it does not stretch with use. The leather prepared in Sialkot is of a superior type and hence the higher cost of tanning.

*Price of salt is Rs. 2-6-0 per maund, but Tannery B obtains a rebate from the Excise Department @ Rs. 1-9-0 per maund of salt used,

TABLE XXVI.

Cost of Tanning per maund of Hide in a Tannery at Sialkot.

			Quantity.	Cost.		
				Rs.	a.	p.
Lime	..	..	10 seers	0	7	0
Sajji	..	..	5 "	0	7	0
Kikar bark	..	..	3 maunds	5	4	0
Pomegranate shell	..	..	5 seers	0	7	0
Salt	..	..	5 "	0	3	0
Rice husk	..	..	15 "	0	4	0
Munj	..	..	..	0	2	0
Chamrang (Rs. 3-8-0 per nawan of 1 maund 7 seers)	..	..	..	3	0	0
Bokdar	..	..	..	1	2	0
Waterman and sweeper	..	..	..	1	0	0
<i>Total</i>				12	4	0

Multan.—In this town hides are bated in wheat bran or flour, and the amount of kikar bark devoted to a maund of hide is only 1½ maunds as compared with three maunds in other centres.

TABLE XXVII.

*Cost of Tanning one Wegar (6½ maunds) of Hides in a Multan Tannery.**(About 40 sheets.)*

			Quantity.	Cost.		
				Rs.	a.	p.
Lime	..	..	25 seers	0	12	6
Sajji	..	..	15 "	1	5	0
or Sodium sulphide	..	..	4 "	0	14	6
Wheat bran	..	..	20 "	0	12	0
or Wheat flour	..	..	8 "	0	10	6
Jand bark for malni	..	..	5 maunds	10	0	0
Kikar " " bags..	..	..	4 "	5	12	0
Munj (pooli)	..	..	10 seers	1	4	0
Salt	..	..	1½ maunds	3	12	0
Rice husk	..	..	2 "	1	4	0
Labour in limeyard	..	..	..	1	0	0
" for unhairing and fleshing (Rs. 0-1-0 per sheet)	..	..	..	2	8	0
" " bating (Rs. 0-1-6 per kunal of 10 sheets)	..	..	..	0	6	0
" " silai (Rs. 0-1-3 per sheet)	..	..	..	3	2	0
" " scudding and work in malni pits (Rs. 0-12-0 per kunal)	..	..	..	2	8	0
" " tanning in bags (Rs. 0-1-3 per sheet)	..	..	..	3	2	0
Water	..	..	..	1	8	0
Miscellaneous	..	..	..	1	0	0
<i>Total</i>				39	15	6
				or	39	7
					6	

The expenses work out to about Rs. 6-2-0 per maund of hides tanned.

Utmanzai.—The use of pine bark instead of the kikar bark, and the excessive application of salt should be noted in the following estimates collected from a tannery in the N. W. F. P. :

TABLE XXVIII.

Cost of Tanning Buffalo Hides at Utmanzai.

(Calculated for 9 maunds* consisting of about thirty pieces.)

Material—				Rs. a. p.
Lime	..	3½ maunds*	@ Rs. 0-15-0 per maund*	3 4 6
Sajji	..	15 seers*	„ Rs. 3-12-0 „	1 6 6
Pine bark	..	24 maunds*	„ Rs. 2-0-0 „	48 0 0
Salt	..	3 „	„ Rs. 2-14-0 „	8 10 0
„ grinding charges	..	„	„ Rs. 0-8-0 „	1 8 0
Patha	..	6 seers*	„ Rs. 0-2-0 per seer*	0 12 0
Labour—				
Contractor	..	..	..	30 0 0
Waterman	..	..	..	6 12 0
Miscellaneous	..	..	..	1 0 0
<i>Total</i>				<u>101 5 0</u>

The above expenses work out to Rs. 8-10-0 per standard maund of hides.

Hansi.—The estimate pertains to a small tannery at Hansi, where sukta cow hides from Dehli, and locally slaughtered buffalo hides are treated.

TABLE XXIX.

Cost of Tanning per Maund of Hides at Hansi.

				Rs. a. p.
Chuna, 15 seers, @ Re. 1 per maund	..	..	..	0 6 0
Sajji, 2½ seers, @ Rs. 3 8-0 per maund	..	..	..	0 3 6
Munj	..	..	..	0 2 0
Kikar bark, 3 maunds, @ Re. 1-0-0 per maund	..	..	..	3 0 0
Labourers including waterman	..	..	..	3 4 0
<i>Total</i>				<u>6 15 6</u>

All the foregoing estimates pertain to tanneries where work is done by hired labour. The village tanner has to spend nothing on this item. Further, many among them obtain the bark at a very low price from village carpenters or zemindars who fell trees for making houses and implements. Against these advantages they lose much time in purchasing other materials from the merchant-middleman and that too at a high price, and in disposing of the leather. Few among

*One maund of 40 seers of 105 tolas : equal to 1 maund 12½ seers (standard).

them follow the industry systematically, and as such it is difficult to estimate accurately their cost of tanning.

Bye-products.—The milk of lime and the tanning liquor are used many times over until they are almost exhausted. The only waste-products of the tanning industry which are of some commercial value are the **chhichhra** (fleshings) and the exhausted kikar bark.

1. **Fleshings.**—From a maund of dry hides about 8 seers of chhichhra are removed during the process of fleshing; two seers are utilised in delimiting and what remains is dried in the sun to be sold, when accumulated in large quantities, to some itinerant dealer. One such dealer was met at Amritsar. He purchased the fleshings from different tanneries at Rs. 1-8-0 to Rs. 1-12-0 per maund, and railed it to Calcutta or to Karachi at Rs. 3-8-0 per maund at the Amritsar Railway Station. Foreign manufacturers make purchases of the fleshings from these merchants at £13 per ton at the port, or about Rs. 6-4-0 per maund.

Glue Manufacture at Rewari.—Another class of buyers of the fleshings from tanneries are the glue manufacturers of Rewari. The annual despatches of fleshings to the town amount to about 8,000 maunds, and the municipal committee of the town charges a terminal tax at Rs. 0-6-0 per maund on their import.

Glue is prepared by a secret process known to about forty families of **Kamangars** in Rewari. All that they could be persuaded to tell was that a maund of fleshings yields 15 seers of glue, that its preparation takes about eight days and that the work is totally stopped during the summer months—March to November. The glue is, however, stored in moisture proof boxes, and is sold all the year round generally at a wholesale rate of Rs. 12 per maund, which leaves them a handsome profit with which to tide over the period of idleness.

Foreign made glue sells in the Indian market from Rs. 20 to 25 per maund. Considering that the Rewari glue finds a ready sale in the Punjab, the United Provinces, the Central Provinces and Bombay, there seems to be a big scope for the industry. There is a vast supply of raw material and an extensive demand for the product in the country. It is, therefore, recommended that the necessary encouragement should be given to these manufacturers. In particular, research should be made in evolving a method whereby glue of lighter colour can be manufactured and also in making it odourless* and proof against moisture in the rainy season.†

*Country glue has a rather strong and unpleasant odour and becomes too sticky in the rainy season.

†To remove the defects of country-made glue some research was made in the Industrial Research Laboratory at Shahdara, and a class has been opened to teach better methods of making glue.

2. Exhausted Kikar Bark.—The tanneries near big towns sometimes sell the exhausted bark to municipal committees for spreading on foot-paths or race and riding tracks; otherwise it is used as cheap fuel.

The full amount of tannic acid is not extracted from the bark when used in the bag method. It was suggested by a competent person that this bark can be utilised in an experimental leach set so as to yield tanning liquor of a strength up to 7 per cent. which can be used in the initial stage of tanning to the part exclusion of fresh bark. It was estimated that 8 seers of fresh bark per maund of leather manufactured, could be saved so that even a moderate sized tannery which turns out 150 maunds of leather in a month, can effect a monthly saving of Rs. 45 against an initial expense of about Rs. 150 needed in the construction of the experimental leach set. The suggestion deserves investigation and if found practicable, should be made known among the people concerned.

Rebate on Industrial Use of Salt.—The Excise Department allows a rebate @ Rs. 1-9-0 per maund of salt used by the tanneries. The number of tanneries availing themselves of this concession was, however, found to be very small. No satisfactory reason could be found for this fact except the ignorance of the people, and probably some practical difficulties in obtaining the rebate. Steps should be taken to encourage the tanners to take due advantage of the privilege.

Profits.—In view of the fact that leather is not a standardised commodity, that materials are obtained at different costs, and that adulteration is quite common, it is very difficult to calculate the profits of the tanning industry in general. Further, exploitation of labour by the merchant class is too rampant to leave an independent worker anything beyond providing his minimum requirements.

The tannery proprietors, however, seemed to agree that provided there is no misjudgment in the selection of raw hides and prices do not fluctuate heavily they are left with a profit of from Rs. 3 to Rs. 4 per maund of leather turned out. Raw hides of the quality usually bought by the local tanneries, sell from Rs. 16 to Rs. 25 per maund. The cost of tanning generally amounts to Rs. 8 and out-of-pocket expenses, e.g., carting, to Re. 1 per maund. Ordinary country leather, provided it is free from moisture and salt is sold from Rs. 28 to Rs. 38 per maund according to the quality of the material and the amount of labour put on it.

Harness Leather.—Four tanneries in Lahore, by giving an extra process to the country leather, produce what is popularly known as 'harness leather.' This leather is prepared either from kamela (green slaughtered hides) or a selection from the best sukti hides. To give

it a mellow appearance the leather is dipped in a liquor prepared from *harar* (black myrabolam). It is then spread on a table and a mild solution of tartaric acid in water is applied on the hair side to make the surface bright. A preparation of til oil (*Sesamum indicum*) and goat fat is next thoroughly rubbed into it and the surface is smoothed with a glass slaker. Harness leather is dried in the shade. When dry, the superfluous fat is wiped off, and finely powdered *sang jirah* is dusted on it to impart a white appearance and a soft touch.

The extra expenses for making harness leather are approximately Rs. 2-8-0 per maund (as detailed below), but because it is made from superior hide it sells at Rs. 8 to Rs. 10 higher than ordinary leather.

	Rs.	a.	p.
Labour : Rs. 0-3-0 per piece, usually 5 pieces in a maund	0	15	0
Harar : 5 srs. @ Rs. 4 per maund	0	8	0
Til oil : 1½ srs. and goat fat, 1½ srs.	1	0	0
Sang jirah : 1 seer	0	1	0
<i>Total</i> ..	2	8	0

White Leather.—There is considerable use of the white leather of calf, kid and sheep skins in the sports goods manufactured at Sialkot, and until its production was taken up a few years ago by a tannery there and another at Wazirabad, the entire requirements were met by the Madras tanneries.

The process of preparing white leather by alum salt dressing (tawing) does not bring about any chemical change in the skin, and the three substances—gelatine, alum and salt—can be separated by treatment with water.

For preparing this variety of leather, skins are soaked in water for a day and then forcibly scraped on the flesh side to break down the fleshy matter. The skins are next immersed in the milk of lime for some days until the hair can be easily removed from the pelt.

After unhairing and fleshing the skins are steeped in fermented wheat bran paste so as to delime them completely. Then they are scudded on the beam with blunt knives and immersed in a solution of alum and salt in water for about one hour in summer and two in winter. Twelve seers of alum and two-and-a-half seers of salt dissolved in about a maund of water is enough for 200 sheep and kid skins or twenty-five calf skins.

The tawed skins are hung up to dry after which they are stretched and softened upon the stake, a flat blunt steel blade on a wooden support fixed into the ground. Curds are applied to dry skins to impart softness and strength.

Tanning of Camel, Horse and Donkey Hides.—Ordinarily these hides are tanned in a manner similar to that for cattle hides and are placed together with the cattle pelts when they are preparing the sacks for bag tanning. At Rewari, however, about forty families of Jatias each independently tan camel hides alone. The following table shows their cost of tanning per maund of camel hides:

TABLE XXX.

Cost of Tanning per Maund of Camel Hides at Rewari.

	Rs. a. p.
Lime : 20 seers. @ Re. 1 per maund	0 8 0
Wheat bran : 8 seers, @ Rs. 1-4-0 per maund	0 4 0
Kikar bark : 3 maunds, @ Rs. 0-10-6 per maund	2 0 0
Salt : 1 seer	0 1 0
Munj	0 1 0
(No hired labour employed)	
<i>Total</i>	2 14 0

The raw hides are usually purchased at Rs. 11 per maund and the leather sold at Rs. 19 per maund, usually by count. A group of three tanners, assisted by the women in bringing water needed for tanning, turns out from 12 to 14 maunds of leather in a month, leaving about Rs. 20 as the net income to each one of the three men.

Dry hides are dipped in plain water and each hide is cut into three pieces. Camel hides are limed twice, first in a solution containing 12½ seers of lime, and then in a milder solution containing 1½ seers of lime. The subsequent treatment is similar to that for cattle hides, except that scudding is done on a cemented platform with a conical top. The tanners learnt the use of the modern scudding knife from a Government Tanning Party which worked here for some time recently.

Donkey Leather.—Donkey and horse leather are used for making uppers of cheap jutis, blinkers for cattle and coverings for tonga seats. A manufacturer of yakhdans (leather-covered wooden trunks) at Peshawar got the donkey-leather prepared in his tannery. The process of tanning was the same except that the tan stuff used was naspal (pomegranate shell).

Dabgars.—A class of artisans, known as dabgars treat the raw hides in yet another manner, and prepare the following articles from them :

1. **Kuppas** or **kuppis**—leather casks or cruses for oil, in capacity varying from one seer to a maund (see Plate 11).
2. **Jhabba**—a receptacle with a spout used by oilmen or dealers.
3. Pans for hand-scales, used particularly in the grain market.
4. Vases and trays on which ornamental work is later done by artists.
5. Globes for electric lamps.
6. Covering the camel-saddles, hockey sticks and cricket bats with raw hides.

With the introduction of galvanised iron canisters and drums, the demand for kuppas, the principal article made by the dabgars, is falling rapidly. The lamp globes are a recent introduction, and if they gain favour, may rehabilitate the industry. The dabgars of Sialkot are well provided with work by the sports industry. Other towns where they are to be found are Peshawar, Amritsar, Jullundur, Lahore, Kasur, Jhang and Multan.

The kuppas are generally made from camel hides because of their cheapness and large size. Smaller articles, particularly the pans, are made from cow and buffalo hides, and lamp shades from the stomach membrane of the cattle. Raw hides, if in the dry state, are soaked in water, and the hair and flesh are scrapped off; the hair with an iron instrument called **rachhna**. They are again put into water thickened with mud and gum until they are as soft as wax. The flesh side is again scraped with a **khurchna**, and pieces of the required size are cut out. Each piece in this sticky state is plastered on to a mould and left to harden. It is removed from the mould by pulling up from an edge, but should it be given the shape of a narrow-mouthed vessel, the mould inside is shattered to pieces by beating with a stick. The pans are hemmed into leather-coated circular frames, made from the branches of the **khajur** (date palm) tree and finished by beating with a stone pestle on a slab which has a depression in the centre.

A small kuppi of one-seer capacity sells for two annas in the bazar, and a kuppa capable of holding a maund of oil for about Rs. 8. The scale-pans are sold from Re. 1 to Rs. 1-8-0 per pair according to quality. The lamp shades are of different shapes and designs, and the more popular ones may be had for about Rs. 1-4-0 each. A dabgar, if fully employed, makes from Rs. 20 to Rs. 25 per month.

CHAPTER X

THE PROCESS AND COST OF TANNING SKINS.

Introductory.—Goat skins are used in the Punjab mostly for the uppers of jutis and for waterbags. Sheep skins, on the other hand, are put to diverse uses, such as the bindings of books, for lining shoes and hats, for covering the handles of hockey sticks, and in making leather socks, and boxing and batting gloves.

The local term for goat leather is *khal*, and sheep leather is known as *mesha*. Generally the skins of inferior quality are tanned within the province; those of better quality are sent out mostly in raw form to Karachi for export, or to Madras for tanning. The increased external demand for the raw skins of the province and the diminishing local demand for locally tanned skins—(jutis and leather-bound books are losing favour with the public)—have injured the industry of the local khatiks.

There are two distinct trades connected with the tanning of skins—dewooling or unhairing, and tanning. Some khatiks undertake both the operations while others purchase dewoolled pelts for tanning. Skins with hair or wool intact are washed, salted and kept moist for one night. The next morning the wool or hair is plucked by catching the strands between the thumb and a small iron instrument called *pankhara*. The pelts are then scraped with a potsherd and washed in water, after which they are taken to the tannery if they are to be tanned immediately, otherwise they are salted on both sides and dried if they are to be sold or stocked.

It has been estimated that about half the price of sheep skins is realised from the sale of the wool. In March 1937, the price of skins of ordinary quality was Rs. 150 per hundred. About 1½ maunds of wool can be obtained from this number of skins at an expense of Rs. 8, and the wool at the then current price was worth Rs. 77, leaving the pelts at a cost of Rs. 81. The dewoolled pelts (known in this form as *papra*) were then sold in the market at about Rs. 95 per hundred. Goat skins of the quality usually bought for tanning by the khatiks, then sold at Rs. 80 to Rs. 90 per hundred, yielding 1¾ maunds of hair worth about Rs. 30. The hair of the Kaghani goats is a fine product and sells at a premium. In case a khatik has enough ready money, or enjoys good credit in the market, he considers it advantageous to buy skins with wool or hair intact.

Process of Tanning.—The process of tanning is similar for both sheep and goat skins, but the latter being heavier, consume more material. Twenty to twenty-five skins are treated at the same time in earthen vats, fixed into the ground. The quantities of materials required for their tanning, as calculated in this Chapter, are for skins of ordinary size. The following description holds good for the industry as followed in the Punjab as a whole, and the Saroki village in the Gujrat District in particular. The main points of difference noted in other places are given in footnotes.

Ten seers of wheat flour,* cooked in water, are poured out into the vats, and the same quantity of dry moth flour† (Phaseolus aconitifolius) is mixed with it. Two seers of common salt‡ are also added in summer and the skins (if dry, they are soaked in plain water over-night) are turned about and shaken in this thick solution. They are allowed to soak from ten to fifteen days, according to the weather. The local tanners call this stage **ganda wegar** or **mandh**.

The skins are now taken out and washed in plain water, then freed from fine hair and superfluous fat. Fleshing, as done for hides, is not considered necessary for skins.

A fresh solution§ of ten seers of wheat flour and the same quantity of common salt@ boiled in water is made, and the skins are transferred into it and worked for about four days. This stage is known as **wegar** or **dokhar**.

The skins are again taken out and immersed in a **kunal** (vat) containing two maunds of crushed kikar bark in water, and handled in them for from ten to twelve days. Skins are now cut across the belly and made into sheets. A second **malni** (dipping into the tanning liquor) is then given, to which besides two maunds of kikar bark, suitable quantities of **naspal** (pomegranate shell) and powdered **harar** are sometimes added. In another week the tanning is complete. Sheep skins are seldom given any colour by the tanners. They are hung to a line and when almost dry, a salt solution is applied to them.

Goat skins are either finished with dry salt or smeared with **sarson** oil (Indian colza), beaten against a log of wood and thrown into a mellow tanning liquor for a few hours, and then hung out for final drying. Sometimes they undergo an additional process to receive a particular

*In Delhi and Hansi, they substitute **jowar** flour for wheat flour.

†In the eastern districts two seers of milk of the **ak** plant (*Callotropis procera*) are used instead, except in January and February, when the plant is not available. This was also noted in Delhi, Ambala and Hansi.

‡The proportions used in Lyallpur are: wheat flour 12½ seers, moth flour 6¼ seers, and common salt 4 seers. The **khatiks** in Multan invariably add 10 seers of common salt.

§Some **khatiks** in Amritsar were seen adding a **leti** of 19 seers of wheat flour to the same vat, and this stage is eliminated.

@At Lyallpur the proportion is: wheat flour 12½ seers and common salt 4 seers.

colour. The most common colour is red, and for this purpose a mixture is prepared by boiling the following ingredients in water and then straining the solution through a piece of cloth:

Stick lac*	.. .. .	8 seers.
Soda†	.. .. .	3 chhataks.
Pathani lodh or lodhar (Symplocos paniculata)	.. .. .	5 chhataks.

The skins are passed, in the interval between the two immersions, through the tanning liquor. In Gujrat and towns north of it, a synthetic colour is used exclusively for dyeing the skins, and in Ambala a combination of the aforesaid mixtures is used. Synthetic colours cost less and are easier to use, but they are not so bright and durable as the lac dye.

A black colour is obtained in Delhi for dyeing the skins in a mixture made from amla (*Phyllanthus emblica*), harar (*Terminalia chebula*), iron filings, kasis (Sulphate of iron), maju (Gall-nut), onion and gum. The khatiks of the present generation seldom take the trouble of preparing the dyes by the older and the more tedious processes and use ready-made imported aniline colours.

Costs and Profits.—The following accounts pertain to a khatik of Gujrat working jointly with his brother. He bought raw skins from Amritsar through a Khoja of Gujar Khan. The Kaghani goat skins mentioned below have long hair of fine quality; hence their higher price.

TABLE XXXI.
Cost of Tanning per Thousand Goat Skins at Gujrat.

	Rs.	a.	p.
Price of 1,000 Kaghani goat skins @ Rs. 40 per score (20 pieces)	2,000	0	0
Charges of Amritsar artia @ Rs. 1-2-0 per <i>gath</i> of 40 skins	28	2	0
Railway freight (including Rs. 0-1-0 paid to the Booking Clerk)	51	9	0
Arat to Khoja at Gujar Khan @ Rs. 2-8-0 per cent.	25	0	0
	<u>2,104</u>	<u>11</u>	<u>0</u>
Labour for dehairing @ Rs. 0-12-0 per score	37	8	0
Wheat flour : 7½ mds. @ Rs. 3-4-0 per maund	24	6	0
Moth flour : 3½ mds. @ Rs. 2-8-0 per maund	9	6	0
Kikar bark, 50 mds. @ Rs. 2 per maund	100	0	0
Salt, 6½ mds. @ Rs. 2 per maund	12	8	0
Fuel	5	0	0
Other labour : supplied by his brother and himself .. .. .	..	..	..
	<u>188</u>	<u>12</u>	<u>0</u>
Total expenses	<u>2,293</u>	<u>7</u>	<u>0</u>

*Stick lac of the kataki (winter) harvest is preferred because it contains more dye than the summer crop. See in this connection "Economics of Lac Industry in the Punjab." Publication No. 47.

†The recipe given by a tanner in Multan was: Lac 10 seers, lodhar and saji (barilla) each 4 chhataks.

Income.

			Rs. a. p.
Goat hair : 25 mds. @ Rs. 42 per maund ..	..	..	1,050 0 0
Tanned skins : 980 pieces @ Rs. 30 per score (20 pieces were spoiled during operations) ..	..	..	1,470 0 0
Used up kikar bark ..	..	..	5 0 0
		Total ..	2,525 0 0

Profits, including wages of the two brothers working for about two months	231 9 0
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2. A small-scale khatik in Saroki village (Gujrat District) who obtained the kikar bark from the village carpenters, gave the following estimate of his expenses of tanning and income:

TABLE XXXII.

Cost of Tanning per Hundred Skins at Saroki Village.

Items.	GOAT SKINS.		SHEEP SKINS.	
	Quantity.	Cost.	Quantity.	Cost.
Price of country skins with hair ..	100 pieces	95 0 0	100 pieces	140 0 0
Wheat flour @ 12 seers per rupee ..	30 srs.	2 8 0	20 srs.	1 10 6
Moth flour @ 14 seers per rupee ..	15 "	1 1 0	10 "	0 11 6
Salt @ 24 seers per rupee ..	30 "	1 4 0	20 "	0 13 6
Kikar bark @ Rs. 0-13-0 per maund and grinding charges Rs. 0-6-0 per maund	2½ mds.	2 15 6	2 mds.	2 6 0
Sarson oil @ 3 srs. per rupee	5 srs.	1 10 6	..	..
Synthetic colour ..	..	1 14 0	..	..
Fuel ..	..	0 8 0	..	0 8 0
<i>Total</i> ..	..	<i>106 13 0</i>	..	<i>145 15 6</i>

Tanned goat skins sell at Rs. 20 per score, and the hair fetches about Rs. 30, bringing to the tanner about Rs. 130 in all. Tanned sheep skins sell in the market from Rs. 13 to Rs. 20 per score, and the wool from a hundred fetches about Rs. 70. After paying the market dues and other incidental expenses, this tanner was left about Rs. 15 per hundred skins, and his monthly turnover usually did not exceed 200 skins.

3. The following estimate was given by a Hindu khatik of Amritsar who employed paid labour; he had bought the dewooled pelts from the market for tanning.

TABLE XXXIII.
Cost of Tanning per Hundred Skins at Amritsar.

Items.	GOAT SKINS.		SHEEP SKINS.	
	Quantity.	Cost.	Quantity.	Cost.
		Rs. a. p.		Rs. a. p.
Cost of skins ..	100 pieces	75 0 0	100 pieces	60 0 0
Wheat flour @ 12½ srs. per rupee ..	25 srs.	2 0 0	20 srs.	1 9 6
Moth flour @ 14 srs. per rupee ..	10 srs.	0 11 6	8 srs.	0 9 0
Salt @ Rs. 2-3-0 per md. ..	2 mds.	4 6 0	1½ mds.	2 11 6
Kikar bark @ Rs. 1-12-0 per md. ..	3½ mds.	6 9 0	2 mds.	3 8 0
Lac @ Rs. 14 per md. ..	7½ srs.	2 10 0	Nil.	..
Lodh @ Rs. 0-4-0 per sr. ..	4½ chh.	0 1 0	..	..
Soda @ Rs. 0-2-3 per sr. ..	3 chh.	0 0 6	..	..
Keri (coal ash for picking hair) ..		0 4 0		..
Fuel ..		0 8 0		0 6 0
Labour charges :				
Unhairing ..		2 0 0		2 0 0
Waterman ..		0 6 0		0 5 0
Other labour ..		4 8 0		3 0 0
For giving colour ..		0 10 0		..
<i>Total</i> ..	..	<i>99 10 0</i>	..	<i>74 1 0</i>
Price usually recovered from the tanned skins ..	..	115 0 0	..	95 0 0
Profit per 100 skins ..	..	15 6 0	..	20 15 0

4. A man who had started skin tanning in Amritsar after receiving his training at the Government Tanning Institute, Jullundur, gave the following estimate for tanning 100 sheep skins :

TANNING XXXIV.
Cost of Tanning per Hundred Sheep Skins.

Sodium sulphide : ½ sr. ..	..	..	Rs. a. p.
Lime : 15 srs. ..	..	..	0 2 0
Wheat bran : 12 srs. ..	..	..	0 6 0
Kikar bark : 2 mds. ..	..	..	0 7 6
Myrabolam ..	..	..	3 0 0
Mustard oil : 2½ srs. ..	..	..	0 8 0
French chalk ..	..	..	1 0 0
			0 3 0
<i>Total</i> ..	..	..	<i>5 10 6</i>

Dewooling, soaking, unhairing, fleshing, scudding, refreshing, rescudding, scouring, oiling, beating and hauling.

Done by himself and a labourer, whom he paid Rs. 14 per month.

He purchased sheep skins at Rs. 160 per hundred pieces and sold the wool obtained from them for about Rs. 75 and the tanned skins for Rs. 125. With the existing arrangements he turned out about 300 skins in a month, and after paying the rent of the shop, wages to the servant and other incidental expenses of business, he made an income of about Rs. 50 per month.

5. A large-scale tanner at Sialkot, who supplied material to the sports goods manufacturers, gave the following estimate:

TABLE XXXV.
Cost of Tanning 20 Sheep Skins at Sialkot.

			Rs. a. p.
Price of skins ; Rs. 28, less Rs. 13 the amount realized from the sale of wool	..	..	15 0 0
Kikar bark	..	..	0 12 0
Wheat flour	..	..	0 4 0
Salt	..	..	0 2 0
Labour for dewooling	..	..	0 8 0
Other labour	..	..	1 0 0
Miscellaneous (fuel, etc.)	..	..	0 8 0
<i>Total</i>			18 2 0

Tanned sheep skins were sold from Rs. 22 to Rs. 25 per score, leaving him with a margin of from Rs. 4 to Rs. 7.

TABLE XXXVI.
Cost of Tanning 20 Goat Skins at Sialkot.

			Rs. a. p.
Price of <i>pahari</i> goat skins : Rs. 45 less Rs. 15 realised from the sale of hair	..	..	30 0 0
Kikar bark	..	..	1 12 0
Wheat flour	..	..	1 0 0
Salt	..	..	0 8 0
Lac, soda and <i>lodh</i>	..	..	1 8 0
Labour for unhairing	..	..	0 8 0
Other labour	..	..	1 12 0
Miscellaneous	..	..	0 8 0
<i>Total</i>			37 8 0

He sold the tanned skins from Rs. 40 to Rs. 50 per score. According to him, about four skins in twenty are suitable for making waterbags, and are sold in the raw form for about Rs. 3 a piece. Raw *desi* goat skins can be had in the market for from Rs. 15 to Rs. 20 per score, from which hair worth Rs. 5 is obtained. After spending Rs. 4 in its tanning, the skins are sold for from Rs. 20 to 25 per score, according to quality, leaving a profit of from Rs. 5 to Rs. 6.

6. The following estimate of the materials needed for tanning goat skins was given by a group of tanners who worked with their hands at Kartarpur.

TABLE XXXVII.
Cost of Tanning per Hundred Goat Skins at Kartarpur.

		Rs.	a.	p.
Wheat flour : 20 srs. @ 12 srs. per rupee	..	1	10	6
Moth flour : 10 srs. @ 15 srs. per rupee	..	0	10	6
Salt : 1 md. 5 srs. @ 16 srs. per rupee	..	2	13	0
Lac : 8 srs. @ Rs. 15 per md.	..	3	0	0
Lodh : 12 chh.; soda : 4 chh.	..	0	4	0
Kikar bark : 3 mds. @ Rs. 1-8-0 per md.	..	4	8	0
		<hr/>		
<i>Total</i>	..	<i>12</i>	<i>14</i>	<i>0</i>
		<hr/>		

7. A group of khatiks at Ambala gave a similar estimate, except that they used the milk of the **ak** plant instead of the **moth** flour, and they collected it free of cost from waste land. The price of the kikar bark in that tract was Rs. 1-6-0 per maund.

8. At Hansi the khatiks purchase sheep skins from surrounding villages at about Rs. 1-8-0 per piece, from which wool worth Re. 1 is obtained, and after incurring an expense of Rs. 0-3-0 the tanned skin is sold for Rs. 0-12-0 to the **juti** makers. Sometimes the country goat skins are bought for Rs. 60 per hundred, and after tanning them, which entails an expense of Rs. 8, they are sold from Rs. 80 to Rs. 100. The turnover of these khatiks is, however, small, because they buy and sell only in retail quantities.

APPENDIX A.

ANIMAL POPULATION OF PRINCIPAL COUNTRIES.

(Million head.)

Country.	CATTLE.		SHEEP.	
	1930	1935	1930	1935
<i>Empire countries—</i>				
India	160·2	168·0	43·6§	43·4§
Australia	11·7	13·9	110·6	108·9
Union of South Africa	10·8	10·6	48·5	36·0
Canada	8·9	8·8	3·7	3·4
United Kingdom	7·8	8·7	24·7	25·1
Irish Free State	4·0	4·0	3·5	3·0
Kenya	5·2	5·0¶	3·2	3·2
New Zealand	3·8	4·3	30·8	29·1
Tanganyika	5·2	4·8	2·2	1·9
Nigeria (including British Cameroon)	3·0	2·8	2·5	1·9
<i>Other countries—</i>				
U. S. A.	63·0	67·9	53·2	52·0
U. S. S. R.	52·5	49·3	100·5	54·2
Brazil	42·5†	40·9	‡	13·0¶
Argentina	32·2	30·9*	44·4	38·0
China (including Manchuria)	24·0	22·6	‡	‡
Germany	18·4	18·9	3·5	3·9
France	15·5	15·7	10·2	9·6
Poland	9·4	9·8	2·5	2·8
Mexico	10·1	‡	3·7	6·0*
Columbia	7·3	8·3	‡	‡
Italy	7·1	7·2¶	10·3	8·9¶
Turkey	4·7	5·4	10·5	12·4
Uruguay	7·1	‡	20·6	16·0
Madagascar	6·7	5·5	‡	‡
Czechoslovakia	4·5	4·3	‡	‡
Roumania	4·3	4·3	12·4	11·8
Yugoslavia	3·8	4·0	8·0	9·2
Denmark	3·1	3·1	‡	‡
Spain	‡	‡	‡	17·3*
Morocco	‡	‡	8·0	9·3
French West Africa	3·9	3·5	9·5	7·8
Bulgaria	‡	‡	3·0	8·8
Greece	‡	‡	6·8	8·2
Cuba	5·0	4·7	‡	‡
Algeria	‡	‡	7·2	5·8

* = 1934.

† = 1932.

‡ = Not available.

§ = Excluding some Native States.

¶ = Figures for 1936.

Note.—The foregoing statement has been prepared from "Meat"—a publication of the Imperial Economic Committee, London: 1937 and 1938.

APPENDIX B.

PUNJAB MUNICIPAL SLAUGHTER HOUSE STATISTICS.
(A). Number of Cows and Buffaloes Slaughtered in 1935.

Town.	District.	OXEN.			BUFFALORS.			Total.
		Bulls and Bullocks.	Cows.	Calves.	Male.	Females.	Calves.	
1. Sirsa ..	Hissar ..	41	281	14	..	12	17	
2. Hansi ..	" ..	6	128	..	..	20	5	
3. Mehm ..	Rohtak ..	63	379	18	1	6	88	
4. Rewari ..	Gurgaon ..	113	280	212	131	528	451	
5. Hodal ..	" ..	..	..	..	200	240	..	
6. Ballabgarh ..	" ..	10	70	1	..	10	131	
7. Faridabad ..	" ..	150	150	63	100	75	75	
8. Karnal ..	Karnal ..	24	680	190	11	145	453	
9. Kharar ..	Ambala ..	20	30	20	20	40	70	
10. Sadhaura ..	" ..	11	122	144	..	21	27	
11. Simla ..	Simla ..	..	4,402	167	..	..	..
12. Jullundur ..	Jullundur ..	..	..	..	..	..	..	4,171
13. Nur Mahal ..	" ..	30	..	..	21	..	..
14. Raikot ..	Ludhiana ..	77	97	28	1	51	154	
15. Lahore ..	Lahore ..	359	5,653	129	96	5,138	1,506	
16. Kasur ..	" ..	140	480	..	834	266	..	
17. Sialkot ..	Sialkot ..	4	714	..	2	398	..	
18. Chawinda ..	" ..	115	125	116	124	122	118	
19. Mitranwali ..	" ..	156	..	..	80	70	..	
20. Gujranwala ..	Gujranwala ..	..	..	..	..	..	..	487
21. Ramnagar ..	" ..	25	15	10	16	6	8	
22. Sheikhpura ..	Sheikhpura ..	302	456	..	192	24	..	
23. Gujrat ..	Gujrat ..	120	705	150	30	97	100	
24. Jalalpur Jattan ..	" ..	100	100	100	30	80	50	
25. Shahpur ..	Shahpur ..	10	30	8	2	2	2	
26. Bhera ..	" ..	30	52	20	40	25	11	
27. Pind Dadan Khan ..	Jhelum ..	40	129	160	30	58	7	
28. Murree ..	Rawalpindi ..	..	737	..	..	..	..
29. Kalabagh ..	Mianwali ..	30	210	24	70	90	8	
30. Isa Khel ..	" ..	242	76	..	38	140	..	
31. Sahiwal ..	Shahpur ..	40	40	20	10	10	5	
32. Khushab ..	" ..	..	..	..	..	..	..	470
33. Miani ..	" ..	..	138	..	..	46	..	
34. Pakpattan ..	Montgomery ..	..	..	..	..	..	..	801
35. Mithankot ..	D. G. Khan ..	..	..	..	20	..	..
36. Lyallpur ..	Lyallpur ..	15	50	164	7	20	114	
	Total ..	2,273	16,329	1,758	2,116	7,740	3,400	5,929

APPENDIX B—(continued).
(B.) Number of Sheep and Goats Slaughtered in 1935.

Town.	District.	Sheep.	Goats.	Total.
1. Sirsa ..	Hissar ..	607	6,250	
2. Hansi ..	" ..	1	34	
3. Mehm ..	Rohtak ..	42	1,196	
4. Rewari ..	Gurgaon ..	26	3,131	
5. Hodal ..	" ..	139	300	
6. Ballabgarh ..	" ..	53	233	
7. Faridabad ..	" ..	194	200	
8. Karnal ..	Karnal ..	2,355	5,243	
9. Kharar ..	Ambala ..	50	1,450	
10. Sadhaura ..	" ..	70	776	
11. Simla ..	Simla ..	5,221	19,688	
12. Kangra ..	Kangra ..	429	1,505	
13. Palampur ..	" ..	505	1,235	
14. Nurpur ..	" ..	161	1,871	
15. Dharamsala ..	" ..	3,371	854	
16. Garhdiwala ..	Hoshiarpur ..	14	626	
17. Mukerian ..	" ..	800	1,350	
18. Dasuya ..	" ..	111	2,250	
19. Jullundur City ..	Jullundur ..	..	..	40,202
20. Kartarpur ..	" ..	511	2,238	
21. Nur Mahal ..	" ..	205	1,027	
22. Raikot ..	Ludhiana ..	31	1,872	
23. Jagraon ..	" ..	847	5,325	
24. Khanna ..	" ..	15	818	
25. Ferozepore City ..	Ferozepore ..	..	..	15,387
26. Muktsar ..	" ..	194	4,283	
27. Abohar ..	" ..	675	3,751	
28. Fazilka ..	" ..	..	..	5,120
29. Lahore ..	Lahore ..	1,31,852	67,119	
30. Khudian ..	" ..	420	860	
31. Chunian ..	" ..	1,227	1,629	
32. Kasur ..	" ..	2,550	20,638	
33. Patti ..	" ..	640	3,476	
34. Pattoki ..	" ..	1,558	2,184	
35. Khem Karan ..	" ..	..	..	2,035

(Continued).

APPENDIX B—(continued).

(B). Number of Sheep and Goats Slaughtered in 1935.

(Continued).

Town.	District.	Sheep.	Goats.	Total.
36. Amritsar ..	Amritsar ..	..	..	1,66,232
37. Majitha ..	" ..	1,000	952	
38. Ram Dass ..	" ..	400	1,060	
39. Dhariwal ..	Gurdaspur ..	..	..	3,298
40. Nerot Jaimal Singh	" ..	350	82	
41. Siri Gobindpur ..	" ..	..	370	
42. Fatehgarh ..	" ..	218	1,604	
43. Dina Nagar ..	" ..	..	..	1,986
44. Batala ..	" ..	..	..	15,952
45. Sialkot ..	Sialkot ..	..	..	33,082
46. Chawinda ..	" ..	900	400	
47. Sahawala ..	" ..	40	360	
48. Mitranwali ..	" ..	304	436	
49. Kalaswala ..	" ..	..	..	880
50. Jamke ..	" ..	240	490	
51. Sambrial (2 months)	" ..	43	113	
52. Zafarwal ..	" ..	600	898	
53. Sheikhupura ..	Sheikhupura ..	3,456	3,396	
54. Khangah Dogran ..	" ..	643	806	
55. Gujranwala ..	Gujranwala ..	..	..	28,640
56. Akalgarh ..	" ..	1,820	393	
57. Eminabad ..	" ..	1,624	1,103	
58. Ram Nagar ..	" ..	1,300	500	
59. Hafizabad ..	" ..	3,815	1,577	
60. Pindi Bhatian ..	" ..	762	1,039	
61. Gujrat ..	Gujrat ..	1,141	16,990	
62. Dinga ..	" ..	1,200	1,400	
63. Jalalpur Jattan ..	" ..	1,900	4,000	
64. Shahpur (Civil Station)	Shahpur ..	1,001	1,100	
65. Nurpur Thal ..	" ..	..	..	300
66. Sillan Wali ..	" ..	246	479	
67. Bhalwal ..	" ..	..	..	2,408
68. Bhera ..	" ..	1,499	5,680	
69. Sahiwal ..	" ..	765	325	
70. Khushab ..	" ..	1,653	2,007	
71. Miani ..	" ..	1,272	1,682	
72. Phullarwan ..	" ..	657	1,063	
73. Jhelum City ..	Jhelum ..	5,820	15,296	
74. Pind Dadan Khan ..	" ..	2,059	2,845	

(Continued.)

APPENDIX B—(concluded).

(B). *Number of Sheep and Goats Slaughtered in 1935.*
(Concluded).

Town.	District.	Sheep.	Goats.	Total.
75. Murree ..	Rawalpindi ..	9,096	3,918	
76. Gojra ..	" ..	918	2,756	
77. Campbellpur ..	Attock ..	987	6,005	
78. Fateh Jang ..	" ..	253	1,716	
79. Gujar Khan ..	" ..	719	3,601	
80. Mianwali ..	Mianwali ..	2,673	2,414	
81. Isa Khel ..	" ..	579	484	
82. Kala Bagh ..	" ..	2,211	2,613	
83. Bhakkar ..	" ..	2,000	2,890	
84. Pakpattan ..	Montgomery ..	4,125	3,151	
85. Lyallpur ..	Lyallpur ..	8,348	7,744	
86. Jaranwala ..	" ..	275	4,754	
87. Tandlianwala ..	" ..	376	1,074	
88. Kamalia ..	" ..	460	1,500	
89. Gojra ..	" ..	270	48	
90. Multan ..	Multan ..	..	..	52,290
91. Kabirwala ..	" ..	114	922	
92. Jalalpur Pirwala ..	" ..	672	1,782	
93. Kahrur Pakka ..	" ..	543	1,438	
94. Mailsi ..	Multan ..	515	852	
95. Khanewal ..	" ..	2,161	3,358	
96. Mian Channu ..	" ..	585	2,341	
97. Kot Chhuta ..	Dera Ghazi Khan ..	115	315	
98. Rajanpur ..	" ..	429	2,214	
99. Mithankot ..	" ..	160	1,420	
	<i>Total</i> ..	<i>230,186</i>	<i>291,438</i>	<i>367,812</i>
	GRAND TOTAL ..		889,436	

APPENDIX C.

EXPORTS AND IMPORTS, 1937-38.

(1). Exports of Raw Hides from the Punjab to different Trade Blocks.
(In Maunds of 82³/₇ lbs.)

Month.	Total.	United Provinces.	Delhi.	North-West Frontier Province.	Sind† and British Baluchistan.	Bombay.†	Madras.†	Rajputana.	Kashmir.	Mysore.	PORT TOWNS.			
											Calcutta.	Bombay.	Karachi.	Madras.
April, 1937 ..	15,990	204	775	32	201	..	342	121	..	..	4,299	..	8,812	1,204
May, ..	11,117	274	471	12	154	..	361	109	5	600	5,317	..	3,485	329
June, ..	5,355	489	285	85	45	7	..	22	..	..	2,620	..	1,502	300
July, ..	4,196	569	164	14	103	..	..	27	..	..	327	1	2,991	..
August, ..	5,465	997	90	12	74	..	..	7	68	..	..	1	4,216	..
September, ..	2,816	1,190	398	22	15	16	..	15	51	..	..	..	1,109	..
October, ..	4,579	1,074	487	55	14	59	..	47	10	..	1,800	..	526	507
November, ..	4,442	1,138	474	62	20	88	..	101	..	..	900	..	1,659	..
December, ..	15,390	1,310	606	157	33	88	..	222	30	..	2,529	..	10,415	..
January, 1938 ..	21,096	258	733	576	163	83	312	145	..	..	8,368	..	10,418	310
February, ..	13,458	856	613	288	52	287	..	331	..	..	2,881	..	8,150	..
March, ..	12,920	741	610	67	109	281	..	115	..	..	2,916	..	8,081	..
Total 1937-38 ..	116,824	9,100	5,706	1,382	983	909	1,015	1,262	164	600	31,957	2	61,094	2,650

†Excluding the Port Towns.

APPENDIX C—(continued).

(2). Imports of Raw Hides into the Punjab from different Trade Blocks.

(In Maunds of 82³/₄ lbs.)

Month.	Total.	Bengal.†	Bihar.	United Provinces.	Delhi.	North-West Frontier Province.	Sind† and British Baluchistan.	Central Provinces.	Bombay.†	Rajputana.	Central India.	Kashmir.	PORT TOWNS.	
													Calcutta.	Karachi.
April, 1937 ..	10,551	..	19	2,089	580	4,373	177	38	833	2,293	..	149	..	..
May, ..	9,248	..	22	783	75	3,307	233	8	1,328	2,274	..	711	507	..
June, ..	9,889	..	75	678	510	3,349	752	2	1,936	2,009	..	522	56	..
July, ..	6,486	24	177	824	1,025	2,231	259	23	450	893	24	509	44	3
August, ..	5,265	..	13	398	392	2,558	213	6	515	801	2	367	..	..
September, ..	3,642	..	..	88	132	2,092	273	..	133	343	..	581	..	..
October, ..	4,253	..	..	318	189	2,672	337	..	120	212	..	405	..	..
November, ..	6,726	..	5	585	165	4,481	456	25	236	202	..	569	..	2
December, ..	7,867	..	..	1,266	131	5,234	584	73	49	153	2	374	1	..
January, 1938 ..	5,936	..	..	672	93	3,921	549	14	345	207	..	135	..	..
February, ..	7,495	..	..	855	176	4,858	743	90	417	222	..	25	109	..
March, ..	7,008	9	5	1,023	443	4,124	566	98	155	249	..	222	5	109
<i>Total 1937-38 ..</i>	<i>84,366</i>	<i>33</i>	<i>316</i>	<i>9,579</i>	<i>3,911</i>	<i>43,200</i>	<i>5,142</i>	<i>377</i>	<i>6,517</i>	<i>9,858</i>	<i>28</i>	<i>4,569</i>	<i>722</i>	<i>114</i>

†Excluding the Port Towns.

APPENDIX C—(continued).

(3). Exports of Raw Skins from the Punjab to different Trade Blocks.

(In Maunds of 82 ²/₇ lbs.)

Month.	Total.	Bihar.	United Pro- vinces.	Delhi.	North-West Frontier Pro- vince.	Sind and British Baluchistan.	Bombay.†	Rajputana.	Nizam's Terri- tory.	Kashmir.	Mysore.	PORT TOWNS.			
												Calcutta.	Bombay.	Karachi.	Madras.
April, 1937. ..	56,676	..	329	976	204	11	..	6	..	..	..	51	8	53,280	1,811
May, ..	10,267	..	453	570	54	7	58	6	71	14	..	30	12	7,330	1,662
June, ..	11,065	..	381	637	56	46	1	13	..	..	..	23	..	8,912	996
July, ..	10,710	..	550	896	54	140	30	12	..	2	..	..	..	7,717	1,309
August, ..	11,851	..	718	745	81	127	..	1	..	..	..	..	..	8,835	1,344
September, ..	13,555	..	763	1,447	34	127	101	29	33	..	..	3	1	9,636	1,384
October, ..	10,729	..	986	469	49	15	39	..	..	2	..	15	..	7,418	1,736
November ..	9,615	12	298	353	47	42	14	2	..	..	..	38	7	7,729	1,073
December ..	9,298	..	703	631	33	21	..	..	..	..	..	24	25	6,468	1,393
January, 1938 ..	5,836	..	793	647	62	2	..	1	..	..	..	79	..	3,076	1,176
February, ..	6,486	..	407	478	239	4	..	..	..	10	..	36	19	5,293	..
March, ..	12,670	..	435	431	57	69	..	2	56	..	5	22	..	9,574	2,019
Total 1937-38 ..	168,671	12	6,816	8,280	970	611	243	72	160	23	5	321	72	1,35,268	15,903

†Excluding the Port Towns.

APPENDIX C—(continued).

(4). Imports of Raw Skins into the Punjab from different Trade Blocks.

(In Maunds of 82 ³/₇ lbs.)

Month.	Total.	Bihar.	United Provinces.	Delhi.	North-West Frontier Province.	Sind and British Baluchistan.	Central Provinces.	Bombay.†	Rajputana.	Kashmir.	PORT TOWNS.		
											Calcutta.	Karachi.	Bombay.
April, 1937 ..	4,690	..	237	23	2,496	1,650	..	5	166	96	3	14	..
May, ..	3,655	..	127	129	2,311	867	3	2	118	94	4	..	..
June, ..	3,908	..	185	24	1,728	1,777	1	..	59	126	..	8	..
July, ..	4,402	..	389	91	2,515	1,131	..	8	137	131	..	..	..
August, ..	5,012	..	169	..	3,183	1,595	..	..	49	16	..	..	..
September, ..	5,769	..	137	132	3,891	1,413	..	..	128	67	..	..	1
October, ..	4,973	57	182	192	2,670	1,479	1	99	98	119	16	60	..
November, ..	3,527	..	27	..	2,080	1,250	..	5	85	66	1	13	..
December, ..	4,333	..	127	32	2,162	1,882	..	..	69	58	..	3	..
January, 1938 ..	5,177	..	62	60	3,223	1,570	..	..	162	71	4	15	10
February, ..	3,994	..	304	33	2,413	1,141	..	22	80	..	..	..	1
March, ..	4,032	..	128	55	2,518	1,164	..	17	141	7	..	1	1
<i>Total 1937-38 ..</i>	<i>53,472</i>	<i>57</i>	<i>2,074</i>	<i>771</i>	<i>31,190</i>	<i>16,919</i>	<i>5</i>	<i>158</i>	<i>1,292</i>	<i>851</i>	<i>28</i>	<i>114</i>	<i>13</i>

†Excluding the Port Towns.

APPENDIX C.—(continued)

(5). Exports of Tanned Hides and Skins, and Leather from the Punjab to different Trade Blocks.

(In Maunds of 82³/₄, lbs.)

Month.	Total.	Bengal.†	Bihar.	United Provinces.	Delhi.	North-West Frontier Province.	Sind† and British Baluchistan.	Central Provinces.	Madras.†	Bombay.†	Central India.	Rajputana.	Kashmir.	Nizam's Territory.	Mysore.	PORT TOWNS.			
																Calcutta.	Bombay.	Karachi.	Madras.
April, 1937 ..	4,438	17	4	275	140	2,978	578	..	..	6	..	193	34	..	..	164	1	48	..
May, ..	4,151	7	22	463	59	2,732	478	..	1	..	..	232	5	1	..	123	20	6	..
June, ..	4,285	..	22	802	40	2,692	389	2	2	10	..	169	6	..	..	141	..	10	..
July, ..	4,637	16	3	443	77	3,267	522	..	3	..	..	232	9	..	3	38	20	..	4
August, ..	3,200	8	..	305	60	2,073	472	..	..	..	..	178	6	..	..	92	3	..	3
September, ..	3,937	..	4	615	60	2,507	452	..	..	..	..	177	3	..	..	105	..	11	3
October, ..	3,882	22	22	283	134	2,512	391	2	..	1	..	185	10	..	..	262	1	26	31
November, ..	4,500	22	22	953	76	2,558	418	..	..	9	..	175	17	..	..	227	1	17	5
December, ..	2,704	8	24	167	53	1,765	274	2	..	..	..	201	13	..	..	192	..	..	5
January, 1938 ..	3,762	3	17	226	96	2,566	402	1	..	10	2	191	11	..	..	207	..	26	4
February, ..	2,695	..	30	226	71	1,546	529	..	..	10	..	52	..	..	..	222	..	9	..
March, ..	3,687	..	8	165	55	2,461	646	1	1	2	..	88	7	..	..	241	2	6	4
Total 1937-38 ..	45,883	103	178	4,923	921	29,657	5,551	8	7	48	2	2,073	121	1	3	2,014	48	159	61

†Excluding the Port Towns.

†Corrected figure

APPENDIX C—(concluded).

(6). Imports of Tanned Hides and Skins, and Leather into the Punjab from different Trade Blocks.

(In Maunds of 82½, lbs.)

Month.	Total.	Bengal †	Bihar.	United Provinces.	Delhi.	North-West Frontier Province.	Sind and British Baluchistan.	Central Provinces.	Bombay. †	Rajputana.	Central India.	Kashmir.	Mysore	PORT TOWNS.			
														Calcutta.	Bombay.	Karachi.	Madras.
April, 1937 ..	1,016	..	..	614	3	31	4	..	33	6	..	6	..	284	15	3	7
May, ..	1,616	..	1	963	5	48	16	..	70	47	..	40	..	379	10	22	15
June, ..	1,708	..	..	976	2	91	1	..	168	5	..	15	..	432	7	..	11
July, ..	1,437	..	..	819	10	64	16	..	36	8	..	48	..	369	5	47	15
August, ..	1,268	..	..	850	1	96	3	..	23	..	..	36	2	247	..	5	5
September, ..	1,303	8	..	848	..	73	19	..	64	4	..	6	..	233	10	3	35
October, ..	1,418	3	..	651	10	69	47	..	37	13	..	7	..	417	15	122	27
November, ..	1,383	1	..	961	12	22	22	..	16	9	1	13	..	300	6	11	9
December, ..	1,414	2	..	708	8	156	15	..	50	1	..	23	..	366	4	67	14
January, 1938 ..	1,312	..	..	747	3	45	28	..	56	24	..	26	..	314	12	53	4
February, ..	1,053	..	..	675	4	60	10	..	9	13	..	27	..	237	5	..	13
March, ..	1,187	..	..	528	..	19	2	31	20	10	..	38	..	449	3	67	20
<i>Total 1937-38 ..</i>	<i>16,115</i>	<i>14</i>	<i>1</i>	<i>9,340</i>	<i>58</i>	<i>774</i>	<i>183</i>	<i>31</i>	<i>582</i>	<i>140</i>	<i>1</i>	<i>285</i>	<i>2</i>	<i>4,027</i>	<i>92</i>	<i>410</i>	<i>175</i>

† Excluding the Port Towns.

APPENDIX D.

OCTROI AND TERMINAL TAXES IN THE PUNJAB.

(1). Rates of Octroi imposed by different Towns in the Punjab.

Town.	RATE OF OCTROI PER RUPEE WORTH OF GOODS.				
	Raw hides.	Raw skins.	Tanned hides.	Tanned skins.	Kikar bark.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1. Beri (Rohtak) ..	Nil	Nil	0 0 6	0 0 6	0 0 9
2. Thanesar (Karnal)	Nil	Nil	Nil	Nil	0 0 6
3. Jagadhri (Ambala)	0 0 3	0 0 3	0 0 3	0 0 3	0 0 6
4. Sadhaura (")	Nil	Nil	0 0 6	0 0 6	0 0 6
5. Buria (")	Nil	Nil	0 0 3	0 0 3	Nil
6. Kharar (")	Nil	Nil	0 0 3	0 0 3	0 0 3
7. Simla ..	Nil	Nil	0 0 6	0 0 6	0 0 6
8. Nurmahal (Jullundur)	0 0 6	0 0 6	0 0 6	0 0 6	0 0 9
9. Ferozepore City ..	Nil	Nil	0 0 6	0 0 6	Nil
10. Chunian (Lahore)	Nil	Nil	Nil	0 0 3	Nil
11. Sialkot ..	Nil	Nil	0 0 6	0 0 6	0 0 6
12. Gujrat ..	0 0 6	0 0 6	0 0 6	0 0 6	0 0 6
13. Jalalpur Jattan (Gujrat)	Nil	Nil	0 0 6	Nil	0 0 6
14. Bhera (Shahpur)	Nil	Nil	0 0 6	0 0 6	Nil
15. Sahiwal (")	Nil	Nil	Nil	0 0 6	Nil
16. Khushab (")	Nil	Nil	0 0 3	0 0 3	Nil
17. Miani (")	Nil	Nil	0 0 6	0 0 6	Nil
18. Pind Dadan Khan (Jhelum)	0 0 3	0 0 3	0 0 3	0 0 3	0 0 9
19. Rawalpindi ..	Nil	Nil	0 0 6	0 0 6	0 0 6
20. Mianwali ..	0 0 6	0 0 6	0 0 6	0 0 6	0 0 6
21. Isa Khel (Mianwali)	0 0 3	0 0 3	0 0 3	0 0 3	Nil
22. Kamalia (Lyallpur)	Nil	Nil	0 0 3	0 0 3	Nil
23. Muzaffargarh ..	Nil	Nil	0 0 6	0 0 6	0 0 6
24. Mithankot (Dera Ghazi Khan)	Nil	Nil	0 0 6	0 0 6	0 0 9

APPENDIX D—(continued).

(2). Rates of Terminal Tax imposed by different Towns in the Punjab.

(The tax is charged on import except where shown otherwise.)

Town.	RATE OF TERMINAL TAX PER MAUND.				
	Raw hides.	Raw skins.	Tanned hides.	Tanned skins.	Kikar bark.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1. Hissar ..	0 10 0*	0 10 0*	Nil	Nil	Nil
2. Hansi (Hissar)	0 4 0*	0 4 0*	0 4 0*	0 4 0*	0 0 6
3. Sirsa (")	0 8 0*	0 8 0*	0 8 0*	0 8 0*	Nil
4. Rewari (Gurgaon)	0 0 6	0 0 6	0 1 0	0 1 0	0 0 6
5. Hodal (")	0 12 0	0 12 0	0 12 0	0 12 0	Nil
6. Balabgarh(")	0 12 0	0 12 0	0 12 0	0 12 0	Nil
7. Karnal ..	0 5 0	0 5 0	0 5 0	0 5 0	0 1 0
8. Jullundur City ..	0 4 0	0 4 0	0 8 0	0 8 0	0 0 6
9. Raekot (Ludhiana)	0 8 0	0 8 0	0 8 0	0 8 0	Nil
10. Jagraon (")	0 1 0	0 1 0	0 8 0	0 8 0	Nil
11. Khanna (")	0 2 0	0 2 0	0 4 0	0 4 0	0 2 0
12. Abohar(Ferozepore)	Nil	Nil	Nil	Nil	0 2 0
13. Fazilka (")	Nil	0 1 0	0 1 0	0 1 0	0 1 0
14. Muktsar (")	0 2 0	0 2 0	0 2 0	0 2 0	0 1 6
15. Lahore	Nil	Nil	Rs. 0-12-0 for India tanned leather, Rs. 2/- for other leather.		0 0 4½
16. Kasur (Lahore)	0 1 6	0 0 6	0 5 0	0 5 0	0 0 2
17. Patti (")	0 2 0	0 2 0	0 4 0	0 4 0	
18. Pattoki (")	0 4 0*	0 4 0*	0 8 0	.. †	0 1 6
19. KhemKaran (")	0 0 6	0 0 6	0 5 0	0 5 0	Nil
20. Amritsar ..	0 2 0	0 2 0	0 6 0	0 6 0	0 1 0
21. Dinanagar .. (Gurdaspur)	0 2 0*	0 2 0*	0 4 0	0 4 0	Nil
22. Batala (Gurdaspur)	0 1 0*	0 1 0*	0 4 0	0 4 0	0 0 3
23. Gujranwala ..	Rs. 0-3-0 if imported by road, Rs. 0-4-0 if imported by rail.		0 8 0	0 8 0	Nil if imported by road. Rs. 0-0-6 if import- ed by rail.
24. Hafizabad .. (Gujranwala)	0 2 0*	0 2 0*	0 2 0*	0 2 0*	0 0 6*
25. Akalgarh (")	0 4 0†	0 4 0†	0 4 0†	0 4 0†	0 1 6†
26. Dinga (Gujrat) ..	0 2 0*	0 2 0*	0 2 0*	0 2 0*	Nil
27. Bhalwal (Shahpur)	Nil	0 2 0*	Nil	0 2 0*	
28. Phullarwan (")	0 2 0*	0 2 0*	0 2 0*	0 2 0*	Nil
29. Jhelum ..	Nil	Nil	0 2 0	0 2 0	Nil
30. Pakpattan .. (Montgomery)	0 3 0*	0 3 0*	Nil	0 10 0	Nil
31. Lyallpur ..	Nil	Nil	0 2 0	0 2 0	0 0 3
32. Jaranwala (Lyallpur)	0 1 6*	0 1 6*	0 1 6*	0 1 6*	.. †
33. Tandlianwala (")	0 0 3*	0 0 3*	0 0 3*	0 0 3*	.. †
34. Gojra (")	0 0 6*	0 0 6*	Nil	Nil	Nil
35. Multan ..	0 1 0	0 1 0	0 4 0	0 4 0	0 0 6

* On export.

† No information.

‡ Both on export and import. Export of kikar bark is free.

APPENDIX D—(concluded).

(3). Imports into different Towns in the Punjab.

Town (District)	Raw hides.	Raw skins.	Tanned hides.	Tanned skins.	Leather goods.	Kikar bark.
	Mds.	Mds.	Mds.	Mds.	Mds.	M/ls.
1. Hissar ..	526				958	
2. Hansi (Hissar) ..	..	..	762*	..	205†	2,418
3. Sirsa ( „ ) ..	..	..	1,801*	..	43	
4. Rewari (Gurgaon) ..	1,705	261		800	414	370
5. Karnal ..	..	..	405	..	99	
6. Thanesar (Karnal) ..						1,162
7. Raekot (Ludhiana) .	Nil.	5		Nil.	842	79
8. Jagraon („) ..	1,507			1,656	25	Nil
9. Khanna („) ..	1,459			105	49	1,236
10. Fazilka (Ferozepore)	..	3,586	..		362	242
11. Lahore ..				11,030	85,910	14,464
12. Kasur (Lahore)	26,108	25,549		6,688	553	52,931
13. Patti („) ..	150			805	190	
14. Pattoki („) ..			1,315		384	139
15. Khem Karan („) ..	1,444			193	22	
16. Amritsar ..	86,688			10,694	12,166	
17. Dinanagar (Gurdaspur)	193*			130	200	
18. Batala („) ..	2,636*			3,155	1,320	
19. Gujranwala ..	11,426				723	1,508
20. Hafizabad (Gujranwala)	..	..	478*	..	161	1,690*
21. Jalalpur Jattan (Gujrat) ..			210			2,000
22. Jhelum ..				363		
23. Pakpattan (M'gomery)	931	628			333	
24. Jaranwala (Lyallpur)	..	..	3,010*	..		
25. Tandianwala ( „ ) ..	..	..	85*	..		
26. Gojra ( „ ) ..	..	..	1,110*	..		
27. Multan ..	..	..	71,842	..		63,804

* Exports.

† Including rubber and canvas shoes.

Blanks indicate no information.

APPENDIX E.

TANNING CENTRES IN THE PUNJAB.

Hissar District.—Bhiwani Khera, Hansi, Baliali, Khandi Khera, Dhanana, Narnaud, Petwar, Sesai, Rakhi, Trana, Badhwar, Bans, Sirsa, Rania, Kalanwali, Chautalab, Aminabad Urf Kharial, Dabowali, Dharsul Kalan, Tohana, Budhlada, Hissar Talwandi Badshahpur, Mangali, Kharar, Barwala, Bansmandi, Gaurchi, Telanwali.

Rohtak District.—Jhajhar, Badli, Larsauli, Ganaur, Murthal, Keora, Kannal, Sonepat.

Gurgaon District.—Rewari, Rampura, Shahjahanpur, Tankri, Qutabpur, Dharu, Hera, Khol, Birli, Sahranwas, Mohammedpore, Tauru, Murithal, Faridpur, Baloch, Dabua, Alampore, Fatehpore, Ballabgarh, Khohri Jamalpur, Dostabad, Behran Kalan, Hodel, Sundhad, Banchari, Khera Sarai, Dighat, Bhimki, Likhi, Khanbi, Bansua, Sahnali, Sultanpur, Barauli, Raidaska, Palwal, Chandhat, Ghorī, Rajupore, Rasulpore, Alawalpore, Janauli, Sihan, Taharki.

Karnal District.—Kaithal, Pundri, Fatehpur, Rajaund, Assandh, Salman, Habri, Keorak, Chhatar, Dhatrat, Moana, Jakhali, Pai, Pegan, Kathan, Dohar, Pharal, Sarsa, Pabnawa, Sarhadda, Hibana, Karora, Than, Bhagal, Gamthal, Gadha, Siwan, Kharal, Garanda, Jundala, Gagsina, Munak, Bal Ranghran, Nisang, Gondar, Baras, Jalmanda, Sambhli, Saga, Ramba, Saunkhra, Darar, Amin, Bassaula, Barsai, Faridpur, Agauna Gaon, Katul, Rainpur, Taraori, Indri, Kalsaura, Ghiyar, Khalsa, Bara, Sandir, Barisal, Kunjpura, Thanesar, Samana, Umri, Shamgarh, Katel, Satondi, Jah, Swah, Shahabad, Ladwa, Kheri, Rakashera, Dilkadla, Dehra, Mahaoti, Patti Kalyana, Jaurasi Khalsa, Jausari Sars Khas, Atta, Kharhan, Manana, Narah Joshi, Idyana, Urlana Kalan, Urlana Khurad, Fatoala Chhidarana, Dumyana, Kurana Ahar, Kayath, Naultha, Kalkha, Bahadur, Israna, Shahpur, Ujah, Kurana, Suvah, Jalapur, Kheri Nagal, Maharna, Sarsila, Dhurala, Ludhi, Kanthala, Babain, Kharindua, Jatlane Shahabad.

Ambala District.—Mastpore, Muzaffra, Bheri, Ambala City, Ambala Cantt., Baknaur, Majri Barara, Talheri Rangrezan, Mulana Bubiāl Sobhri, Barola, Panjola, Khana Mazrai, Dhin, Bohk, Ropar, Morinda, Kain Naur, Khanpur, Shahzadpur, Sadhaura.

Kangra District.—Kanihara, Dullapar, Sabirpur, Sauhra, Booli Kothi, Kholi, Moondla, Satpur, Kachhiari, Dhagoon, Baldal.

Hoshiarpur District.—Hoshiarpur, Hariana, Kainthan, Alli di Bassi, Bajror, Bhunon, Lawan, Muggowal, Nandgarh, Harkhowal, Fattowal, Dhandian.

Jullundur District.—Jullundur, Phulrewala, Usmanpura, Udhepur, Nawanshahr, Rahon, Tanda, Miani, Urmar, Adampur, Dhogari, Phillaur, Nakodar, Chamarli, Rahmanwala, Kilhaus, Nangal, Kingriwala, Chuharwala, Agalpura, Malsian, Bolina, Dhadde, Patara, Khangiwala, Kartarpur, Talwandi, Sarhali, Dhannipind, Biaspind, Qadian, Lambra, Tajpur, Jandu Singha.

Ludhiana District.—Khanna Kalan, Lalauri, Bholopur, Chakki, Isru.

Ferozepur District.—Ferozepur, Khai, Abohar, Kikar Khera, Dangar Khera, Bodiwal, Khera Khuda Bakhsh, Malont, Kularam.

Lahore District.—Nawankot, Wan Radha Ram, Ghore Shah, Kot Khawaja Said Mandi Huki, Chak No. 8 Satiana, Sandhianwala.

Amritsar District.—Amritsar, Tarn Taran, Fatehabad, Ajnala, Ramdas, Gujarpura, Gaggomal, Bhalapind, Dharra, Attari, Kheron, Vatāla, Bhalla, Naukhera and Saorian.

Gurdaspur District.—Gurdaspur, Pathankot, Sujampur, Rampur, Behrampur, Batala, Kalanpur, Fatehbad, Kotla, Nadla, Sulehryan, Pallowal, Dinanagar, Khairay, Paharipur, Saddah, Bhulla, Tipala, Talwandi, Chaora.

Sialkot District.—Dhaddoo Basrai, Lorchikki, Mittranwali, Faqiranwala, Jhulki, Dhidowali, Satrah, Koreke, Mangoo Behram, Abiala, Dhanawali, Chak Jaita, Mahal Kakkar, Chaprar Bala, Sahoo wali, Mandianwala, Nagre, Lala, Chandarke Rajputan, Baddomali, Kotli Chamrang, Dharag Miana, Walleke, Pasrur, Chawinda, Mundeke Berian, Bajra, Kalaswala, Kul Bajwa, Sodhreke, Manga, Mandhiala, Qadarabad, Qila Sobha Singh.

Gujranwala District.—Najowali, Nizamabad, Piranda Kotla, Qila Dedar Singh, Hafizabad, Emnabad, Nuinke, Talwandi, Rahwali, Kamoke, Gujranwala.

Sheikhupura District.—Sheikhupura, Shahdara.

Gujrat District.—Chellianwali, Sohawa, Manget, Mandi Bahaudin, Phallia, Mekan, Paharianwali, Bhikhi, Khiwa, Malakwal, Bhilowal, Saroki, Jalalpur Jatan, Kula Chaur, Pejoke, Mangowal Western, Khojianwali, Gharira, Langa.

Shahpur District.—Pindi, Uchhali, Jaurajagir, Hardogugh, Nalli, Naushehra, Kadhar, Jabba, Muhibpur, Doda, Bhabhra, Kot Moman, Deowal, Hazurpur, Laliani, Bhera, Khan Mohammadwala, Dhal, Chawa.

Jhelum District.—Lilla, Pind Dadan Khan, Ratuchha, Dabwal, Paridarwaza, Suragghan, Khoraka, Bishendaur Domeli, Mathot, Padhri, Gura Uttam Singh, Dina, Kala, Sanghoi, Nakka Kalan, Chotala.

Rawalpindi District.—Dheri Shahan, Kotla.

Attock District.—Hazro, Fatehjang Kamliyal, Khunda Kisran, Ikhlas, Pindigheb, Tauvi, Thatta, Ahmdal, Tallagang, Kufri, Tamman, Naraghi, Dudial, Lawa.

Mianwali District.—Musakhel, Wattakhel, Shahbaz, Khel Pacca, Rokhri, Daudkhel, Chakrala, Isakhel, Kundal, Tanikhel, Gidranwala, Kalabagh, Kot Chandra, Trag, Kullar, Kalnanwala, Mundakhel.

Lyallpur District.—Chaks No. 191, 192, 198, 153, 47, 139, 142, 187, 128, 131, 279, 158, 259, 168, of the Rakh Branch. Chaks No. 3, 26, 52, 55, 100, 122, 30, 16, 17, 18, 19, 21, 108, 42, 43, 44, 273, 274, of the Jhang Branch.

Jhang District.—Haveli Bahadur Shah, Bhango, Kharanwala, Allahyar Jutta, Dab Kalan, Amar Rasul, Yariwala, Garh Maharaja, Bhawana, Ali Khana, Mangan, Jassomel, Budh Ajnala.

Muzaffargarh District.—Jakkhar, Nangi, Lohana, Khakharwala, Kot Sultan, Lohanch, Samra, Basti Shadi Khan, Nuriwala, Tibbi Khurd, Patti Gakori, Dinpur, Buchiwala, Jarkil, Sarisute Thal, Haibatwala, Chaubara Laskaniwala.

D. G. Khan District.—Shikhani, Shahamdardin, Basti Kot Dadu, Kala Daman Baro, Pir Adal Dor, Kalna Gadai, Chawni Dargha, Ani, Anighoa, Aliwala, Paragh, Kot Chhutta, Sakhi Sarwar, Choi Bala, Choi Zahrin, Khanpur, Bast Khoj, Basti Nasir, Basti Mam, Kotla Ahmad Khan, Qayamwala, Bandwali, Mamudi, Gudpur, Basti Marzbani, Basti Hanai, Basti Malana, Notak Mahmud, Shero, Jhakar, Goliwali, Haji Kamand, Shah Jamal, Jhok Autra, Rekras, Matham, Hyder-vahan, Nurpur, Malkani Kalan.

APPENDIX F

LIST OF TANNERIES VISITED DURING THE INQUIRY.

1. LAHORE

Ghore Shah—

1. Abdul Satar Abdul Salam.
2. Ihata Chamrangan.

Kot Khawaja Said—

1. Mohd. Din Feroz Din.
2. Nizam Din Muzaffar Din.
3. Shamas Din Feroz Din.
4. Mohd. Amin.
5. Ghulam Mohd. Sardar Mohd.
6. Ghulam Mohd. Khuda Baksh.
7. Pir Mohd. Khuda Baksh.
8. Abdul Rahim Mohd. Abdulla.
9. Karam Din Mohd. Abdulla.

Shahdara—

1. Karim Baksh Amin Baksh.
2. Northern India Tannery, Ltd.

2. KASUR

1. Haji Habib Ulla.
2. Mohd. Amin Mohd. Ishaq.
3. Faiz Mohd. Mohd. Ramzan.
4. Ghulam Farid Mohd. Salim.
5. Mohd. Amin Mohd. Sadiq.

3. LYALLPUR

1. Sh. Mohd. Hussain Abdulla.
2. Haji Mohd. Din Fazal Ilahi.

4. MAGHIANA

1. Sh. Karim Baksh Mohd. Ashraf.

5. MULTAN

1. Haji Munawwar Din Khawaja Muzaffar Din.
2. Haji Mohd. Din.
3. Karkhana Chamrangan.
4. Haji Ghulam Rasul Khuda Baksh.
5. Muzaffar Din.

6. GUJRANWALA

1. Maula Baksh Abdul Wahad.

7. WAZIRABAD

1. Wazirabad Tannery.
2. Haji Amir Baksh Allah Din.
3. Sh. Pir Mohd. Abdul Karim.

8. SIALKOT

1. Sh. Kutub Din Gulab Din.
2. Upper India Leather Works.
3. Mohd. Hussain.

9. GUJRAT

1. Maula Baksh Abdul Wahad.

10. JHELUM

1. Abdul Karim Mohd. Karim.

11. GUJAR KHAN

1. Sh. Bangi Mohd. Hussain.
2. Mohd. Shafi Abdul Karim.

12. AMRITSAR

1. Mian Rahim Baksh.
2. Mian Alla Ditta Mohd. Ramzan.

13. JULLUNDUR

1. Abdul Rahim Mohd. Gulzar.

14. NAKODAR

1. Milkhi Ram Bant Ram.
2. Pallu Mal Harnam Das.
3. Sohan Lal.
4. Ratta Ram Pohlu Ram.

15. HANSI

1. Hakim Tannery.

APPENDIX G.
 INFORMATION SHEETS
 1.—TOWNS.

Name of Town. _____ Date of Visit _____

Whether a Small Town or Municipality.

Is the duty charged as Octroi or
 Terminal Tax?

	IMPORTS.			EXPORTS.		
	Rate.	Proceeds.	Quantity imported.	Rate.	Proceeds.	Quantity exported
Raw hides ..						
Raw skins ..						
Tanned hides ..						
Tanned skins ..						
Leather goods ..						
Kikar bark ..						

No. of dealers.

No. of tanning factories employing—
 more than 10 labourers.
 less than 10 labourers.

Total output per month. { Tanned hides
 Tanned skins

No. of tanners' families working in-
 dependently their castes, and output.

Uses to which leather is put in the
 town.

How do villagers in the surrounding
 area dispose of dead animals.

Places supplying hides and skins and
 tanning materials.

Places to which leather is sent.

Miscellaneous notes.

2.—VILLAGES.

Name of Village—————

Date of Visit—————

1. Distance from the nearest railway station and town.
2. Area and total population.
3. No. of tanners' families, and castes.
4. No. of active workers.
5. What skins tanned, monthly output.
6. Social status of tanners.
7. Literacy.
8. Do any of them own land?
9. How many are tenants?
10. Work done besides tanning.
11. How many work in town? How often do they visit the village?
12. Work done by women.
13. Who finances the families?
14. How are raw goods obtained and how is leather disposed of?
15. Are the families under debt to Khojas and others?
16. Cost of tanning.
17. Short notes on tanning implements and materials and their cost; quality of work done.

3.—ARTIAS.

Place—————

Date—————

1. Name and address of firm; year in which started.
2. No. of partners, their castes and education. Are they relatives?
How are the profits distributed?
3. Approximate quantity of goods generally dealt with in a season.
4. Places from which goods are brought in for sale.
5. Places where the goods are mostly despatched.
6. Foreign exports, if any.
7. Classes of buyers and sellers.
8. Rate of "arat," and other market dues charged from the seller and the buyer.
9. Sales effected by count or by weight? If the latter what is one maund equal to?
10. Adulteration, moisture, other defects, how allowed for?
11. What proportion of sales effected in cash? The period allowed for making payments.
12. General information about the market.

4.—TANNERIES.

Place_____

Date_____

1. Name and Address.
2. Names or No. of Partners, their caste and education, the nature of the concern.
3. When was it started or taken over by the present owners?
4. Approximate amount of capital invested in (1) land, (2) building, (3) machinery, (4) stock.
5. No. of persons employed, their castes, wages, etc.
6. Average monthly { Tanned hides
output { Tanned skins
7. From where is the raw material purchased?
8. How is the finished product disposed of?
9. Do the owners also have a shop as artias, or dealers?
10. Hours of works in different seasons.
11. A brief note on the process of tanning followed and the quality of goods tanned.
12. Approximate cost of tanning the various products.
13. Waste products and their disposal.
14. A description of the tannery precincts and general remarks.

(Select a few workmen and obtain particulars from them according to sheet 5.)

5.—TANNERS.

Place_____

Date_____

1. Name_____
2. Caste_____
3. Age_____years.
4. Native village.
5. Connection with land : owner, tenant (occupancy or non-occupancy) or landless.
6. Persons in the family and the number of earners; how employed : chief and subsidiary occupations.
7. Civil condition.
8. What work do the women do?
9. Does he work independently or in the employ of some firm?
10. What materials does he work upon?
11. If an independent worker how does he obtain the raw material, and how does he dispose of the finished goods?
12. If in employ, his wages; how paid; an estimate of monthly income.
13. Hours of work in different seasons?
14. Has he enough work to be fully employed all the year round?
15. Indebtedness—
Amount.
Purposes of borrowing.
From whom borrowed.
Rate of interest.
16. His views and complaints.

A list of tools and implements and their cost.

A brief description of the colony in which he is living (total number of families; whether goods are purchased collectively.)

Description of indigenous processes of tanning, materials used, period which tanning takes, cost, quality of goods, etc.

GLOSSARY

ABADI	...	...	Inhabited site of a village.
AD-DHARMI	...	...	Collective name for members of depressed classes in Hindu society; chamars and chuhras being the most important.
AK	...	...	Milk weed (<i>Calotropis procera</i>). Its juice is used for depilating skins in the eastern districts of the Punjab.
AMALTAS	...	...	Tree of the sub-Himalayan tract (<i>Cassia fistula</i>); the pulp of the fruit is used as a purgative and the bark for tanning.
AMLA	...	...	Edible fruit of <i>Phyllanthus emblica</i> .
ANJUMAN	...	...	Any organized society with a specific object; the market cess devoted to charity.
ANJUMAN TAJRAN-I-CHARAM	...	...	Society of Hide Dealers.
ANNA	...	...	One-sixteenth of a rupee. (abbrev.=a.)
ARAIN	...	...	Mohammedan agricultural tribe; often found as market gardeners near towns.
ARAT	...	...	Commission.
ARBI	...	...	Sub-caste of Khatiks.
ARJUNA	...	...	Large tree with smooth pale greenish-grey bark (<i>Terminalia arjuna</i>).
ARTIA	...	...	Commission agent.
AVARAM OR AVALA	...	...	Wild bush of South India and Bikaner (<i>Cassia auriculata</i>); its bark provides an excellent tanning ingredient.
BABUL	...	...	Same as kikar (<i>Acacia arabica</i>).
BAGARIA	...	...	Hindu Rajput or Jat from the "Bagar" or prairies of Bikaner.
BAHERA	...	...	Fruit of <i>Terminalia belerica</i> ; "beleric myrabolam."
BAI	...	...	System of sale where the prospective buyers offer bids on slips of paper.
BAKLI	...	...	Tall whitish-grey tree of the sub-Himalayan tract and Siwalik hills (<i>Anogeissus latifolia</i>). The wood is used for tanning, and the tree yields a gum used in calico printing.
BANIA	...	...	Chief Hindu trading and shopkeeping caste; in this report the term is used for any town or village trader or shopkeeper.
BEGAR	...	...	Labourers recruited from the lower ranks of village communities and generally paid a certain amount of grain each harvest.
BER	...	...	Medium sized, evergreen tree; wild plum. (<i>Zizyphus jujuba</i>).

BHALLA	...	...	Sub-caste among Hindus.
BHANGI	...	...	Sweeper.
BHARAI	...	...	Process of filling <i>kikar</i> bark into raw leather sewn into a bag for tanning.
BHISTI	...	...	Water-carrier.
BOKDAR	...	...	Man who keeps the leather-bags full of water during tanning.
CANAL COLONY	...	...	Name given to a large area brought under cultivation as a result of a canal project.
CAWNPORE MATTI	...	...	Saline efflorescence generally used for depilation of hides in Jullundur District: (Cawnpore = town in U.P.; matti = earth).
CHAMAR	...	...	Principal Hindu leather-worker caste.
CHAMRA MANDI	...	...	Raw hide market place.
CHAMRANG	...	...	Important Mohammedan tanning caste.
CHANAL	...	...	Professional skimmers of the Simla hills.
CHAPLI	...	...	Sandal (footwear).
CHAUKIDAR	...	...	Watchman.
CHHAL	...	...	Hill grass (<i>Conocarpus latifolia</i>), used for tanning in combination with <i>kikar</i> bark.
CHHATAK	...	...	One-sixteenth of a seer; equal to 2.057 ozs. (abbrev. = Chh.).
CHHICHHRA	...	...	Inner layer of pelts, removed in the fleshing of hides.
CHHIKAWA	...	...	Process of inverting leather-bags full of <i>kikar</i> bark during bag tanning.
CHHILAI	...	...	Process of fleshing hides.
CHHILEIA	...	...	Flesher who separates the inner layer of pelts.
CHHUT	...	...	Practice of giving free to a buyer a few skins over and above what he pays for; e.g., 21 for a score or 102 for one hundred.
CHIL OR CHIR	...	...	Large tree found from Afghanistan along the Himalaya and Siwalik hills to Bhutan (<i>Pinus longifolia</i>). Its bark is used for tanning near Peshawar.
CHITHIANA	...	...	Market charge for postage on correspondence.
CHUHRA	...	...	Scavenger caste. In many villages he is given carcasses of dead cattle in lieu of his customary services.
CHUNA	...	...	Lime; calcareous nodules employed in preparing mortar and in road-making.
CUTCH	...	...	Extract from the wood of <i>Acacia catechu</i> , used for tanning.
DABGAR	...	...	Artisan class preparing articles from raw hides.
DADI KURI	...	...	Small deciduous tree of sub-Himalayan tract (<i>Bridelia retusa</i>).
DALAL	...	...	Broker in the market.

DARAN	...	...	Small tree of the Salt range and foothills (<i>Punica granitum</i>); the fruit-shell, "naspal," is used for tanning.
DESI	...	...	Indigenous to the country or locality.
DHANAK	...	...	Sweeper caste; also cloth weavers and agricultural labourers.
DHAWI	...	...	Evergreen shrub of the sub-Himalayas and Himalayas (<i>Woodfordia floribunda</i>). The flowers yield a red dye used in dyeing silk.
DHORI	...	...	Half sheet of a hide.
DISTRICT	...	...	An administrative unit; there are 29 Districts in the Punjab.
DOI	...	...	Wooden instrument for finishing leather.
DOKHAR	...	...	Same as "Wegar" in sheep tanning.
DULO BAGRI	...	...	Sub-caste among Bagris.
DUYA KARNA	...	...	Preliminary tanning by immersion in mellow liquor.
GADDA	...	...	Bullock-cart.
GANDA WEGAR	...	...	Vat in which depilation of skins is done.
GHARORNA	...	...	Process of unhairing hides.
GOSALLA	...	...	Skin of "unborn" calf.
GOWARA	...	...	Sun-dried hides from villages.
GULDAR	...	...	Variety of lamb skin.
HAND BAHERA	...	...	A tree (<i>Caraja jARBorea</i>).
HARAR	...	...	Medium-sized tree of the sub-Himalayan tract (<i>Terminalia chebula</i>). The fruit is the black Myrabolam of commerce, and is used for tanning, dyeing and also medicinally.
HAT	...	...	Weekly fairs in villages, usually in the eastern parts of the Province.
HISABANA	...	...	Market charge, meant to meet the expense on clerical establishment.
HOOKAH	...	...	Indian smoking pipe; hubble-bubble.
ISAI	...	...	Christian.
JAND	...	...	Medium-sized tree (<i>Prosopis spicegera</i>).
JAT	...	...	One of the major agricultural tribes in the Punjab.
JATIA	...	...	Caste given to tanning camel hides at Rewari.
JHANWAN	...	...	Piece of nitrified brick.
JHARI BEF	...	...	Self-propagating bush of dry lands (<i>Zizyphus nummularia</i>). The leaves provide an inferior tanning material.
JHILLI	...	...	Inner layer of pelts, removed during fleshing; same as "Chhichhra."
JOIYA	...	...	Rajput clan mostly found along the Sutlej banks.
JOWAR	...	...	Large millet (<i>Andropogon sorghum</i>).
JUTI	...	...	Indian shoe.

KACHCHA	...	...	As applied to weights, distinguishes the local from the standard; to roads, means unmetalled; to houses, those made of mud.
KACHNAR	...	...	Tree of the outer and sub-Himalayan tract (<i>Bauhinia variegata</i>). The bark is used for dyeing and tanning and also medicinally.
KAMANGAR	...	...	Bow-maker caste; they have now taken to wood decoration and glue manufacture.
KAMELA	...	...	Freshly slaughtered hide; "green" hide.
KANAL	...	...	Measure of area, equal to 500 sq. yards.
KANIAR	...	...	Tree (<i>Cassia auriculata</i>).
KARUND	...	...	Evergreen shrub (<i>Carissa carandas</i>) often cultivated in gardens as hedge.
KASHMIRI	...	...	Native of Kashmir. Many among those in the Punjab are descendents of those who were driven from Kashmir by the great famine of 1878.
KASIS	...	...	Sulphate of iron, employed in making black dye for skins.
KATAKI	...	...	Pertaining to the month of Katak (mid-October to mid-November); winter crop of lac.
KATOTI	...	...	Discount in price for making cash payment.
KATARIA	...	...	Small Jat clan, deriving its name from "katar," a dagger.
KATH	...	...	Extract from the wood of <i>Acacia catechu</i> , used for chewing with betel.
KHAIR	...	...	Moderate sized tree (<i>Acacia catechu</i>); important for the manufacture of "kath" and "cutch."
KHAJUR	...	...	Date palm (<i>Phoenix sylvestris</i>).
KHAL	...	...	Goat skin.
KHATIK	...	...	Caste of goat and sheep skin tanners; mostly Mohammedan in the Punjab, except in the eastern districts where they are Hindus.
KHAWAJA	...	...	Muslim of wealth and respectability.
KHEMBAL	...	...	Tree of the lower and sub-Himalayan tract and the Salt Range (<i>Odina woodier</i>).
KHOJA	...	...	Principal Muslim trading caste.
KHOKAR	...	...	Tribe found among Jats, Rajputs, Arains and Chuhras.
KHURCHNA	...	...	Instrument for scraping hides.
KIKAR	...	...	Moderate-sized tree of the plains (<i>Acacia arabica</i>); its bark is the most common tanning material in Northern India.
KUNAL	...	...	Earthen vat, fixed into the ground, used in tanning operations.
KUPPA OR KUPPI	...	...	Leather receptacle for oil.
LAC	...	...	Resinous substance exuded by a small insect mainly on the "ber" tree in the Punjab; used in preparing lacquer, varnishes, etc.

LAG	...	...	Horizontal beam on which leather-bags stuffed with kikar bark are hung for final tanning.
LAGHAR KHANA	...	...	Beef slaughter-house.
LAHI OR LETI	...	...	Paste prepared from wheat flour for depilation of skins.
LODHAR OR PATHANI	LODH		Small tree of mountains (<i>Symplocos paniculata</i>). Bark and leaves give a yellow dye; used along with stick lac for dyeing skins.
MAJU	...	...	Gall-nut, employed in preparing black dye for skins.
MALBA	...	...	Refuse of a tannery.
MALBA FUND	...	...	Common village fund.
MALLA	...	...	Bushy shrub of dry areas (<i>Zizyphus nummularia</i>); the fruit is edible.
MALNI	...	...	Preliminary tanning.
MALNIWALA	...	...	General assistant of the mistri in a tannery.
MANDH	..	...	Same as "ganda wegar."
MANDI	...	...	Centralised market place.
MASJID	...	...	Mosque; a market cess for charity.
MAUND	...	...	Indian standard of forty seers, equal to 82-2/7 lbs. (abbrev.=Md.)
MAZDURI	...	...	Wages; labour charge in the market.
MESHA	...	...	Sheep skin.
MISTRI	...	...	Chief workman or foreman in a tannery.
MOCHI	...	...	Tanning and shoe-making caste.
MOR	...	...	Practice in the market which empowers the "artia" to refuse the highest bid should he consider it too low.
MOTH	...	...	Small pulse (<i>Phaseolus aconitifolius</i>).
MUNAFI	...	...	Profit.
MUNJ	...	...	Fibre from a reed which springs up on land subject to inundation; used for rope making or stitching hide-bags.
MUNSHI	...	...	Clerk.
MUNSHIANA	...	...	Market cess for clerical work.
NAR	...	...	Thong for tying the yoke to the plough.
NASPAL	...	...	Fruit shell of <i>Punica granitum</i> used for tanning.
NAWAN	...	...	Amount of hides handled at a time for tanning; usually about 1½ maunds.
NAZUGCHA	...	...	A variety of lambs pelts.
NIMKI	...	...	Salted hides.
NUSHKAR	...	...	Third immersion of hide pelts into the tanning liquor.
PAHARI	...	...	Pertaining to the hills.
PANKHARA	...	...	Instrument for plucking out wool from sheep skins.
PAPRA	...	...	Dewooled sheep skins.
PARACHA	...	...	Name given to Khoja in the north-western districts of the Punjab.

PASI	...	...	Caste closely allied to the Khatiks, engaged in skin tanning and pig keeping.
PASWAL	...	...	Sub-caste of Mohammedan Khatiks.
PATHA	...	...	Material for stitching pelts into bags for tanning.
PATWARI	...	...	Village accountant.
PIE	...	...	One-twelfth of an anna (abbrev. = p.).
QASAI	...	...	Butcher; the chief lac collecting caste in Hoshiarpur, and generally dealers in raw skins.
RACHHNA	...	...	Iron instrument for scraping off the hair and flesh from hides.
RAIGAR	...	...	Saltpetre-maker caste in south-eastern Punjab.
RAMBA	...	...	One-piece, T-shaped knife for fleshing hides.
RAMDASI	...	...	Followers of Guru Ram Das; a sub-caste of chamars.
RANH	...	...	A caste.
RAVIDASI	...	...	Followers of Ravi Dass; a sub-caste of chamars.
RIG VEDA	...	...	Most ancient among the four Vedas, or the body of ancient Sanskrit hymns with accompanying comments.
RUPEE	...	...	Indian standard coin, fixed at 1s. 6d. since 1927 (abbrev. = Re. or Rs.).
SAFAIWALA	...	...	Sweeper in a tannery.
SAJJI	...	...	Barilla; impure form of carbonate of soda, obtained by burning <i>Haloxylon recurvum</i> when the plant flowers, and collecting the juice in a pit where it is allowed to cool and solidify.
SANA	...	...	Porcupine.
SANG JIRAH	...	...	White soft stone which, finely powdered, is used for plastering, and also medicinally.
SANTA	...	...	Ox-goad: whip.
SAQQA	...	...	Muslim water-carrier.
SARSON	...	...	Indian colza; an oil seed (<i>Brassica campestris</i>).
SEER	...	...	One-fortieth of a maund; equal to about 2 lbs. (abbrev. = Sr.).
SEP	...	...	Customary service by the lower ranks of the village community to land-owners.
SHEIKH	...	...	Title assumed by tribes of true Arab descent; generally a title for a new convert to Islam.
SHIKMI	...	...	Skin of "unborn" lamb.
SHINMAR	...	...	Muslim caste.
SIL	...	...	Slab of stone, on which fleshing is done.
SINDHU OR SIDHU	...	...	Largest and most important of Jat tribes in the Punjab.
SODA	...	...	Bicarbonate of soda.
SUKTI	...	...	Sun-dried hide.

TAHSIL	...	...	Sub-division of a district with a separate administrative staff.
TAHSILDAR	...	...	Officer in charge of a Tahsil.
TARKHAN	...	...	Carpenter.
THIKRI	...	...	Potsherd used for scudding.
TIL	...	...	Sesamum; oil seed (<i>Sesamum indicum</i>).
TONGA	...	...	Two-wheeled vehicle drawn by a horse between shafts.
TULAI	...	...	Charge for weighing goods in the market.
TUN	...	...	Large tree of sub-Himalayan tract from Rawalpindi district eastwards (<i>Cedrela tuna</i>).
TURWAD	...	...	Same as "Avaram."
WAJAB-UL-ARZ	...	...	Record of rights in a village, showing dues and duties of menials.
WEGAR	...	...	Earthen vat fixed into the ground; process of depilation; unit for tanning, from 8 to 9 maunds, in different tanneries.
YAKHDAN	...	...	Leather-covered wooden box, made in Peshawar.
YAKKA	...	...	Two-wheeled vehicle, without springs drawn by a horse or a bullock.
ZEMINDAR	...	...	Land-owner; general term for an agriculturist.

The Board of Economic Inquiry, Punjab.

PUBLICATION No. 62

[GENERAL EDITOR : J. W. THOMAS, B.Sc., B.Com.]

FAMILY BUDGETS, 1936-37, OF ELEVEN CULTIVATORS IN THE PUNJAB

Being the Fifth Year's Accounts of Six Tenant-Cultivators in the Lyallpur District and the First Year's Accounts of Five Owner-Cultivators in the Jullundur, Hoshiarpur, Amritsar and Rohtak Districts.

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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.]

1939

Some Reports of the Board of Economic Inquiry, Punjab.

FAMILY BUDGETS REPORTS.

1. Family Budgets, 1932-3, of Four Tenant-Cultivators in the Lyallpur District. (Publication No. 40.)
2. Family Budgets, 1933-4, of Six Tenant-Cultivators in the Lyallpur District. (Publication No. 44.)
3. Family Budgets, 1934-5, of Six Tenant-Cultivators in the Lyallpur District. (Publication No. 50.)
4. Family Budgets, 1935-6, of Six Tenant-Cultivators in the Lyallpur District. (Publication No. 59.)
5. Family Budgets, 1936-7, of Eleven Cultivators in the Punjab. (Publication No. 62.)

LATEST PUBLICATIONS.

6. Sales of Land in South-West Punjab, 1931-2 to 1933-4. (Publication No. 57.)
 7. Farm Accounts in the Punjab, 1935-6. (Publication No. 58.)
 8. Urban Working Class Cost of Living Index Numbers (1937) in the Punjab. (Publication No. 60.)
 9. Tanning Industry in the Punjab. (Publication No. 61.)
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A complete list of the Board's Publications is given at the end of this book.

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PREFACE

The "Family Budgets" series of reports issued by the Board of Economic Inquiry is complementary to the "Farm Accounts" series. The latter deals with the income and expenditure relating to cultivation only, while the former takes into account the total budgets of some of the families concerned.

The present report is the fifth in the series which was first started in 1932-33. In that year four tenant-cultivators on the Risalewala Government Farm, near Lyallpur, were selected, and in the next year two more were added. In 1936-37, in addition to these families, five others were included representing the Jullundur, Hoshiarpur (two families), Amritsar and Rohtak Districts of the Punjab.

The six Lyallpur families are tenants of the Government through the Agricultural Department, which controls the cropping scheme, and they have to sell their share of the wheat grown to the Department for distribution as superior seed throughout the province. The other five families are of owner-cultivators, two of whom took additional land on cash rent, while a third took land on both batai and cash rents.

Four of the Lyallpur tenants received Rs. 158 in all as rent from land owned in their native villages; the Jullundur family received Rs. 313 from a portion of their holding given out on rent, and one of the two Hoshiarpur families similarly got Rs. 310; this family also received Rs. 90 from a member in government service.

The accounts of the Lyallpur tenants were maintained by a departmental man deputed for the purpose, while those of the others were kept by a member of the family on an honorarium of Rs. 30 or Rs. 40. It is stated by the authors that the income and social status of the families considered in this report, may be taken to be a little higher than the average cultivator in the province owing to their being government tenants or because of some education received by family members.

The usual accounting methods have been used in working out the financial positions of the cultivators. Credit has been given for the value of young stock of animals and for the farmyard manure, including dung, which was largely applied to the land. Interest and depreciation on the capital invested in buildings, animals (milch and plough), wells and gear (including the cost of sinking), and implements, have also been taken into consideration, while the milk con-

sumed at home in its various forms and the cost of dress, including homespun, have been debited to expenditure.

The value of such scientific treatment of the family budgets of cultivators helps to reveal intimately how the farmers are managing to live in these difficult times. With the addition of the accounts of families in other parts of the province more and more light will be thrown on this most important aspect of the rural economy of the Punjab, which is a predominantly agricultural province.

Acknowledgment is made to the authors, S. Labh Singh, B.Sc., L.Ag., P.A.S., and S. Ajaib Singh, B.Sc., for their voluntary work in the maintaining and compilation of this useful series of publications.

J. W. THOMAS,

General Editor.

15th March, 1939.

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INTRODUCTION

The importance of finding out the cost of living of urban labourers seems to have been realised in this country some sixteen years ago. Since then several inquiries have been conducted and the "Cost of Living Index Numbers" of various groups of urban labourers have been published at regular intervals. So far as agricultural labourers are concerned however, little effort seems to have been made and inquiries relating to rural areas have dealt mostly with the economics of farming and other sources of the cultivator's income. Information regarding both the income and expenditure of the peasants, although of immense importance, especially in regard to measures for the economic and social betterment of the countryside, was not available before the publication of the "Family Budgets" series by the Board.

Work in connection with this series of publications was started in the year 1932, when accounts of four tenant-cultivators were kept at the Risalewala Government Seed Farm, near Lyallpur. In the year 1933 the inquiry was extended to six families at the same farm. The present publication, in addition to the six families of the Risalewala Farm, deals with five new families living in the Jullundur, Hoshiarpur, Amritsar and Rohtak Districts.

The records at the Risalewala Farm were maintained by an investigator, who lived at the farm. He went round the families every day and kept himself in close touch with them. Records for the families in other districts were maintained by a member of the family itself. The forms used for recording primary data are given in the appendix. The families with which this publication deals may be, in respect of their income and social status, a little above the average cultivator family in the Punjab, because a family, one of whose members is able to keep accounts, would in all probability be higher in general intelligence than the average family which is usually entirely illiterate.

LABH SINGH
AJAIB SINGH

SECTION I
GENERAL SUMMARY
OF THE
FAMILY BUDGETS,
1936-37.

GENERAL SUMMARY

The present publication is the fifth in the series of "Family Budgets" and deals with the budgets of eleven families for the periods shown below :—

Family	Period
1. Six families in the Lyallpur District (Risalewala).	1st June, 1936 to 31st May, 1937.
2. One family in the Jullundur District.	1st August, 1936 to 31st July, 1937.
3. Two families in the Hoshiarpur District.	-do-
4. One family in the Amritsar District.	1st July, 1936 to 30th June, 1937.
5. One family in the Rohtak District.	15th August, 1936 to 14th August, 1937.

The families are dealt with in three parts. Part I deals with the accounts of the Risalewala families, Part II with four families, one each in the Jullundur, Hoshiarpur, Amritsar and Rohtak Districts, and Part III with one family in the Hoshiarpur District. The last mentioned has been taken separately because the income and expenditure of this family is much above the average on account of one of its members being in Government service and also because of income from land leased out to tenants.

The Risalewala families A, B, C, D, E and F correspond to the 6th, 8th, 9th, 12th, 5th and 29th tenants respectively of Holding C of Part VIII of "Farm Accounts" for 1936-7—(Publication 63). The outside families correspond to the holdings in the "Farm Accounts" 1936-37, as follows:—

Family	Holding
1. Jullundur.	I. C. Ramunwal.
2. Hoshiarpur I.	III. A. Dholanwal.
3. Hoshiarpur II.	III. B. Rasulpur.
4. Amritsar.	IV. B. Doburji.
5. Rohtak.	VI. B. Bighan.

This publication deals with the following aspects of the family budgets:

1. Income of the families from different sources.
2. Cost of various items of household expenditure.
3. Extent to which the goods consumed by the families are produced on the farm or purchased from outside.

The families under study varied in size from 3.2 to 14.7* members at the Risalewala Farm and from 3.1 to 10.8 members at other places. The average number of members came to 8.4 for the Risalewala families, 6.4 for other families excluding Rasulpur and 8.0 for the Rasulpur family. These converted to adult male units, according to Atwater's Scale of Adult Male Units,† came to 6.0, 5.1 and 5.2 adult male units respectively.

The income dealt with accrued from the following sources :—

1. Farm Cultivation.
2. Milk Production.
3. Wages for Labour done outside by family members in their spare time.
4. Interest on Capital invested in implements, live stock and buildings.
5. Miscellaneous : Rent of land owned and given out on rent, and income from other minor sources, *e. g.*, remuneration for keeping accounts, prizes, value of fuel collected from the farm or outside, not included in income otherwise, and value of manure produced by cattle not debited to expenditure in "Farm Accounts" and "Family Budgets."

The maximum, minimum and average income for the three groups of families work out as follows :—

Families.	PER FAMILY			Average per head.	Average per adult male unit.
	Maximum.	Minimum.	Average.		
	Rs.	Rs.	Rs.		
Risalewala Families ..	637.92	326.38	453.82	54.35	75.01
Other families (excluding Rasulpur) ..	690.88	340.32	519.63	81.19	102.39
Rasulpur Family ..	..	..	856.23	107.03	164.66

*Some of the members lived with the families for a part of the year; hence the fractions.

†Atwater's Scale of Adult Male Units, as given in "Chinese Farm Economy" by Buck, page 17, is as follows :—

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
8 to 9	0.5	0.5
7 to 8	0.4	0.4
Under 7	0.3	0.3

The expenditure has been studied under the following 12 heads :—

- | | |
|--------------|--------------------|
| 1. Food. | 7. Travelling. |
| 2. Fuel. | 8. Education. |
| 3. Dress. | 9. Religion. |
| 4. Housing. | 10. Social. |
| 5. Lighting. | 11. Amusements. |
| 6. Medicine. | 12. Miscellaneous. |

Food being the most important item of household expenditure has been dealt with in detail in the following pages.

Fuel consumed by families consisted of dung cakes, firewood, cotton sticks, and other by-products of farming. In the previous years no value was shown against this item as the value of articles of fuel was not included in the income of the families. This year, however, fuel has been evaluated at the prices current in the villages and included in income as well as in expenditure.

Dress includes clothing and shoes.

In this publication expenditure relating to housing consists of interest and depreciation on the value of houses, cost of furniture purchased, and repairs to houses and furniture during the year. Interest has been charged @ 8 per cent. per annum on the remainder value which practically amounts to 4 per cent. on the original value. The depreciation has been charged at the following rates :—

Pacca houses 1st Class, 1½ per cent.	} Per annum on the original value.
" " 2nd Class, 2½ "	
Kachcha houses 1st Class, 2½ "	
" " 2nd Class, 5 "	

No interest or depreciation is charged after the whole cost has been covered by depreciation. In the previous years interest and depreciation on houses was not included in "housing." The change effected during the year under review does not, however, make the present year's figures of "housing" non-comparable with those for the previous years, for all the houses at the Risalewala Farm are over-depreciated, and no interest or depreciation has been charged upon them even in the year under review.

Religion includes expenses on account of offerings made to religious institutions and priests, animals sacrificed at the time of 'Id (Muslim festival), etc. Social expenses comprise expenses incurred on social occasions, e.g., celebrations connected with births, circumcisions, etc. Amusements and luxuries include expenditure on tobacco, cinema and other entertainments. The "miscellaneous" item comprises expenditure on things not included in any other group.

A comparison of the average expenditure of the three groups of the families is given below :—

Item.	RISALEWALA FAMILIES.			OTHER FAMILIES (EXCEPT RASULPUR).			RASULPUR FAMILY.		
	Per family.	Per adult male unit.	Percentage to the total.	Per family.	Per adult male unit.	Percentage to the total.	Per family.	Per adult male unit.	Percentage to the total.
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	
Food ..	265.10	43.82	59	240.28	47.35	53	442.82	85.16	49
Fuel ..	17.42	2.88	4	13.75	2.71	3	14.28	2.75	1
Dress ..	80.91	13.37	18	70.64	13.92	16	136.23	26.20	15
Housing ..	3.04	0.50	1	19.34	3.81	4	242.32	46.60	27
Lighting ..	4.45	0.74	1	4.31	0.85	1	8.45	1.62	1
Medicine ..	11.09	1.83	2	1.16	0.23	..	14.80	2.84	2
Travelling ..	21.25	3.51	5	18.66	3.68	4	6.50	1.25	1
Education ..	3.14	0.52	1	43.38	8.55	10	0.88	0.17	..
Religion ..	14.08	2.33	3	8.28	1.63	2	2.81	0.54	..
Social ..	4.01	0.66	1	9.98	1.96	2	2.34	0.45	..
Amusements and luxuries ..	6.93	1.15	2	9.25	1.82	2	6.09	1.17	1
Miscellaneous ..	14.36	2.37	3	12.00	2.36	3	23.80	4.58	3
<i>Total</i> ..	<i>445.78</i>	<i>73.68</i>	<i>100</i>	<i>451.03</i>	<i>88.87</i>	<i>100</i>	<i>901.32</i>	<i>173.33</i>	<i>100</i>

Expenditure per head per annum comes to Rs. 53.39 for Risalewala families, Rs. 70.47 for other families excluding Rasulpur, and Rs. 112.66 for the Rasulpur family.

It will be observed from the above table that food is the largest item of household expenditure comprising 49 to 59 per cent of the total. The percentage expenditure on food decreases, and that on housing increases, with the increase in the total expenditure. It may be noted that although the total expenditure per adult male is less in the case of the Risalewala tenants compared with the other families (except Rasulpur), their expenditure on medicine is more. This is because Risalewala is near Lyallpur where medical facilities are available.

The porportion of goods supplied by the farms and purchased was as follows :—

Families.	PERCENTAGE TO THE TOTAL.	
	Furnished by the farm.	Purchased.
	Per cent.	Per cent.
Risalewala Families	49	51
Other families (excluding Rasulpur)	45	55
Rasulpur Family	40	60

The Rasulpur family, which has a higher standard of living, used more purchased goods than the other families.

The item of food is the most important, hence it has been dealt with below in detail and divided into the following items :—

- | | |
|----------------------------|--------------------|
| 1. Wheat. | 7. Pulses. |
| 2. Maize. | 8. Vegetables. |
| 3. Milk and Milk Products. | 9. Fruit. |
| 4. Sugar. | 10. Salt. |
| 5. Rice. | 11. Miscellaneous. |
| 6. Meat. | |

Wheat includes wheat grain, its products, e.g., flour, bread, sooji (flour in granular form), etc., consumed by the family, whether produced on the farm or purchased, and grinding charges actually paid for flour. Similarly, maize includes maize grain, its products and grinding charges. Milk and milk products comprise liquid milk, butter, curd, lassi (butter milk), ghi (clarified butter commonly used in place of lard in India), and other preparations of milk. Milk consumed at home has been valued at the cost of production. Sugar includes gur, shakkar and white refined sugar.

“Miscellaneous” includes expenses on spices, pickles, kitchen utensils, matches, charges of water-carrier for supplying drinking water and expenses on other articles of food not included under any other heading.

The expenditure on food of the three groups of families was as follows :—

Item.	RISALEWALA FAMILIES.			OTHER FAMILIES EXCLUDING RASULPUR.			RASULPUR FAMILY.		
	Per family.	Per adult male unit.	Percentage to the total.	Per family.	Per adult male unit.	Percentage to the total.	Per family.	Per adult male unit.	Percentage to the total.
Wheat ..	Rs. 98-04	Rs. 18-20	37	Rs. 52-26	Rs. 10-30	22	Rs. 151-94	Rs. 29-22	34
Maize ..	2-17	0-36	1	16-10	3-17	7	18-92	3-64	4
Milk and milk products ..	112-07	18-53	42	105-78	20-84	44	155-08	29-82	35
Sugar ..	20-39	3-37	8	24-37	4-80	10	34-75	6-68	8
Rice ..	6-24	1-03	2	9-65	1-90	4	34-55	6-64	8
Meat ..	2-57	0-43	1	6-39	1-26	3	16-95	3-26	4
Pulses ..	2-69	0-45	1	5-62	1-11	2	9-40	1-81	2
Vegetables ..	5-94	0-98	2	5-67	1-12	2	7-12	1-37	2
Fruit ..	4-53	0-75	2	3-70	0-73	2	4-39	0-84	1
Salt ..	1-06	0-17	..	0-76	0-15	..	2-00	0-39	..
Miscellaneous ..	9-40	1-55	4	9-98	1-97	4	7-72	1-49	2
Total ..	265-10	43-82	100	240-28	47-35	100	442-82	85-16	100

The difference between the Risalewala and other families with respect to the consumption of maize is striking. This is possibly due to the fact that cotton, which is an alternative crop to maize, pays better; farmers near Lyallpur are also inclined to put less area under maize owing to attacks of maize borer.

The cost of production of milk by buffaloes and by cows kept by the families has been worked out according to the following methods.

The main items of cost are :—

- (a) Roughages.
- (b) Concentrates and salt.
- (c) Interest and depreciation on the value of milch cattle and sheds.
- (d) Miscellaneous.

Labour has been excluded because milk production is only a subsidiary industry, and is carried on in spare time, there being no additional out-of-pocket expenses incurred for labour employed on this work.

Roughages include green fodders, bhusa, etc. These are fed to all cattle from a common supply. No separate records of consumption by each animal are available, but their respective shares are worked out by dividing the total cost of roughages by the number of adult animals. For this purpose each animal above two years of age has been taken as an adult and each of those between one and two years of age as equal to half an adult animal. Animals less than one year old have been omitted. The records of consumption of concentrates and salt were maintained separately. Depreciation on the value of cattle and kachcha and pacca sheds has been charged @ 12, 5 and 2½ per cent respectively per annum.

Interest on capital is charged at the rate of 8 per cent per annum on the balance (value not covered by depreciation). This amounts in the long run to about 4 per cent per annum on the original value. In actual calculations interest has, therefore, been charged @ 4 per cent per annum on the original value in all cases.

Miscellaneous includes the cost of ropes, veterinary charges, etc.

From the total of these items are deducted the value of young stock raised during the year, and the value of manure produced by the animals.

To sum up, the cost of milk production includes the value of roughages, concentrates, and salt consumed, interest and depreciation on the value of milch cattle and housing, and miscellaneous expenses, less the value of manure and young stock at the end of the year,

The cost of production of milk per maund by cows and by buffaloes for the three groups of families was as follows :—

				<i>Cost per Maund.</i>
Risalewala Families—				
Buffaloes	..	..	..	Rs. 2.66
Cows	..	..	..	Rs. 3.06
Other families (excluding Rasulpur)—				
Buffaloes and Cows jointly	..	..	..	Rs. 2.84
Rasulpur Family—				
Buffaloes and Cows jointly	..	..	..	Rs. 2.42

The surplus or deficit per family in the budgets of the three groups of families were :—

Families.	Income.	Expenditure.	Surplus (+) or Deficit (-).
	Rs.	Rs.	Rs.
Risalewala Families ..	453.82	445.78	+8.04
Other families (excluding Rasulpur) ..	519.63	451.03	+68.60
Rasulpur Family ..	856.23	901.32	-45.09

SECTION II
FAMILY BUDGETS
PART I
FAMILY BUDGETS OF SIX TENANT-CULTIVATORS
AT THE
RISALEWALA FARM (LYALLPUR DISTRICT)
FOR THE YEAR,
1936-37.

**FAMILY BUDGETS OF SIX TENANT-CULTIVATORS
AT THE RISALEWALA FARM, 1936-37.**

1. PARTICULARS OF FAMILIES

The caste, number and ages of the family members are shown in Statement 1 on page 42. For the sake of comparison the numbers in each family have, as stated before, been reduced to adult male units on the basis of Atwater's scale.

All the families dealt with here are joint families as married sons and their wives live and work with their parents. Thus families A, B and C consist of more than one couple and in family D one of the married sons and his wife live in a separate house, but even here the work of farm cultivation is carried on jointly. It has, therefore, been treated as one family. Similarly, families E and F include relatives who stayed and worked as members of these families.

2. INCOME

The income derived from the various sources is dealt with below :—

(i) **Farm Cultivation.**—The areas held and income from cultivation of the families during the year 1936-37 are shown below :—

Family.	Area held.	TOTAL (Tenants' share).		
		Gross income.	Expenditure.*	Net Income.
	Acres.	Rs.	Rs.	Rs.
A	27·81	871·49	599·79	271·70
B	27·66	881·76	568·42	313·34
C	27·59	931·11	482·67	448·44
D	26·86	1,137·43	578·08	559·35
E	27·82	976·54	658·56	317·98
F	13·69	524·09	275·45	248·64
<i>Total</i> ..	<i>151·43</i>	<i>5,322·42</i>	<i>3,162·97</i>	<i>2,159·45</i>
Per family ..	25·24	887·07	527·16	359·91

*Excluding wages of family workers but including weighing charges and interest on capital.

(ii) **Milk Production.**—The production and disposal of milk is dealt with in Section 7 below. The income of the various families from this source was as follows :—

Family.	Gross income.*	Expenditure.	Net income.
	Rs.	Rs.	Rs.
A ..	136.09	92.02	44.07
B ..	229.36	255.91	—26.55
C ..	75.00	75.00	..
D ..	208.73	189.18	19.55
E ..	171.32	171.70	—0.38
F ..	84.39	77.17	7.22
<i>Total</i> ..	<i>904.89</i>	<i>860.98</i>	<i>43.91</i>
Per family ..	150.82	143.50	7.32

*Milk consumed in the household has been valued at cost of production and milk sold at the actual price realized.

(iii) **Wages of labour done outside by family members.**—This head includes the following items :—

- (a) Value of wages in kind earned by the women of the family for picking cotton.
- (b) Wages earned by men in doing labour outside.
- (c) Wages earned by plying carts.

The income of the families from these items was as follows :—

Family.	Value of wages in kind for picking cotton (Women).	Wages for labour outside (Men).	Wages earned by plying carts (Men).	Total.
	Rs.	Rs.	Rs.	Rs.
A ..	16.72	1.88	2.50	21.10
B ..	8.03	..	6.00	14.03
C ..	11.51	..	2.00	13.51
D ..	10.31	..	..	10.31
E ..	1.00	..	12.00	13.00
F ..	11.91	..	30.00	41.91
<i>Total</i> ..	<i>59.48</i>	<i>1.88</i>	<i>52.50</i>	<i>113.86</i>
Per family ..	9.91	0.32	8.75	18.98

(iv) **Interest on Capital invested in Agricultural Implements and Agricultural Stock.**—In “Farm Accounts” and “Family Budgets” interest on capital invested in bullocks, milch cattle and implements is debited to expenditure. This is also income to the families, and should be included amongst the items of income. The income from this source was as follows :—

Family.	Bullocks.	Buffaloes.	Cows.	Implements.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.
A ..	14·80	5·49	0·11	2·24	22·64
B ..	16·00	9·02	5·29	1·40	31·71
C ..	11·80	2·40	1·76	2·64	18·60
D ..	12·80	8·60	0·33	1·96	23·69
E ..	9·20	5·01	3·80	3·02	21·03
F ..	4·04	4·16	0·08	4·12	12·40
<i>Total</i> ..	<i>68·64</i>	<i>34·68</i>	<i>11·37</i>	<i>15·38</i>	<i>130·07</i>
Per family ..	11·44	5·78	1·90	2·56	21·68

(v) **Miscellaneous.**—The following table shows the income from miscellaneous sources and under this head are the following items:—

- (a) Rent received from land owned by the tenants in their native villages.
- (b) Fuel produced by the farm excluded in “Farm Accounts.”
- (c) Value of manure produced by cattle, not debited to expenditure in “Farm Accounts” and “Family Budgets.”

Family.	Rent.	Fuel.	Manure.	Total.
	Rs.	Rs.	Rs.	Rs.
A ..	45·00	8·25	17·00	70·25
B ..	69·00	11·80	13·34	94·14
C ..	..	12·66	8·69	21·35
D ..	..	15·82	9·20	25·02
E ..	39·00	7·69	1·96	48·65
F ..	5·00	7·28	3·93	16·21
<i>Total</i> ..	<i>158·00</i>	<i>63·50</i>	<i>54·12</i>	<i>275·62</i>
Per family ..	26·33	10·58	9·02	45·93

(vi) **Total Income.**—The total income of the families from the above five sources was as follows :—

Family.	Farm cultivation.	Milk production.	Wages of labour.	Interest on capital.	Miscellaneous.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
A ..	271·70	44·07	21·10	22·64	70·25	429·76
B ..	313·34	—26·55	14·03	31·71	94·14	426·67
C ..	448·44	..	13·51	18·60	21·35	501·90
D ..	559·35	19·55	10·31	23·69	25·02	637·92
E ..	317·98	—0·38	13·00	21·03	48·65	400·28
F ..	248·64	7·22	41·91	12·40	16·21	326·38
<i>Total</i> ..	<i>2,159·45</i>	<i>43·91</i>	<i>113·86</i>	<i>130·07</i>	<i>275·62</i>	<i>2,722·91</i>
Per family ..	359·91	7·32	18·98	21·68	45·93	453·82

3. EXPENDITURE

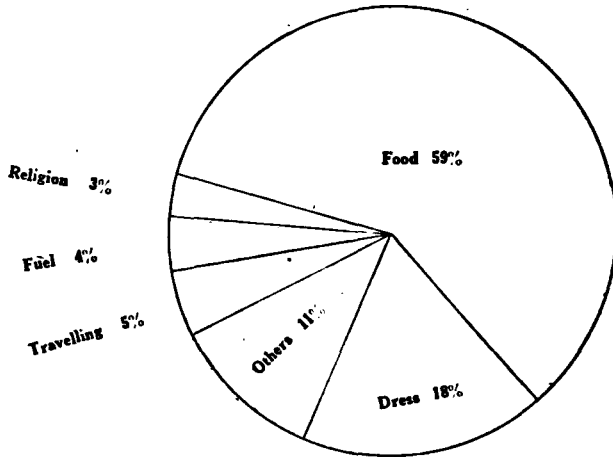
The Statement 2 on page 43 gives the household expenditure under various heads during the year. The maximum, minimum, and average expenditure, per family and per adult male unit, is given in the following table:—

Items of Expenditure.	PER FAMILY.			PER ADULT MALE UNIT.			
	Maximum.	Minimum.	Average	Maximum.	Minimum.	Average.	Percent-agg.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Food ..	417·08	153·80	265·10	73·58	24·60	43·82	59
Fuel ..	25·82	12·28	17·42	5·44	1·78	2·88	4
Dress ..	110·09	52·58	80·91	20·70	8·86	13·37	18
Housing ..	8·94	..	3·04	0·92	..	0·50	1
Lighting ..	6·66	1·66	4·45	1·89	0·45	0·74	1
Medicine ..	32·98	1·38	11·09	4·12	0·48	1·83	2
Travelling ..	54·88	5·12	21·25	20·33	0·67	3·51	5
Education ..	15·73	..	3·14	1·97	..	0·52	1
Religion ..	39·44	2·25	14·08	7·44	0·83	2·33	3
Social ..	12·00	..	4·01	1·56	..	0·66	1
Amusements and luxuries ..	12·72	1·88	6·93	3·15	0·35	1·15	2
Miscellaneous ..	24·83	5·05	14·36	9·20	1·19	2·37	3
<i>Total</i> ..	<i>621·05</i>	<i>256·61</i>	<i>445·78</i>	<i>133·87</i>	<i>51·70</i>	<i>73·68</i>	<i>100</i>

The following diagram gives the percentage of various items of expenditure to the total expenditure :

CHART I

Items of Expenditure.



Details of Family Expenses from 1932-3 to 1936-7 are in the table below given for purpose of comparison:

Item.	AVERAGE PER FAMILY.					PER ADULT MALE UNIT.				
	1932-3.	1933-4.	1934-5.	1935-6.	1936-7.	1932-3	1933-4	1934-5	1935-6	1936-7
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Food ..	302.12	313.50	234.57	264.50	265.10	45.92	52.69	40.68	45.21	43.82
Fuel ..	..	..	..	..	17.42	..	..	..	..	2.88
Dress ..	97.14	75.67	65.24	90.44	80.91	14.76	12.72	11.31	15.46	13.37
Housing ..	2.62	1.39	2.91	1.22	3.04	0.40	0.23	0.50	0.21	0.50
Lighting ..	6.10	5.53	3.70	4.21	4.45	0.93	0.93	0.64	0.72	0.74
Medicine ..	4.70	4.63	7.42	7.19	11.09	0.71	0.78	1.29	1.23	1.83
Travelling ..	28.00	27.12	14.96	26.83	21.25	4.25	4.56	2.59	4.58	3.51
Education ..	0.65	1.24	0.39	2.04	3.14	0.10	0.21	0.07	0.35	0.52
Religion ..	6.72	11.29	9.09	18.08	14.08	1.02	1.90	1.58	3.09	2.33
Social ..	5.25	9.03	5.40	12.64	4.01	0.80	1.52	0.94	2.16	0.66
Amusements & luxuries ..	7.63	3.84	6.64	7.55	6.93	1.16	0.64	1.15	1.29	1.15
Miscellaneous ..	8.73	8.52	9.98	10.22	14.36	1.33	1.43	1.73	1.75	2.37
<i>Total with Fuel Included ..</i>	..	..	..	..	445.78	..	..	..	..	73.68
<i>Excluded</i>	459.66	461.76	360.30	444.92	428.36	71.38	77.61	62.48	76.05	70.80

It will be observed that per unit the expenditure has slightly decreased as compared with the previous year, chiefly under the heads "food," "dress," "travelling," "religion," "social," and "amusements and luxuries."

4. SOURCES OF GOODS CONSUMED

According to their immediate source goods have been divided into two classes, namely :

1. Goods furnished by the farm.
2. Goods purchased.

Detailed accounts of the value of goods falling under the different heads will be found in Statement 3 on page 44. The average figures for all the six families are given below :

Item.	AVERAGE EXPENDITURE PER FAMILY.			PERCENTAGE TO TOTAL.	
	Total.	Furnished by the farm.	Purchased.	Furnished by the farm.	Purchased.
	Rs.	Rs.	Rs.		
Food ..	265·10	195·42	69·68	74	26
Fuel ..	17·42	17·42	..	100	..
Dress ..	80·91	3·95	76·96	5	95
Housing ..	3·04	..	3·04	..	100
Lighting ..	4·45	..	4·45	..	100
Medicine ..	11·09	..	11·09	..	100
Travelling ..	21·25	..	21·25	..	100
Education ..	3·14	..	3·14	..	100
Religion ..	14·08	..	14·08	..	100
Social ..	4·01	..	4·01	..	100
Amusements and luxuries ..	6·93	..	6·93	..	100
Miscellaneous ..	14·36	..	14·36	..	100
<i>Total</i> ..	<i>445·78</i>	<i>216·79</i>	<i>228·99</i>	<i>49</i>	<i>51</i>

It will be seen that 49 per cent. of the goods consumed was furnished by the farm and 51 per cent. purchased. One important point must, however, be noted here, viz., that the tenants are bound by the terms of their lease to sell, if required, all their wheat to the Department of Agriculture. As most of the wheat produced on the farm was sold in this manner the tenants had to purchase wheat for food from the town and this has been taken as if produced on the farm, as the tenants really exchanged the home grown wheat for wheat produced by others.

The figures of this year compare with those for the previous four years as follows :

Year.	PER FAMILY.			PER ADULT MALE UNIT.			PERCENTAGE TO TOTAL.	
	Total.	Furnished by the farm.	Purchased.	Total.	Furnished by the farm.	Purchased.	Furnished by the farm.	Purchased.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		
1932-33 ..	469.66	264.94	204.72	71.38	40.27	31.11	56	44
1933-34 ..	461.76	272.43	189.33	77.61	45.79	31.82	59	41
1934-35 ..	360.30	203.92	156.38	62.48	35.36	27.12	57	43
1935-36 ..	444.92	228.87	216.05	76.05	39.12	36.93	51	49
1936-37 ..	445.78	216.79	228.99	73.68	35.83	37.85	49	51

5. FOOD

Statement 4 on page 45 shows the cost of food under the various heads as explained in the General Summary (page 6).

The quantity of various articles of food used per family, per adult male unit, and per head are shown in Statement 5 on page 46.

The following table shows the maximum, minimum and average value of the different articles of food used per family and per adult male unit :

Articles of Food.	PER FAMILY.			PER ADULT MALE UNIT.			
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Percentage.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Wheat ..	198.20	46.53	98.04	20.43	9.58	16.20	37
Maize ..	6.48	..	2.17	0.67	..	0.36	1
Milk and milk products ..	206.92	63.04	112.07	46.87	7.88	18.53	42
Sugar ..	38.96	9.44	20.39	7.35	1.98	3.37	8
Rice ..	10.83	1.05	6.24	2.04	0.39	1.03	2
Meat ..	6.03	..	2.57	1.14	..	0.43	1
Pulses ..	6.71	0.89	2.69	0.69	0.24	0.45	1
Vegetables ..	8.94	3.10	5.94	1.69	0.67	0.98	2
Fruit ..	9.06	0.90	4.53	1.30	0.33	0.75	2
Salt ..	1.81	0.28	1.06	0.22	0.11	0.17	..
Miscellaneous ..	17.75	2.47	9.40	2.98	0.85	1.55	4
<i>Total</i> ..	<i>417.08</i>	<i>153.80</i>	<i>265.10</i>	<i>73.58</i>	<i>24.63</i>	<i>43.82</i>	<i>100</i>

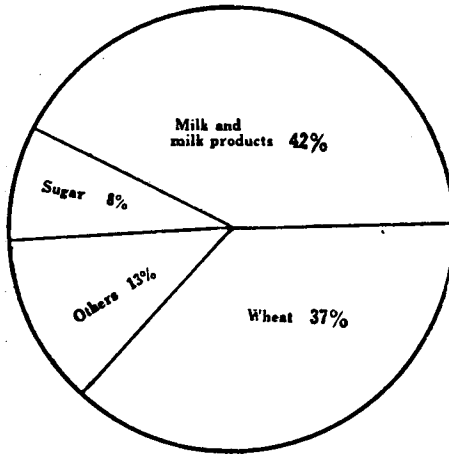
The average quantities of the various articles of food consumed are shown in the following table :

Items.	PER FAMILY PER ANNUM.			PER ADULT MALE UNIT PER ANNUM.			PER DAY—	
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Per adult male unit.	Per head.
MAJOR COMMODITIES—	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Chtks.	Chtks.
Wheat ..	59.04	15.24	33.36	6.68	4.14	5.51	9.7	6.8
Milk and milk products* ..	55.29	33.83	41.09	13.05	4.96	6.79	11.9	8.6
MINOR COMMODITIES—	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Chtks.	Chtks.
Maize ..	95	..	33	10.69	..	5.51	0.2	0.2
Sugar ..	301	49	172	51.13	15.97	28.46	1.2	0.9
Rice ..	104	9	56	19.62	3.33	9.31	0.4	0.3
Meat ..	17	..	7	3.21	..	1.18	0.1	..
Pulses ..	94	9	35	9.69	2.62	5.79	0.2	0.2
Salt ..	29	4	17	3.58	1.48	2.78	0.1	0.1

*In terms of liquid milk, including ghi purchased. Ghi has been converted into milk on the assumption : one chhatak of ghi=one seer of milk.

The relative importance of the various items of expenditure on food is shown in the following diagram :

CHART II
Expenditure on Various Items of Food.



The average expenditure on different items of food compares with that for the previous four years as follows :

Articles of Food.	AVERAGE PER FAMILY.					PER ADULT MALE UNIT.				
	1932-3	1933-4	1934-5	1935-6	1936-7	1932-3	1933-4	1934-5	1935-6	1936-7
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Wheat ..	142.78	145.34	91.31	101.07	98.04	21.70	24.43	15.83	17.28	16.20
Maize ..	2.25	1.79	3.00	0.57	2.17	0.34	0.30	0.52	0.10	0.36
Milk and milk products ..	97.64	111.15	96.22	105.54	112.07	14.84	18.68	16.69	18.04	18.53
Sugar ..	25.56	21.13	18.01	25.73	20.39	3.89	3.55	3.12	4.40	3.37
Rice ..	8.12	6.23	4.74	4.50	6.24	1.23	1.05	0.82	0.77	1.03
Meat ..	6.98	3.37	1.98	2.93	2.57	1.06	0.57	0.35	0.50	0.43
Pulses ..	4.27	3.33	6.06	5.17	2.69	0.65	0.56	1.05	0.88	0.45
Vegetables ..	3.54	3.22	5.55	6.29	5.94	0.54	0.54	0.96	1.07	0.98
Fruit ..	3.69	3.09	1.96	5.50	4.53	0.56	0.52	0.34	0.94	0.75
Salt ..	1.48	1.39	0.84	1.04	1.06	0.23	0.23	0.15	0.18	0.17
Miscellaneous ..	5.81	13.46	4.90	6.16	9.40	0.88	2.26	0.85	1.05	1.55
<i>Total</i> ..	<i>302.12</i>	<i>313.50</i>	<i>231.57</i>	<i>264.50</i>	<i>265.10</i>	<i>45.92</i>	<i>52.69</i>	<i>40.68</i>	<i>45.21</i>	<i>43.82</i>

6. SOURCES OF FOOD CONSUMED

Statement 6 on page 47 gives the amounts of the articles of food furnished by the farm and purchased from outside. The table given below shows the average practice figures for the six families. As explained previously the usual practice of farmers in the Punjab is to produce wheat for home consumption on their own farms, but as mentioned these tenants are bound by the terms of their lease to sell, if required, all of their wheat to the Government. Most of the wheat produced by them was thus bought by the Government and wheat for food had, therefore, to be purchased from the city; in the following table this has been considered as furnished by the farm :

Item.	AVERAGE EXPENDITURE PER FAMILY.			PERCENTAGE TO TOTAL.	
	Total.	Furnished by the farm.	Purchased.	Furnished by the farm.	Purchased.
	Rs.	Rs.	Rs.		
Wheat ..	98·04	80·68	17·36*	82	18
Maize ..	2·17	0·73	1·44*	33	67
Milk and milk products ..	112·07	105·92	6·15	95	5
Sugar ..	20·39	6·36	14·03	31	69
Rice ..	6·24	..	6·24	..	100
Meat ..	2·57	..	2·57	..	100
Pulses ..	2·69	1·05	1·64	39	61
Vegetables ..	5·94	0·68	5·26	11	89
Fruit ..	4·53	..	4·53	..	100
Salt ..	1·06	..	1·06	..	100
Miscellaneous ..	9·40	..	9·40	..	100
<i>Total</i> ..	<i>265·10</i>	<i>195·42</i>	<i>69·68</i>	<i>74</i>	<i>26</i>

*Includes charges of grinding paid to outsiders.

The proportion of ghi prepared at home and purchased and its consumption per adult male unit and per head were as follows :

Tenant.	Produced.	Purchased.	Total.	Consumed per adult male unit per annum.	CONSUMED PER DAY.	
					Per adult male unit.	Per head.
	Seers.	Seers.	Seers.	Seers.	Chhataks.	Chhataks.
A ..	74	7	81	10.1	0.4	0.3
B ..	74	12	86	16.2	0.7	0.5
C ..	85	5	90	11.7	0.5	0.4
D ..	113	4	117	12.1	0.5	0.3
E ..	90	3	93	34.4	1.5	1.3
F ..	82	..	82	28.3	1.2	0.9
Total ..	518	31	549	14.3	0.6	0.5

The proportion of sugar produced and purchased, and its consumption per adult male unit and per head are shown in Statement 7 on page 48. The average figures of the present year compares with those for the previous four years as follows :

(Average per Family per Annum)

Year.	RAW SUGAR.			Refined sugar purchased.	Total.	Per adult male unit.	Per head.
	Furnished by farm.	Purchased.	Total.				
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.
AMOUNT—							
1932-3 ..	110.0	138.9	248.9	31.3	280.2	42.6	31.1
1933-4 ..	58.3	67.8	126.1	34.4	160.5	26.9	19.6
1934-5 ..	57.3	61.9	119.2	23.3	142.5	24.7	17.8
1935-6 ..	118.5	55.3	173.8	32.3	206.1	35.2	25.6
1936-7 ..	79.0	59.8	138.8	33.3	172.2	28.5	20.6
VALUE—	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1932-3 ..	6.47	9.01	15.48	10.07	25.55	3.88	2.84
1933-4 ..	3.33	7.88	11.21	9.92	21.13	3.55	2.59
1934-5 ..	4.58	7.11	11.69	6.32	18.01	3.12	2.25
1935-6 ..	12.26	4.86	17.12	8.61	25.73	4.40	3.20
1936-7 ..	6.35	6.42	12.77	7.62	20.39	3.37	2.44

7. PRODUCTION AND DISPOSAL OF MILK

(i) **Production.**—Milk is produced mainly by buffaloes and to a much smaller extent by cows, because the latter are kept primarily for the supply of bullocks for the plough. Buffaloes are preferred, because they are heavier yielders, and their milk is richer in fat.

The cost of production of milk has been worked out for buffaloes and cows separately, in Statement 8-A and 8-B on pages 49 and 50 respectively, and for the year under review the average was as follows:

Items.	TOTAL.		PER ANIMAL.	
	Buffaloes.	Cows.	Buffaloes.	Cows.
	Rs.	Rs.	Rs.	Rs.
Roughages ..	404·01	180·66	40·48	40·24
Concentrates and salt ..	189·60	22·62	19·00	5·04
Interest and depreciation on the value of cattle ..	138·69	45·48	13·90	10·13
Miscellaneous ..	1·12	0·50	0·11	0·11
<i>Total</i> ..	<i>733·42</i>	<i>249·26</i>	<i>73·49</i>	<i>55·52</i>
<i>Less value of young stock</i> ..	<i>29·12</i>	<i>22·50</i>	<i>2·92</i>	<i>5·01</i>
<i>Less value of manure produced</i>	<i>50·03</i>	<i>20·05</i>	<i>5·01</i>	<i>4·47</i>
<i>Total</i> ..	<i>79·15</i>	<i>42·55</i>	<i>7·93</i>	<i>9·48</i>
<i>Balance</i> ..	<i>654·27</i>	<i>206·71</i>	<i>65·56</i>	<i>46·04</i>
	Mds.	Mds.	Mds.	Mds.
Milk produced ..	246·02	67·62	24·65	15·06
Cost per maund (Buffalo) ..	Rs. 2·66	Rs. ..	Rs. ..	Rs. ..
" " " (Cow) ..	..	3·06	..	..

As stated in the General Summary, labour has not been included in the cost, which, per maund, for the year under review compares with that of the previous three years as follows :

Year.	Number.	PER ANIMAL.		Cost of production per maund.
		Cost of upkeep.	Milk production.	
		Rs.	Mds.	Rs.
Buffaloes—				
1933-4	13·00	62·22	25·68	2·42
1934-5	9·00	62·83	23·15	2·71
1935-6	9·09	58·56	30·14	1·94
1936-7	9·98	65·56	24·65	2·66
Cows—				
1933-4	6·00	38·59	10·42	3·70
1934-5	5·00	41·41	16·00	2·59
1935-6	5·46	37·07	16·39	2·26
1936-7	4·49	46·04	15·06	3·06

(ii) Disposal.—The disposal of milk by the different tenants is shown in the following table :

Family.	Total.	SOLD.		CONSUMED.		HOW CONSUMED.			
		Quantity.	Per cent. *	Quantity.	Per cent. *	As Milk.		As Curd, Butter, Ghi and Butter-milk.	
						Quantity.	Per cent. †	Quantity.	Per cent. †
1	2	3	4	5	6	7	8	9	10
BUFFALOES—	Mds.	Mds.		Mds.		Mds.		Mds.	
A ..	59·07	24·02	41	35·05	59	6·69	19·1	28·36	80·9
B ..	37·73	10·51	28	27·22	72	3·38	12·4	23·84	87·6
C ..	13·78	..	..	13·78	100	1·18	8·6	12·60	91·4
D ..	72·22	26·43	37	45·79	63	6·66	14·5	39·13	85·5
E ..	21·83	0·79	4	21·04	96	5·34	25·4	15·70	74·6
F ..	41·39	4·90	12	36·49	88	4·77	13·1	31·72	86·9
<i>Total</i> ..	<i>246·02</i>	<i>66·65</i>	<i>27</i>	<i>179·37</i>	<i>73</i>	<i>28·02</i>	<i>..</i>	<i>151·35</i>	<i>..</i>
Per Family ..	41·00	11·11	27	29·89	73	4·67	15·6	25·22	84·4
Cows—									
A ..	2·50	1·20	48	1·30	52	0·25	19·2	1·05	80·8
B ..	7·52	1·35	18	6·17	82	0·52	8·4	5·65	91·6
C ..	24·77	..	..	24·77	100	3·25	13·1	21·52	96·0
D ..	7·73	..	..	7·73	100	1·77	22·9	5·98	77·1
E ..	23·75	..	..	23·75	100	3·28	13·8	20·47	86·2
F ..	1·35	..	..	1·35	100	0·45	33·3	0·90	66·7
<i>Total</i> ..	<i>67·62</i>	<i>2·55</i>	<i>4</i>	<i>65·07</i>	<i>96</i>	<i>9·52</i>	<i>..</i>	<i>55·55</i>	<i>..</i>
Per Family ..	11·27	0·42	4	10·85	96	1·59	14·6	9·26	85·3

*Percentage on col. 2.

†Percentage on col. 5.

8. DRESS

Dress includes clothing and shoes. Clothing may be divided into four classes, viz.

- (i) Clothes for everyday wear.
- (ii) Bedding.
- (iii) Those meant for use on special occasions such as marriages, festivals, etc.
- (iv) Those given as presents to relatives.

Class (i) includes turbans, shirts, loin-cloths, **tehmats** and **chaddars** for males, and **dopattas**, shirts, **shilwars**, **suthans**, and **ghagras** for females. Class (ii) includes bed-sheets, **durries**, quilts, mattresses, etc., which are generally made of coarse cloth. Clothes given in Class (iii) are always machine made and purchased from outside. Shoes are always purchased.

Dress, which constituted 18 per cent. of the total expenditure, stands second in importance to food among the items of expenditure. The total cost of dress varied from Rs. 52.58 in family E to Rs. 110.09 in family A, and the average came to Rs. 80.91; per adult male unit the figure ranged from Rs. 8.86 in family C to Rs. 20.70 in family B, the average being Rs. 13.37. The average figures compare with those for the previous four years as follows :

Year.	COST OF DRESS.	
	Per family.	Per adult male unit.
	Rs.	Rs.
1932-3 ..	97.14	14.76
1933-4 ..	75.67	12.72
1934-5 ..	65.24	11.31
1935-6 ..	90.44	15.46
1936-7 ..	80.91	13.37

The following table shows the amount of cloth and the number of pairs of shoes purchased :

Tenant.	TOTAL.		PER ADULT MALE UNIT.		Pairs of shoes per head.
	Cloth.	Shoes.	Cloth.	Shoes.	
	Yards.	Pairs.	Yards.	Pairs.	
A ..	188.69	5	23.59	0.6	0.5
B ..	188.00	16	35.47	3.0	2.3
C ..	117.75	7	15.29	0.9	0.6
D ..	266.50	8	27.47	0.8	0.5
E ..	158.75	4	58.80	1.5	1.3
F ..	109.00	6	37.59	2.1	1.5
<i>Total</i> ..	<i>1,028.69</i>	<i>46</i>	<i>28.34</i>	<i>1.3</i>	<i>0.9</i>
Per family ..	171.45	7.7	..	..	..

9. FINANCIAL POSITION OF THE FAMILIES

The following table shows the income, expenditure and surplus or deficit in the budgets of the six families :

Family.	Income.	Expenditure.	Surplus (+) or deficit (-)
	Rs.	Rs.	Rs.
A ..	429.76	443.63	-13.87
B ..	426.67	593.83	-167.16
C ..	501.90	398.08	+103.82
D ..	637.92	621.05	+16.87
E ..	400.28	361.46	+38.82
F ..	326.38	256.61	+69.77
<i>Total</i> ..	<i>2,722.91</i>	<i>2,674.66</i>	<i>+48.25</i>
Per family ..	453.82	445.78	+8.04

PART II
FAMILY BUDGETS OF FOUR CULTIVATORS
IN THE
JULLUNDUR, HOSHIARPUR, AMRITSAR AND ROHTAK
DISTRICTS FOR THE YEAR,
1936-37.

**FAMILY BUDGETS OF FOUR CULTIVATORS IN THE
JULLUNDUR, HOSHIARPUR, AMRITSAR AND ROHTAK
DISTRICTS, 1936-37**

1. PARTICULARS OF FAMILIES.

The caste, number, and ages of the family members are shown in Statement 9 on page 51. For the sake of comparison the members in each family have been reduced to adult male units on the basis of Atwater's scale.

2. INCOME.

The income drawn by the families from different sources is given below :

(i) **Farm Cultivation.**—The areas held and the income of the families from cultivation during the year 1936-37 are shown below :

Family.	Area held.	TOTAL.		
		Gross income.	Expenditure.*	Net income.
	Acres.	Rs.	Rs.	Rs.
Ramunwal (Jullundur) ..	13.34	785.42	536.52	248.90
Dholanwal (Hoshiarpur) ..	9.21	585.94	384.63	201.31
Doburji (Amritsar) ..	18.86	1,131.38	801.40	329.98
Bighan (Rohtak) ..	9.37	775.71	313.90	461.81
<i>Total</i> ..	<i>50.78</i>	<i>3,278.45</i>	<i>2,036.45</i>	<i>1,242.00</i>
<i>Average per family</i> ..	<i>12.69</i>	<i>819.61</i>	<i>509.11</i>	<i>310.50</i>

(ii) **Milk Production.**—The production and disposal of milk is dealt with in Section 7 below. The income of the various families from this source was as follows :

Family.	Gross income.	Expenditure.	Net income.
	Rs.	Rs.	Rs.
Ramunwal (Jullundur) ..	160.47	150.08	10.39
Dholanwal (Hoshiarpur) ..	101.14	90.53	10.61
Doburji (Amritsar) ..	185.27	185.27	..
Bighan (Rohtak) ..	70.48	64.97	5.51
<i>Total</i> ..	<i>517.36</i>	<i>490.85</i>	<i>26.51</i>
<i>Average per family</i> ..	<i>129.34</i>	<i>122.71</i>	<i>6.63</i>

*Expenditure includes actual expenses incurred for cultivation (such as cattle feed, sowing, harvesting, land revenue, etc.) but does not include the wages of family workers. Interest and depreciation on cattle, implements well-gear, etc., is, however, accounted for. For full explanation see the introductions to individual holdings in the "Farm Accounts, 1936-37."

(iii) **Wages of Labour done outside by Family Members.**—Only the Ramunwal family earned Rs. 11.00 by plying a cart.

(iv) **Interest on Capital invested in Buildings, Milch Cattle and Agricultural Stock.**—The income from this source was as follows :

Family.	Bullocks.	Implements.	Well and Persian wheels.	Milch cattle.	BUILDINGS—			Total.
					Residential.	For bullocks	For milch cattle.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Ramunwal (Jullundur) ..	20.04	1.42	1.63	4.00	..	3.20	1.38	31.67
Dholanwal (Hoshiarpur) ..	7.63	1.42	1.00	3.20	18.80	5.46	1.98	39.49
Doburji (Amritsar) ..	5.56	0.20	2.28	6.90	16.00	1.22	1.35	33.51
Bighan (Rohtak) ..	5.04	1.84	7.33	3.07	12.00	2.40	1.60	33.28
<i>Total</i> ..	<i>38.27</i>	<i>4.88</i>	<i>12.24</i>	<i>17.17</i>	<i>46.80</i>	<i>12.28</i>	<i>6.31</i>	<i>137.95</i>
<i>Average per family</i>	<i>9.57</i>	<i>1.22</i>	<i>3.05</i>	<i>4.29</i>	<i>11.70</i>	<i>3.07</i>	<i>1.58</i>	<i>34.49</i>

(v) **Miscellaneous.**—This head includes the following items :

- (a) Rent received from the land owned by the farmers but not cultivated by them.
- (b) Remuneration for keeping "Farm Accounts."
- (c) Fuel produced by the farm, not included in "Farm Accounts."
- (d) Value of manure produced by cattle, not debited to expenditure in "Farm Accounts" and "Family Budgets."
- (e) 'Others' includes items not taken under any of the above heads.

The income from these sources was as follows :

Family.	Rent.	Remuneration.	Fuel.	Manure.	Others.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Ramunwal ..	312.88	30.00	4.00	2.42	39.62	388.92
Dholanwal ..	..	40.00	14.00	0.91	34.00	88.91
Doburji ..	..	40.00	19.50	1.43	22.00	82.93
Bighan ..	..	40.00	9.00	1.31	50.00	100.31
<i>Total</i> ..	<i>312.88</i>	<i>150.00</i>	<i>46.50</i>	<i>6.07</i>	<i>145.62</i>	<i>661.07</i>
<i>Average per family</i> ..	<i>78.22</i>	<i>37.50</i>	<i>11.62</i>	<i>1.52</i>	<i>36.40</i>	<i>165.26</i>

(vi) **Total Income.**—The total income of the families from the above five sources was as follows :

Family.	Farm cultivation.	Milk production.	Wages of labour.	Interest on capital.	Miscellaneous.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Ramunwal (Jullundur)	248·90	10·39	11·00	31·67	388·92	690·88
Dholanwal (Hoshiarpur)	201·31	10·61	..	39·49	88·91	340·32
Doburji (Amritsar) ..	329·98	..	..	33·51	82·93	446·42
Bighan (Rohtak) ..	461·81	5·51	..	33·28	100·31	600·91
<i>Total</i> ..	<i>1,242·00</i>	<i>26·51</i>	<i>11·00</i>	<i>137·95</i>	<i>661·07</i>	<i>2,078·53</i>
<i>Average per family</i> ..	<i>310·50</i>	<i>6·63</i>	<i>2·75</i>	<i>34·49</i>	<i>165·26</i>	<i>519·63</i>

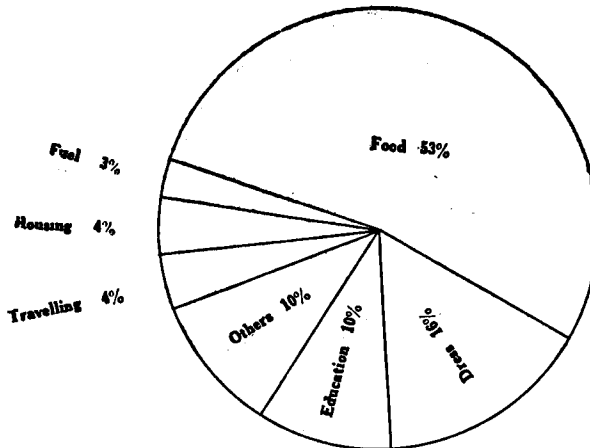
3. EXPENDITURE

Statement 10 on page 52 shows the household expenditure during the year under the different heads given in the General Summary. Detailed examination of the expenditure on food has been made in Section 5 below. The maximum, minimum and average expenditure per family and per adult male unit on the various items was as follows :

Items of Expenditure.	PER FAMILY.			PER ADULT MALE UNIT.			
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Percentage.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Food ..	346·05	163·82	240·28	64·08	36·01	47·35	53
Fuel ..	24·00	6·00	13·75	5·18	0·79	2·71	3
Dress ..	105·57	45·69	70·64	17·45	9·93	13·92	16
Housing ..	27·25	5·00	19·34	9·49	0·66	3·81	4
Lighting ..	6·00	2·91	4·31	1·30	0·49	0·85	1
Medicine ..	3·12	..	1·16	0·41	..	0·23	..
Travelling ..	41·33	3·50	18·66	5·69	0·76	3·68	4
Education ..	115·50	..	43·38	25·11	..	8·55	10
Religion ..	20·00	1·38	8·28	4·35	0·51	1·63	2
Social ..	17·81	6·75	9·98	3·01	1·34	1·96	2
Amusements and luxuries ..	20·00	2·00	9·25	7·41	0·37	1·82	2
Miscellaneous ..	29·75	2·61	12·00	11·02	0·34	2·36	3
<i>Total</i> ..	<i>575·01</i>	<i>328·62</i>	<i>451·03</i>	<i>121·71</i>	<i>62·05</i>	<i>88·87</i>	<i>100</i>

The following diagram shows the percentage positions of the various items of expenditure :

CHART III.
Items of Expenditure.



4. SOURCES OF GOODS CONSUMED

According to their immediate source goods have been divided into two classes, namely : 1. Those furnished by the farm, and 2. Those purchased. Detailed accounts of the value of goods falling under the different heads will be found in Statement 11 on page 53. The average figures for all the four families are given below :

Item.	AVERAGE EXPENDITURE PER FAMILY.			PERCENTAGE TO TOTAL.	
	Total.	Furnished by the farm.	Purchased.	Furnished by the farm.	Purchased.
	Rs.	Rs.	Rs.		
Food ..	240.28	182.19	58.09	76	24
Fuel ..	13.75	13.25	0.50	96	4
Dress ..	70.64	6.57	64.07	9	91
Housing ..	19.34	..	19.34	..	100
Lighting ..	4.31	1.75	2.56	41	59
Medicine ..	1.16	..	1.16	..	100
Travelling ..	18.66	..	18.66	..	100
Education ..	43.38	..	43.38	..	100
Religion ..	8.28	..	8.28	..	100
Social ..	9.98	..	9.98	..	100
Amusements and luxuries ..	9.25	1.25	8.00	14	86
Miscellaneous ..	12.00	..	12.00	..	100
<i>Total</i> ..	<i>451.03</i>	<i>205.01</i>	<i>246.02</i>	<i>45</i>	<i>55</i>

It will be seen that 45 per cent. of the goods consumed was furnished by the farm and 55 per cent. was purchased.

5. FOOD

Statement 12 on page 54 shows the cost of food under the various heads as explained in the General Summary.

The quantities of various articles of food used per family, per adult male unit and per head are shown in Statement 13 on page 55.

The following table shows the maximum, minimum and average value of the different articles of food used per family and per adult male unit :

Articles of Food	PER FAMILY.			PER ADULT MALE UNIT.			
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Percentage.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Wheat ..	60·60	39·07	52·26	14·47	7·97	10·30	22
Maize ...	19·10	12·50	16·10	4·63	2·27	3·17	7
Milk and milk products	193·27	48·24	105·78	35·79	10·49	20·84	44
Sugar ..	41·25	8·59	24·37	7·64	3·18	4·80	10
Rice ..	20·49	3·25	9·65	3·79	0·71	1·90	4
Meat ..	14·88	..	6·39	3·95	..	1·26	3
Pulses ..	8·26	3·52	5·62	1·80	0·53	1·11	2
Vegetables ..	8·25	2·72	5·67	1·53	0·95	1·12	2
Fruit ..	6·60	..	3·70	1·93	..	0·73	2
Salt ..	1·16	0·39	0·76	0·21	0·08	0·15	..
Miscellaneous ..	13·75	3·78	9·98	3·50	0·70	1·97	4
<i>Total</i> ..	<i>346·05</i>	<i>163·82</i>	<i>240·28</i>	<i>64·08</i>	<i>36·01</i>	<i>47·35</i>	<i>100</i>

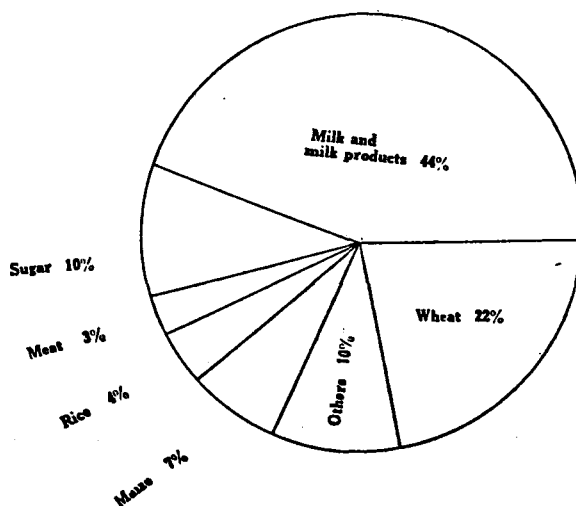
The quantities of the articles of food consumed are shown in the following table :

Articles of Food.	PER FAMILY PER ANNUM.			PER ADULT MALE UNIT PER ANNUM.			PER DAY.	
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Per adult male unit	Per head.
MAJOR COMMODITIES—	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Chh.	Chh.
Wheat ..	29-21	16-81	22-19	6-23	3-84	4-37	7-7	6-1
Milk and milk products*	50-81	22-15	36-29	9-41	5-34	7-15	12-5	9-9
MINOR COMMODITIES—	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Chh.	Chh.
Maize ..	382	200	292	83-04	44-61	57-59	2-5	2-0
Sugar ..	294	49	189	54-44	18-15	37-24	1-6	1-3
Rice ..	272	29	98	50-37	6-30	19-26	0-8	0-7
Meat ..	48	..	19	10-37	..	3-74	0-2	0-1
Pulses ..	118	42	78	25-65	8-95	15-37	0-7	0-5
Salt ..	18	6	12	3-33	1-32	2-36	0-1	0-1

The relative importance of the various items of expenditure on food is shown in the following diagram :

CHART IV.

Expenditure on Various Items of Food.



*In terms of liquid milk, including ghi purchased. Ghi has been converted into milk by assuming that one chhatak of ghi=one seer of milk.

6. SOURCES OF FOOD CONSUMED

Statement 14 on page 56 gives the amounts of the articles of food furnished by the farm and purchased from outside. The table given below shows the average figures for the four families.

Articles of Food.	AVERAGE EXPENDITURE PER FAMILY.			PERCENTAGE TO TOTAL.	
	Total.	Furnished by the farm.	Purchased.	Furnished by the farm.	Purchased.
	Rs.	Rs.	Rs.		
Wheat ..	52.26	50.72	1.54	97	3
Maize ..	16.10	16.02	0.08	99	1
Milk and milk products ..	105.78	99.23	6.55	94	6
Sugar ..	24.37	3.00	21.37	12	88
Rice ..	9.65	5.12	4.53	53	47
Meat ..	6.39	..	6.39	..	100
Pulses ..	5.62	2.94	2.68	52	48
Vegetables ..	5.67	3.75	1.92	66	34
Fruits ..	3.70	0.77	2.93	21	79
Salt ..	0.76	..	0.76	..	100
Miscellaneous ..	9.98	0.64	9.34	6	94
<i>Total</i> ..	<i>240.28</i>	<i>182.19</i>	<i>58.09</i>	<i>76</i>	<i>24</i>

The proportion of ghi prepared at home and purchased and its consumption per adult male unit and per head was as follows :

Family.	Pro-duced.	Pur-chased.	Total.	Consumed per adult male unit per annum.	CONSUMPTION PER DAY—	
					Per adult male unit	Per head
	Seers.	Seers.	Seers.	Seers.	Chhatak.	Chhatak.
Ramunwal (Jullundur)	123.0	..	123.0	16.2	0.71	0.50
Dholanwal (Hoshiarpur)	55.2	12.0	67.2	24.9	1.09	0.95
Doburji (Amritsar) ..	84.8	8.0	92.8	17.2	0.75	0.61
Bighan (Rohtak) ..	28.8	3.0	31.8	6.9	0.30	0.28
<i>Total</i> ..	<i>291.8</i>	<i>23.0</i>	<i>314.8</i>	<i>15.5</i>	<i>0.68</i>	<i>0.54</i>

The proportion of sugar produced and purchased and its consumption per adult male unit and per head is shown in Statement 15 on page 57.

7. PRODUCTION AND DISPOSAL OF MILK

(i) **Production.**—The cost of production of milk has been worked out on the same lines as in the case of Risalewala families. The cost of production by the individual families is given in Statement 16 on page 58. The following table shows the cost of production by all the families.

		Total. Rs.	Per animal. Rs.
Roughages .. ..	.. ..	336·74	51·49
Concentrates and salt .. ..	.. ..	133·60	20·43
Interest and depreciation—			
On the value of milch cattle .. ..	.. ..	68·67	10·50
" " cattle-sheds .. ..	.. ..	12·95	1·98
Miscellaneous .. ..	.. ..	1·17	0·18
	<i>Total</i>	<u>553·13</u>	<u>84·58</u>
Less value of young stock and manure produced .. ..	.. ..	62·28	9·52
	Balance	<u>490·85</u>	<u>75·06</u>
		Maunds.	Maunds.
Milk produced .. ..	.. ..	173·01	26·45
Cost per maund .. ..	.. ..	Rs. 2·84.	

(ii) **Disposal.**—The disposal of milk by the different families is shown in the following table :

Items.	FAMILIES.				Total.	Average per family.
	Ramunwal.	Dholanwal.	Doburji.	Bighan.		
<i>Milk—</i>	Maunds.	Maunds.	Maunds.	Maunds.	Maunds.	Maunds.
Total produced ..	61·40	30·45	47·61	33·55	173·01	43·25
Consumed ..	9·15	2·45	15·74	12·30	39·64	9·91
Percentage consumed to total produced..	(15)	(8)	(33)	(37)	(23)	(23)
Sold ..	..	13·65	..	..	13·65	3·41
Percentage sold to produced ..	..	(45)	..	..	(8)	(8)
Churned ..	52·25	14·35	31·87	21·25	119·72	29·93
Percentage churned to produced ..	(85)	(47)	(67)	(63)	(69)	(69)
<i>Ghi—</i>	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.
Total produced ..	167	55	85	56	363	90·8
Consumed ..	123	55	85	29	292	73·0
Percentage consumed to total produced..	(74)	..	..	(52)	(80)	(80)
Sold ..	44	..	..	27	71	17·8
Percentage sold to produced ..	(26)	..	..	(48)	(20)	(20)

8. DRESS

Dress includes clothing and shoes and stands second in importance to food among the items of expenditure as it accounted for 16 per cent. of the total expenditure. Its total cost varied from Rs. 45.69 in the Bighan family to Rs. 105.57 in the Ramunwal family and the average came to Rs. 70.64. The figure per adult male unit ranged from Rs. 9.93 in the Bighan family to Rs. 17.45 in the Dholanwal family, the average being Rs. 13.92. The average proportion of dress purchased and furnished by the farm came to 91 and 9 per cent., respectively.

9. FINANCIAL POSITION OF THE FAMILIES

The following table shows the income, expenditure and surplus or deficit in the budgets of the four families :

Family.	Income.	Expenditure.	Surplus (+) or deficit (-)
	Rs.	Rs.	Rs.
Ramunwal (Jullundur) ..	690.88	471.58	+219.30
Dholanwal (Hoshiarpur) ..	340.32	328.62	+11.70
Doburji (Amritsar) ..	446.42	575.01	-128.59
Bighan (Rohtak) ..	600.91	428.92	+171.99
<i>Total</i> ..	<i>2,078.53</i>	<i>1,804.13</i>	<i>+274.40</i>
<i>Average per family</i> ..	<i>519.63</i>	<i>451.03</i>	<i>+68.60</i>

PART III
FAMILY BUDGET OF ONE CULTIVATOR
IN THE
HOSHIARPUR DISTRICT
FOR THE YEAR,
1936-37.

FAMILY BUDGET OF ONE CULTIVATOR IN THE HOSHIARPUR DISTRICT, 1936-37.

1. PARTICULARS OF THE FAMILY

This family belongs to Rasulpur in the Hoshiarpur District, and corresponds to Holding III. B. of "Farm Accounts" for the year 1936-37. It has been dealt with separately because its income and expenditure are much above the average of other families. This family consists of 8.0 members equivalent to 5.2 adult male units.

2. INCOME

(i) **Farm Cultivation.**—The area held and income of the family from cultivation during the year 1936-37 are shown below :

Area held	..	..	10.17 Acres.
			Rs.
Gross income	..	..	633.29
Expenditure*	..	..	440.46
Net income	..	..	192.83

(ii) **Milk Production.**—There was no income from this source.†

(iii) **Wages of Labour done outside by Family Members.**—No labour was done outside.

(iv) **Interest on Capital invested in Buildings, Milch Cattle and Agricultural Stock.**—The income from this source was as follows :

			Rs.
Bullocks	..	..	5.25
Milch cattle	..	..	4.80
Well and Persian wheels	..	..	30.05
Implements	..	..	5.70
Buildings—			
Residential	..	..	177.00
Bullock sheds	..	..	4.14
Milch cattle sheds	..	..	4.14
			Total
	..	..	231.08

*See footnote on page 26.

†Income and expenditure are equal being Rs. 143.33 and 143.33 because all milk produced was consumed in the household, and has, therefore, been valued at cost of production.

(v) **Miscellaneous.**—The income from this source was as follows :

	Rs.
(a) Rent of land leased to tenants ..	310-00
(b) Money received from a family member serving outside	90-00
(c) Remuneration for keeping farm accounts ..	30-00
(d) Manure produced by cattle not debited to expenditure	2-32
<i>Total</i> ..	<u>432-32</u>

(vi) **Total Income.**—The total income of the family from the above five sources was as follows :

<i>Item.</i>	<i>Amount.</i>
	Rs.
(i) Farm cultivation	192-83
(ii) Milk production .. ..	..
(iii) Wages of labour done outside .. ..	..
(iv) Interest on capital invested in buildings, milch cattle and agricultural stock	231-08
(v) Miscellaneous	432-32
<i>Total</i> ..	<u>856-23</u>

3. EXPENDITURE

The expenditure of the family on the various items of household goods was as follows :

Item.	AMOUNT.		Percentage to total.
	Total.	Per adult male unit.	
	Rs.	Rs.	
Food	442-82	85-16	49
Fuel	14-28	2-75	1
Dress	136-23	26-20	15
Housing	242-32	46-60	27
Lighting	8-45	1-62	1
Medicine	14-80	2-84	2
Travelling	6-50	1-25	1
Education	0-88	0-17	..
Religion	2-81	0-54	..
Social	2-34	0-45	..
Amusements and luxuries	6-09	1-17	1
Miscellaneous	23-80	4-58	3
<i>Total</i> ..	<u>901-32</u>	<u>173-33</u>	<u>100</u>

FAMILY BUDGET OF ONE CULTIVATOR IN THE HOSHIARPUR DISTRICT, 1936-37.

1. PARTICULARS OF THE FAMILY

This family belongs to Rasulpur in the Hoshiarpur District, and corresponds to Holding III. B. of "Farm Accounts" for the year 1936-37. It has been dealt with separately because its income and expenditure are much above the average of other families. This family consists of 8.0 members equivalent to 5.2 adult male units.

2. INCOME

(i) **Farm Cultivation.**—The area held and income of the family from cultivation during the year 1936-37 are shown below :

Area held	..	..	10.17 Acres.
			Rs.
Gross income	..	..	633.29
Expenditure*	..	..	440.46
Net income	..	..	192.83

(ii) **Milk Production.**—There was no income from this source.†

(iii) **Wages of Labour done outside by Family Members.**—No labour was done outside.

(iv) **Interest on Capital invested in Buildings, Milch Cattle and Agricultural Stock.**—The income from this source was as follows :

			Rs.
Bullocks	..	..	5.25
Milch cattle	..	..	4.80
Well and Persian wheels	..	..	30.05
Implements	..	..	5.70
Buildings—			
Residential	..	..	177.00
Bullock sheds	..	..	4.14
Milch cattle sheds	..	..	4.14
<i>Total</i>	..	..	231.08

* See footnote on page 26.

† Income and expenditure are equal being Rs. 143.33 and 143.33 because all milk produced was consumed in the household, and has, therefore, been valued at cost of production.

(v) **Miscellaneous.**—The income from this source was as follows :

	Rs.
(a) Rent of land leased to tenants ..	310·00
(b) Money received from a family member serving outside ..	90·00
(c) Remuneration for keeping farm accounts ..	30·00
(d) Manure produced by cattle not debited to expenditure	2·32
<i>Total</i> ..	<u>432·32</u>

(vi) **Total Income.**—The total income of the family from the above five sources was as follows :

<i>Item.</i>	<i>Amount.</i>
	Rs.
(i) Farm cultivation	192·83
(ii) Milk production .. ..	..
(iii) Wages of labour done outside .. ..	..
(iv) Interest on capital invested in buildings, milch cattle and agricultural stock	231·08
(v) Miscellaneous	432·32
<i>Total</i> ..	<u>856·23</u>

3. EXPENDITURE

The expenditure of the family on the various items of household goods was as follows :

Item.	AMOUNT.		Percentage to total.
	Total.	Per adult male unit.	
	Rs.	Rs.	
Food	442·82	85·16	49
Fuel	14·28	2·75	1
Dress	136·23	26·20	15
Housing	242·32	46·60	27
Lighting	8·45	1·62	1
Medicine	14·80	2·84	2
Travelling	6·50	1·25	1
Education	0·88	0·17	..
Religion	2·81	0·54	..
Social	2·34	0·45	..
Amusements and luxuries	6·09	1·17	1
Miscellaneous	23·80	4·58	3
<i>Total</i> ..	<u>901·32</u>	<u>173·33</u>	<u>100</u>

FAMILY BUDGET OF ONE CULTIVATOR IN THE HOSHIARPUR DISTRICT, 1936-37.

1. PARTICULARS OF THE FAMILY

This family belongs to Rasulpur in the Hoshiarpur District, and corresponds to Holding III. B. of "Farm Accounts" for the year 1936-37. It has been dealt with separately because its income and expenditure are much above the average of other families. This family consists of 8.0 members equivalent to 5.2 adult male units.

2. INCOME

(i) **Farm Cultivation.**—The area held and income of the family from cultivation during the year 1936-37 are shown below :

Area held	..	..	10.17 Acres.
			Rs.
Gross income	..	..	633.29
Expenditure*	..	..	440.46
Net income	..	..	192.83

(ii) **Milk Production.**—There was no income from this source.†

(iii) **Wages of Labour done outside by Family Members.**—No labour was done outside.

(iv) **Interest on Capital invested in Buildings, Milch Cattle and Agricultural Stock.**—The income from this source was as follows :

			Rs.
Bullocks	..	..	5.25
Milch cattle	..	..	4.80
Well and Persian wheels	..	..	30.05
Implements	..	..	5.70
Buildings—			
Residential	..	..	177.00
Bullock sheds	..	..	4.14
Milch cattle sheds	..	..	4.14
<i>Total</i>	..	..	231.08

* See footnote on page 26.

† Income and expenditure are equal being Rs. 143.33 and 143.33 because all milk produced was consumed in the household, and has, therefore, been valued at cost of production.

(v) **Miscellaneous.**—The income from this source was as follows :

	Rs.
(a) Rent of land leased to tenants ..	310·00
(b) Money received from a family member serving outside ..	90·00
(c) Remuneration for keeping farm accounts ..	30·00
(d) Manure produced by cattle not debited to expenditure	2·32
<i>Total</i> ..	<u>432·32</u>

(vi) **Total Income.**—The total income of the family from the above five sources was as follows :

<i>Item.</i>	<i>Amount.</i>
	Rs.
(i) Farm cultivation	192·83
(ii) Milk production .. ..	..
(iii) Wages of labour done outside .. ..	..
(iv) Interest on capital invested in buildings, milch cattle and agricultural stock	231·08
(v) Miscellaneous	432·32
<i>Total</i> ..	<u>856·23</u>

3. EXPENDITURE

The expenditure of the family on the various items of household goods was as follows :

Item.	AMOUNT.		Percentage to total.
	Total.	Per adult male unit.	
	Rs.	Rs.	
Food	442·82	85·16	49
Fuel	14·28	2·75	1
Dress	136·23	26·20	15
Housing	242·32	46·60	27
Lighting	8·45	1·62	1
Medicine	14·80	2·84	2
Travelling	6·50	1·25	1
Education	0·88	0·17	..
Religion	2·81	0·54	..
Social	2·34	0·45	..
Amusements and luxuries	6·09	1·17	1
Miscellaneous	23·80	4·58	3
<i>Total</i> ..	<u>901·32</u>	<u>173·33</u>	<u>100</u>

4. SOURCES OF GOODS CONSUMED

According to their immediate source goods have been divided into two classes, namely, 1. Those furnished by the farm, and 2. Goods purchased. The proportions of these was as follows :

Item.	AMOUNT.			PERCENTAGE TO TOTAL.	
	Total.	Furnished by the farm.	Purchased.	Furnished by the farm.	Purchased.
	Rs.	Rs.	Rs.		
Food ..	442.82	340.99	101.83	77	23
Fuel ..	14.28	0.75	13.53	5	95
Dress ..	136.23	15.00	121.23	11	89
Housing ..	242.32	..	242.32	..	100
Lighting ..	8.45	..	8.45	..	100
Medicine ..	14.80	..	14.80	..	100
Travelling ..	6.50	..	6.50	..	100
Education ..	0.88	..	0.88	..	100
Religion ..	2.81	..	2.81	..	100
Social ..	2.34	..	2.34	..	100
Amusements and luxuries ..	6.09	..	6.09	..	100
Miscellaneous ..	23.80	..	23.80	..	100
<i>Total ..</i>	<i>901.32</i>	<i>356.74</i>	<i>544.58</i>	<i>40</i>	<i>60</i>

It will be seen that only 40 per cent. of the goods consumed was furnished by the farm and 60 per cent. was purchased.

5. FOOD

The expenditure on the various items of food was as follows :-

Articles of Food	Total.	Per adult male unit.	Percentage to total.
	Rs.	Rs.	
Wheat	151·94	29·22	34
Maize	18·92	3·64	4
Milk and milk products	155·08	29·82	35
Sugar	34·75	6·68	8
Rice	34·55	6·64	8
Meat	16·95	3·26	4
Pulses	9·40	1·81	2
Vegetables	7·12	1·37	2
Fruits	4·39	0·84	1
Salt	2·00	0·39	..
Miscellaneous	7·72	1·49	2
<i>Total</i>	<i>442·82</i>	<i>85·16</i>	<i>100</i>

The quantities of the various articles of food consumed were :

Articles of Food.	Total.	Per adult male unit per annum.	Per adult male unit per day.	Per head per day.
	Mds.	Mds.	Chh.	Chh.
MAJOR COMMODITIES—				
Wheat	54·09	10·40	18·2	11·9
Milk and milk products	64·02	12·38	21·7	14·0
MINOR COMMODITIES—	Srs.	Srs.	Chh.	Chh.
Maize	400	76·92	3·4	2·2
Sugar	293	56·35	2·5	1·6
Rice	262	50·68	2·2	1·4
Meat	52	10·06	0·4	0·3
Pulses	100	19·34	0·8	0·5
Salt	32	6·19	0·3	0·2

6. SOURCES OF FOOD CONSUMED

The percentage of food furnished by the farm and purchased was as follows :

Articles of Food.	EXPENDITURE.			PERCENTAGE TO TOTAL.	
	Total.	Furnished by the farm.	Purchased.	Furnished by the farm.	Purchased.
	Rs.	Rs.	Rs.		
Wheat ..	151.94	148.50	3.44	98	2
Maize ..	18.92	17.50	1.42	92	8
Milk and milk products	155.08	143.33	11.75	92	8
Sugar ..	34.75	24.00	10.75	69	31
Rice ..	34.55	..	34.55	..	100
Meat ..	16.95	..	16.95	..	100
Pulses ..	9.40	1.12	8.28	12	88
Vegetables ..	7.12	5.00	2.12	70	30
Fruits ..	4.39	1.54	2.85	35	65
Salt ..	2.00	..	2.00	..	100
Miscellaneous ..	7.72	..	7.72	..	100
<i>Total</i> ..	<i>442.82</i>	<i>340.99</i>	<i>101.83</i>	<i>77</i>	<i>23</i>

7. PRODUCTION AND DISPOSAL OF MILK

(i) Production.—The cost of production of milk was :

Total live stock ..	..	..	..	4.83
Number of milch cattle ..	..	..	..	2.00
Cost of roughages consumed by all cattle—				
				Rs.
Bhusa ..	..	152.64		
Fodders ..	..	112.10		
<i>Total</i> ..	..	<i>264.74</i>		
				Rs.
Share in roughages of milch animals..	..	..	..	109.62
Concentrates and salt ..	..	..	..	15.37
Interest and depreciation on the value of—				
Milch cattle ..	..	..	..	19.20
Housing ..	..	..	..	9.32
Miscellaneous ..	..	..	..	1.00
<i>Total</i> ..	..	..	..	<i>154.51</i>

Less—			
Value of young stock	..	6.00	Rs.
Manure produced	..	5.18	11.18
		<hr/>	
Balance	..	..	143.33
			<hr/>
Total milk produced	..	..	Maunds.
			59.32
Cost per maund	..	..	Rs.
			2.42

(ii) Disposal.—All the milk produced was consumed in the household. The consumption in the form of liquid milk and other milk products was as follows :—

		Maunds.	Percentage to total produced.
Consumed as liquid milk	..	13.47	23
Consumed as other milk products	..	45.85	77
		<hr/>	<hr/>
Total	..	59.32	100
		<hr/>	<hr/>

8. DRESS.

Dress includes clothing and shoes and stands third in importance among the items of expenditure, accounting for 15 per cent. of the total.

9. FINANCIAL POSITION OF THE FAMILY.

The income, expenditure and surplus in the budget of the family was :—

			Rs.
Gross income	..	..	856.23
Expenditure	..	..	901.32
Balance	..	..	—45.09

Reference: page 10.

STATEMENT 1.
FAMILY MEMBERS.

Ages of Members and Adult Male Units in each Family at the end of the Year.
(Risalewala Families.)

TENANTS.	NO. OF MALES.								NO. OF FEMALES.								Adult male units.	
	Over 16 years.	15-16 years.	13-14 years.	12 years.	10-11 years.	6-9 years.	2-5 years.	Under 2 years.	Over 16 years.	15-16 years.	13-14 years.	12 years.	10-11 years.	6-9 years.	2-5 years.	Under 2 years.		Total.
Male Unit.	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.8	0.8	0.7	0.6	0.6	0.5	0.4	0.3		
A (Muslim Arain)	3.1	..	1.0	..	1.0	..	1.0	..	3.0	0.2	..	..	..	1.0	..	..	10.3	8.0
B (" Jat)	3.0	..	..	..	..	..	..	..	2.0	..	..	..	..	..	1.0	1.0	7.0	5.3
C (" Arain)	4.0	..	..	..	..	2.0	1.0	..	2.0	..	..	..	..	2.0	1.0	0.9	10.9	7.7
D (" ")	4.0	..	..	..	..	1.5	2.0	..	3.0	..	..	..	..	0.4	1.0	1.2	14.7	9.1
E (Sikh Jat)	2.0	..	..	..	..	..	..	..	0.4	..	..	..	..	..	0.4	..	3.2	2.1
F (Muslim Arain)	1.0	..	..	1.0	..	..	1.0	..	1.0	..	..	..	..	..	..	..	4.0	2.9
<i>Total ..</i>	<i>17.1</i>	<i>..</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>3.5</i>	<i>5.0</i>	<i>..</i>	<i>11.4</i>	<i>0.2</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>3.4</i>	<i>3.4</i>	<i>3.1</i>	<i>50.1</i>	<i>36.3</i>
<i>Average per family</i>	<i>2.8</i>	<i>..</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.6</i>	<i>0.8</i>	<i>..</i>	<i>1.9</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>0.6</i>	<i>0.6</i>	<i>0.5</i>	<i>8.4</i>	<i>6.0</i>

Nors.—Fractions show members who stayed less than a year with the family.

Reference: page 13.

STATEMENT 2.
DOMESTIC EXPENDITURE.

Total and Per Adult Male Unit Domestic Expenditure of each Family.
(Risalewala Families.)

ITEM.	TOTAL.								PER ADULT MALE UNIT.						Average.	Per-centage to total.
	Family—						Total of six families.	Average per family.	Family—							
	A	B	C	D	E	F			A	B	C	D	E	F		
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Food ..	196.78	382.00	242.26	417.08	198.66	153.80	1,590.58	265.10	24.00	72.07	31.46	43.00	73.58	53.03	43.82	59.5
Fuel ..	14.25	16.80	20.66	25.82	14.69	12.28	104.50	17.42	1.78	3.17	2.68	2.66	5.44	4.23	2.88	3.9
Dress ..	110.09	109.75	68.24	88.60	52.58	56.20	485.46	80.91	13.76	20.70	8.86	9.13	19.47	19.38	13.37	18.1
Housing ..	..	2.25	6.19	8.94	0.62	0.25	18.25	3.04	..	0.42	0.80	0.92	0.23	0.08	0.50	0.7
Lighting ..	3.56	6.66	4.69	5.00	5.11	1.66	26.68	4.45	0.45	1.26	0.61	0.52	1.89	0.57	0.74	1.0
Medicines ..	32.98	3.38	11.52	11.41	5.84	1.38	66.51	11.09	4.12	0.64	1.50	1.18	2.16	0.48	1.83	2.5
Travelling ..	20.82	17.75	5.12	18.41	54.88	10.75	127.53	21.25	2.58	3.35	0.67	1.90	20.33	3.71	3.51	4.8
Education ..	15.73	..	1.44	1.69	..	..	18.86	3.14	1.97	..	0.19	0.17	..	..	0.52	0.7
Religion ..	13.71	39.44	6.70	16.63	2.25	5.73	84.46	14.08	1.71	7.44	0.87	1.72	0.83	1.98	2.33	3.2
Social ..	1.38	3.50	12.00	6.81	..	0.38	24.07	4.01	0.17	0.66	1.56	0.70	..	0.13	0.66	0.9
Amusements & luxuries..	12.72	1.88	10.09	5.78	2.00	9.13	41.60	6.93	1.59	0.35	1.31	0.60	0.74	3.15	1.15	1.5
Miscellaneous	21.81	10.42	9.17	14.88	24.83	5.05	86.16	14.36	2.73	1.98	1.19	1.53	9.20	1.74	2.37	3.2
Total..	443.63	593.33	398.08	621.05	361.46	256.61	2,674.66	445.73	55.46	112.04	51.70	64.03	133.87	88.48	73.68	100.0

43.

Reference : page 15.

STATEMENT 3.

SOURCES OF GOODS CONSUMED.

Value of the Items of Household Expenditure Furnished by the Farm or Purchased from Outside.
(Risalewala Families.)

Item.	FURNISHED BY THE FARM.							PURCHASED FROM OUTSIDE.							PERCENTAGE TO TOTAL.	
	Family.—						Total.	Family.—						Total.	Furnished by the farm.	Purchased.
	A	B	C	D	E	F		A	B	C	D	E	F			
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
Food ..	140-46	290-60	174-91	295-00	171-06	100-50	1,172-53	56-32	91-40	67-35	122-08	27-60	53-30	418-05	74	26
Fuel ..	14-25	16-80	20-66	25-82	14-69	12-28	104-50	..	..	..	..	..	..	100	..	
Dress ..	2-23	8-36	2-74	10-31	..	..	23-70	107-80	101-39	65-50	78-29	52-58	56-20	461-76	5	95
Housing ..	..	..	..	..	..	..	..	..	2-25	6 19	8-94	0-62	0-25	18-25	..	100
Lighting ..	..	..	..	..	..	..	..	3-56	6-66	4-69	5-00	5-11	1-66	26-68	..	100
Medicine ..	..	..	..	..	..	..	..	32-98	3-38	11-52	11-41	5-84	1-38	66-51	..	100
Travelling ..	..	..	..	..	..	..	..	20-62	17-75	5 12	18-41	54-88	10-75	127-53	..	100
Education ..	..	..	..	..	..	..	..	15-73	..	1-44	1-69	..	..	18-86	..	100
Religion ..	..	..	..	..	..	..	..	13-71	39-44	6-70	16-63	2-25	5-73	84-46	..	100
Social ..	..	..	..	..	..	..	..	1-38	3-50	12-00	6-81	..	0-38	24-67	..	100
Amusements and luxuries ..	..	..	..	..	..	..	..	12-72	1-88	10-09	5-78	2-00	9-13	41-60	..	100
Miscellaneous ..	..	..	..	..	..	..	..	21-81	10-42	9-17	14-88	24-83	5-05	86-16	..	100
Total ..	157-09	315-76	198-31	331-13	185-75	112-78	1,300-73	286-63	278-07	199-77	289-92	175-71	143-83	1,373-93	..	..
Percentage to total ..	35	63	59	53	51	44	49	65	47	50	47	49	56	51	49	51

Reference : page 16.

STATEMENT 4.

EXPENDITURE ON FOOD.

Total and Per Adult Male Unit Expenditure on Food of each Family.

(Risalewala Families.)

Item.	TOTAL.								PER ADULT MALE UNIT.							Percentage to total.
	Family—						Total.	Average	Family—						Average.	
	A	B	C	D	E	F			A	B	C	D	E	F		
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Wheat ..	76.62	92.81	115.96	198.20	46.53	58.10	588.22	98.04	9.58	17.51	15.06	20.43	17.23	20.03	16.20	37
Maize ..	..	2.00	2.62	6.48	..	1.90	13.00	2.17	..	0.38	0.34	0.67	..	0.66	0.36	1
Milk and milk products ..	63.04	206.92	80.00	127.45	126.56	68.47	672.44	112.07	7.88	39.04	10.39	13.14	46.87	23.61	18.53	42
Sugar ..	19.25	38.96	15.25	28.40	11.04	9.44	122.34	20.39	2.41	7.35	1.98	2.93	4.09	3.25	3.37	8
Rice ..	4.81	10.83	6.20	9.50	1.05	5.03	37.42	6.24	0.60	2.04	0.80	0.98	0.39	1.73	1.03	2
Meat ..	1.97	6.03	1.44	5.72	..	0.28	15.44	2.57	0.25	1.14	0.19	0.59	..	0.10	0.43	1
Pulses ..	1.91	2.89	2.59	6.71	1.16	0.89	16.15	2.69	0.24	0.55	0.34	0.69	0.43	0.31	0.45	1
Vegetables ..	6.12	8.94	5.19	8.41	3.10	3.86	35.62	5.94	0.76	1.69	0.67	0.87	1.15	1.33	0.98	2
Fruit ..	4.19	6.91	3.23	9.06	0.90	2.92	27.21	4.53	0.52	1.30	0.42	0.93	0.33	1.01	0.75	2
Salt ..	1.12	1.18	1.50	1.81	0.28	0.44	6.33	1.06	0.14	0.22	0.19	0.19	0.11	0.15	0.17	..
Miscellaneous ..	17.75	4.53	8.28	15.34	8.04	2.47	56.41	9.40	2.22	0.85	1.08	1.58	2.98	0.85	1.55	4
<i>Total ..</i>	<i>196.78</i>	<i>332.00</i>	<i>242.26</i>	<i>417.08</i>	<i>198.66</i>	<i>153.80</i>	<i>1,590.58</i>	<i>265.01</i>	<i>24.60</i>	<i>72.07</i>	<i>31.46</i>	<i>43.00</i>	<i>73.58</i>	<i>53.03</i>	<i>43.82</i>	<i>100</i>

Reference : page 16.

STATEMENT 5.
ARTICLES OF FOOD CONSUMED.
Total and Per Adult Male Unit Amounts of Articles of Food Consumed by each Family.
(Risalewala Families.)

Article of Food.	TOTAL.								PER ADULT MALE UNIT.									
	Family—						Total.	Average.	Family—						Average—			
	A	B	C	D	E	F			A	B	C	D	E	F	Per annum.	Per day.	Per head per day.	
MAJOR COMMODITIES:	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Chh.*	Chh.*
Wheat ..	33-12	34-75	38-65	59-04	15-24	19-37	200-17	33-36	4-14	6-56	5-02	6-09	5-64	6-68	5-51	9-7	6-8	
Milk and milk products ..	39-71	39-32	40-55	55-29	33-83	37-84	246-54	41-09	4-96	7-42	5-27	5-70	12-53	13-05	6-79	11-9	8-6	
MINOR COMMODITIES:	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.		
Maize ..	..	40	34	95	..	31	200	33	..	7-55	4-42	9-79	..	10-69	5-51	0-2	0-2	
Sugar ..	301	271	123	209	80	49	1,033	172	37-62	51-13	15-97	21-55	29-63	16-90	28-46	1-2	0-9	
Rice ..	40	104	56	85	9	44	338	56	5-00	19-62	7-27	8-76	3-33	15-17	9-31	0-4	0-3	
Meat ..	5	17	6	14	..	1	43	7	0-62	3-21	0-78	1-44	..	0-34	1-18	0-1	..	
Pulses ..	21	42	33	94	9	11	210	35	2-62	7-92	4-29	9-69	3-33	3-79	5-79	0-2	0-2	
Salt ..	18	19	24	29	4	7	101	17	2-25	3-58	3-12	2-99	1-48	2-41	2-78	0-1	0-1	

* Chhataks.

Reference : page 19.

STATEMENT 6.
SOURCES OF FOOD CONSUMED.

Proportion of Articles of Food Furnished by the Farm or Purchased from Outside.
(Risalewala Families.)

Article of Food.	FURNISHED BY THE FARM.							PURCHASED.							PERCENTAGE TO TOTAL.	
	Tenants—						Total.	Tenants—						Total.	Furnished by the Farm.	Purchased.
	A	B	C	D	E	F		A	B	C	D	E	F			
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
Wheat ..	70.37	86.50	93.93	159.54	44.19	29.56	484.09	6.25	6.31	22.03	38.66	2.34	28.54	104.13	82	18
Maize ..	..	2.00	0.62	1.73	..	..	4.35	..	..	2.00	4.75	..	1.90	8.65	33	67
Milk and milk products ..	54.43	191.15	75.00	122.83	123.66	68.47	635.54	8.61	15.77	5.00	4.62	2.90	..	36.90	95	5
Sugar ..	14.84	7.50	4.05	8.88	2.12	0.74	38.13	4.41	31.46	11.20	19.52	8.92	8.70	84.21	31	69
Rice ..	..	..	..	..	..	..	..	4.81	10.83	6.20	9.50	1.05	5.03	37.42	..	100
Meat ..	..	..	..	..	..	..	..	1.97	6.03	1.44	5.72	..	0.28	15.44	..	100
Pulses ..	0.82	1.95	1.31	2.02	..	0.23	6.33	1.09	0.94	1.28	4.69	1.16	0.66	9.82	39	61
Vegetables ..	..	1.50	..	..	1.09	1.50	4.09	6.12	7.44	5.19	8.41	2.01	2.36	31.53	11	89
Fruit ..	..	..	..	..	..	..	..	4.19	6.91	3.23	9.06	0.90	2.92	27.21	..	100
Salt ..	..	..	..	..	..	..	..	1.12	1.18	1.50	1.81	0.28	0.44	6.33	..	100
Miscellaneous ..	..	..	..	..	..	..	..	17.75	4.53	8.28	15.34	8.04	2.47	56.41	..	100
Total ..	140.46	290.60	174.91	295.00	171.06	100.50	1,172.53	56.32	91.40	67.35	122.08	27.60	53.30	418.05	..	..
Percentage to total ..	71	76	72	71	86	65	74	29	24	28	29	14	35	26	74	26

Reference: page 20.

STATEMENT 7.

SUGAR CONSUMED

Total and Per Adult Male Unit Amount and Value of Sugar Consumed per Annum.
(Risalewala families.)

Tenant.	TOTAL.						PER ADULT MALE UNIT.		
	Raw Sugar.			Refined sugar.	Total.	Per head.	Raw sugar.	Refined sugar.	Total.
	Furnished by the Farm	Purchased	Total.						
	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.
A. AMOUNT—									
A. ..	270	28	296	5	301	29-22	37-00	0-62	37-62
B. ..	48	154	202	69	271	38-71	38-11	13-02	51-13
C. ..	40	64	104	19	123	11-28	13-50	2-47	15-97
D. ..	90	67	157	52	209	14-22	16-19	5-36	21-55
E. ..	21	33	54	26	80	25-00	20-00	9-63	29-63
F. ..	5	15	20	29	49	12-25	6-90	10-00	16-90
<i>Total</i> ..	<i>474</i>	<i>359</i>	<i>833</i>	<i>200</i>	<i>1,033</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>
<i>Average</i> ..	<i>79-00</i>	<i>59-83</i>	<i>138-83</i>	<i>33-33</i>	<i>172-16</i>	<i>20-62</i>	<i>22-95</i>	<i>5-51</i>	<i>28-46</i>
B. VALUE—									
A. ..	14-84	3-00	17-84	1-41	19-25	1-87	2-23	0-18	2-41
B. ..	7-50	15-74	23-24	15-72	38-96	5-57	4-38	2-97	7-35
C. ..	4-05	6-58	10-63	4-62	15-25	1-40	1-38	0-60	1-98
D. ..	8-88	7-60	16-48	11-92	28-40	1-93	1-70	1-23	2-93
E. ..	2-12	3-45	5-57	5-47	11-04	3-45	2-06	2-03	4-09
F. ..	0-74	2-15	2-89	6-55	9-44	2-36	0-99	2-26	3-25
<i>Total</i> ..	<i>38-13</i>	<i>38-52</i>	<i>76-65</i>	<i>45-69</i>	<i>122-34</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>
<i>Average</i> ..	<i>6-35</i>	<i>6-42</i>	<i>12-77</i>	<i>7-62</i>	<i>20-39</i>	<i>2-44</i>	<i>2-11</i>	<i>1-26</i>	<i>3-37</i>

Reference : page 21.

STATEMENT 8-A.
PRODUCTION AND DISPOSAL OF MILK.
A.—BUFFALOES.
(Risalewala Families.)

Items.	TENANTS.						Total.	Average per family.
	A.	B.	C.	D.	E.	F.		
Total stock ..	9-00	10-00	9-00	9-50	8-25	4-00	49-75	8-29
Number of milch cattle ..	1-43	1-94	1-00	3-00	1-61	1-00	9-98	1-66
Cost of roughages consumed by all cattle:	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Bhusa ..	103-96	140-91	106-33	133-83	118-26	46-11	649-40	108-23
Fodders ..	218-07	344-34	161-74	242-38	226-97	125-86	1,319-36	219-89
<i>Total</i> ..	<i>322-03</i>	<i>485-25</i>	<i>268-07</i>	<i>376-21</i>	<i>345-23</i>	<i>171-97</i>	<i>1,968-76</i>	<i>328-12</i>
Cost of upkeep of buffaloes:								
Share of roughages	51-17	94-13	29-79	118-56	67-37	42-99	404-01	67-33
Concentrates and salt	30-81	72-89	7-09	52-11	6-08	20-62	189-60	31-60
Interest and depreciation on the value of milch animals	21-94	36-08	9-60	34-40	20-03	16-64	138-69	23-12
Interest and depreciation on housing	..	..	..	..	..	..	..	..
Miscellaneous ..	0-12	..	1-00	..	..	..	1-12	0-19
<i>Total</i> ..	<i>104-04</i>	<i>203-10</i>	<i>47-48</i>	<i>205-07</i>	<i>93-48</i>	<i>80-25</i>	<i>733-42</i>	<i>122-24</i>
<i>Less</i> { Value of young stock ..	4-00	4-75	5-00	8-00	4-75	2-62	29-12	4-85
{ Manure produced ..	10-24	8-38	4-38	15-76	7-13	4-14	50-03	8-34
<i>Total</i> ..	<i>14-24</i>	<i>13-13</i>	<i>9-38</i>	<i>23-76</i>	<i>11-88</i>	<i>6-76</i>	<i>79-15</i>	<i>13-19</i>
<i>Total Cost</i> ..	<i>89-80</i>	<i>189-97</i>	<i>38-10</i>	<i>181-31</i>	<i>81-60</i>	<i>73-49</i>	<i>654-27</i>	<i>109-05</i>
Total milk produced	Mds. 59-07	Mds. 37-73	Mds. 13-78	Mds. 72-22	Mds. 21-83	Mds. 41-39	Mds. 246-02	Mds. 41-00
Cost per maund ..	Rs. 1-52	Rs. 5-04	Rs. 2-76	Rs. 2-51	Rs. 3-74	Rs. 1-78	Rs. 2-66	Rs. 2-66
Milk sold:	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Quantity ..	24-02	10-51	..	26-43	0-79	4-90	66-65	11-11
Value realised ..	Rs. 78-06	Rs. 34-16	..	Rs. 85-90	Rs. 2-57	Rs. 15-92	Rs. 216-61	Rs. 36-10
Profit ..	41-54	(18-76)	..	19-55	(0-38)	7-22	49-17	8-19
Milk consumed:	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Quantity ..	35-05	27-22	13-78	45-79	21-04	36-49	179-37	29-89
Cost ..	Rs. 53-28	Rs. 137-05	Rs. 38-10	Rs. 114-96	Rs. 78-65	Rs. 64-79	Rs. 486-83	Rs. 81-14

STATEMENT 8-B.

Reference : page 21.

PRODUCTION AND DISPOSAL OF MILK.

B.-Cows.

(Risalewala Families.)

Items.	TENANTS.						Total.	Average per family.
	A.	B.	C.	D.	E.	F.		
Total stock ..	9-00	10-00	9-00	9-50	8-25	4-00	49-75	8-29
Number of milch cattle ..	0-05	1-04	1-11	0-24	2-00	0-05	4-49	0-75
Cost of roughages consumed by all cattle:	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Bhusa ..	103-96	140-91	106-33	133-83	118-26	46-11	649-40	108-23
Fodders ..	218-07	344-34	161-74	242-38	226-97	125-86	1,319-36	219-89
<i>Total</i> ..	<i>322-03</i>	<i>485-25</i>	<i>268-07</i>	<i>376-21</i>	<i>345-23</i>	<i>171-97</i>	<i>1,968-76</i>	<i>328-12</i>
Cost of upkeep of cows								
Share of roughages	1-79	50-47	33-06	9-50	83-89	2-15	180-66	30-11
Concentrates and salt ..	1-09	5-56	8-69	2-31	3-31	1-66	22-62	3-77
Interest and depreciation on the value of cows ..	0-45	21-16	7-02	1-32	15-20	0-33	45-48	7-58
Interest and depreciation on housing ..	..	..	..	..	..	..	..	..
Miscellaneous ..	..	..	0-50	..	..	..	0-50	0-08
<i>Total</i> ..	<i>3-33</i>	<i>77-19</i>	<i>49-27</i>	<i>13-13</i>	<i>102-20</i>	<i>4-14</i>	<i>249-26</i>	<i>41-54</i>
<i>Laba</i> { Value of young stock ..	0-75	6-75	7-50	4-00	3-25	0-25	22-50	3-75
Manure produced ..	0-36	4-50	4-87	1-26	8-85	0-21	20-05	3-34
<i>Total</i> ..	<i>1-11</i>	<i>11-25</i>	<i>12-37</i>	<i>5-26</i>	<i>12-10</i>	<i>0-46</i>	<i>42-55</i>	<i>7-09</i>
<i>Total cost</i> ..	<i>2-22</i>	<i>65-94</i>	<i>36-90</i>	<i>7-87</i>	<i>90-10</i>	<i>3-68</i>	<i>206-71</i>	<i>34-45</i>
Total milk produced	Mds. 2-50	Mds. 7-52	Mds. 24-77	Mds. 7-73	Mds. 23-75	Mds. 1-35	Mds. 67-62	Mds. 11-27
Cost per maund ..	Rs. 0-89	Rs. 8-77	Rs. 1-49	Rs. 1-02	Rs. 3-79	Rs. 2-73	Rs. 3-06	Rs. 3-06
MILK SOLD—	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Quantity ..	1-20	1-35	..	..	..	..	2-55	0-42
Value realised ..	Rs. 3-60	Rs. 4-05	..	..	..	..	7-65	Rs. 1-27
Profit ..	2-53	(7-79)	..	..	..	..	(5-26)	(0-88)
MILK CONSUMED—	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Quantity ..	1-30	6-17	24-77	7-73	23-75	1-35	65-07	10-85
Cost ..	Rs. 1-15	Rs. 54-10	Rs. 36-90	Rs. 7-87	Rs. 90-10	Rs. 3-68	Rs. 193-80	Rs. 32-30

Reference : page 26.

STATEMENT 9.
FAMILY MEMBERS.
Ages of Members and Adult Male Units in each family at the end of the Year.
(Other Families except Rasulpur.)

Families.	M A L E S .								F E M A L E S .								Total.	Adult male units.
	Over 16 years.	15-16 years.	13-14 years.	12 years.	10-11 years.	6-9 years.	2-5 years.	Under 2 years.	Over 16 years.	15-16 years.	13-14 years.	12 years.	10-11 years.	6-9 years.	2-5 years.	Under 2 years.		
Male Unit.	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.8	0.8	0.7	0.6	0.6	0.5	0.4	0.3	..	..
Ramunwal .. (Muslim Arain)	3.0	..	..	..	..	..	..	..	3.8	..	..	..	..	..	4.0	..	10.8	7.6
Dholanwal .. (Muslim Jat)	1.0	..	1.0	..	..	..	..	..	1.0	..	0.1	..	..	..	..	..	3.1	2.7
Doburji .. (Sikh Jat)	3.5	..	..	..	..	1.0	..	..	1.0	0.2	..	..	..	..	1.0	..	6.7	5.4
Bizhan .. (Mohyal Brahman)	3.0	..	..	..	..	..	..	..	1.0	1.0	..	..	..	..	..	..	5.0	4.6
<i>Total</i> ..	<i>10.5</i>	<i>..</i>	<i>1.0</i>	<i>..</i>	<i>..</i>	<i>1.0</i>	<i>..</i>	<i>..</i>	<i>6.8</i>	<i>1.2</i>	<i>0.1</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>5.0</i>	<i>..</i>	<i>25.6</i>	<i>20.3</i>
Average per family	2.6	..	0.3	..	..	0.3	..	..	1.7	0.3	..	..	..	..	1.2	..	6.4	5.1

Reference: page 28.

STATEMENT 10.

DOMESTIC EXPENDITURE.

Total and Per Adult Male Unit Domestic Expenditure of each Family.

(Other Families except Rasulpur.)

Item.	TOTAL.						PER ADULT MALE UNIT.				Average.	Percentage to total.
	Ramunwal.	Dholanwal.	Doburjl.	Bighan.	Total.	Average per family.	Ramunwal.	Dholanwal.	Doburjl.	Bighan.		
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Food ..	273.70	163.82	346.05	177.54	961.11.	240.28	36.01	60.68	64.08	38.60	47.35	53
Fuel ..	6.00	14.00	24.00	11.00	55.00	13.75	0.79	5.18	4.44	2.39	2.71	3
Dress ..	105.57	47.12	84.16	45.69	282.54	70.64	13.89	17.45	15.59	9.93	13.92	16
Housing ..	5.00	25.62	27.25	19.50	77.37	19.34	0.66	9.49	4.54	4.24	3.81	4
Lighting ..	3.69	2.91	4.64	6.00	17.24	4.31	0.49	1.08	0.86	1.30	0.85	1
Medicine ..	3.12	0.52	..	1.00	4.64	1.16	0.41	0.19	..	0.22	0.23	..
Travelling ..	41.33	15.38	14.44	3.50	74.65	18.66	5.44	5.69	2.67	0.76	3.68	4
Education ..	..	..	58.00	115.50	173.50	43.38	..	..	10.74	25.11	8.55	10
Religion ..	7.75	1.38	4.00	20.00	33.13	8.28	1.02	0.51	0.74	4.35	1.63	2
Social ..	17.81	8.12	7.25	6.75	39.93	9.98	2.34	3.01	1.34	1.47	1.96	2
Amusements and luxuries ..	5.00	20.00	2.00	10.00	37.00	9.25	0.66	7.41	0.27	2.17	1.82	2
Miscellaneous ..	2.61	29.75	3.22	12.44	48.02	12.00	0.34	11.02	0.60	2.70	2.36	3
Total ..	471.53	323.62	575.01	428.92	1,804.13	451.03	62.05	121.71	106.97	93.24	88.87	100

Reference : page 29.

STATEMENT 11.

SOURCES OF GOODS CONSUMED.

Value of the Items of Household Expenditure Furnished by the Farm or Purchased from Outside.

(Other Families except Rasulpur.)

Item.	FURNISHED BY THE FARM.					PURCHASED.					PERCENTAGE TO TOTAL.	
	Family.—				Total.	Family.—				Total.	Furnished by the farm.	Purchased.
	Ramun-wal.	Dholan-wal.	Doburji.	Bighan.		Ramun-wal.	Dholan-wal.	Doburji.	Bighan.			
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
Food ..	210.88	107.55	283.73	126.61	728.77	62.82	56.27	62.32	50.93	232.34	76	24
Fuel ..	6.00	14.00	24.00	9.00	53.00	..	..	..	2.00	2.00	96	4
Dress ..	2.74	..	9.52	14.00	26.26	102.83	47.12	74.64	31.69	256.28	9	91
Housing ..	..	..	..	..	..	5.00	25.62	27.25	19.50	77.37	..	100
Lighting ..	..	..	1.00	6.00	7.00	3.69	2.91	3.64	..	10.24	41	59
Medicine ..	..	..	..	..	..	3.12	0.52	..	1.00	4.64	..	100
Travelling ..	..	..	..	..	..	41.33	15.38	14.44	3.50	74.65	..	100
Education ..	..	..	..	..	..	..	..	58.00	115.50	173.50	..	100
Religion ..	..	..	..	..	..	7.75	1.38	4.00	20.00	33.13	..	100
Social ..	..	..	..	..	..	17.81	8.12	7.25	6.75	39.93	..	100
Amusements and luxuries ..	..	5.00	..	..	5.00	5.00	15.00	2.00	10.00	32.00	14	86
Miscellaneous ..	..	..	..	..	..	2.61	29.75	3.22	12.44	48.02	..	100
Total ..	219.62	126.55	318.25	155.61	820.03	251.96	202.07	256.76	273.31	984.10	..	..
Percentage to total ..	47	39	55	36	45	53	61	45	64	55	45	55

Reference: page 30.

STATEMENT 12.

EXPENDITURE ON FOOD.

Total and Per Adult Male Unit Expenditure on Food of Each Family.

(Other families except Rasulpur.)

Item.	TOTAL.						PER ADULT MALE UNIT.					Percent- age to total.
	Ramun- wal.	Dholan- wal.	Doburji.	Bighan.	Total.	Average per family.	Ramun- wal.	Dholan- wal.	Doburji.	Bighan.	Average.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Wheat ..	60-60	39-07	55-63	53-75	209-05	52-26	7-97	14-47	10-30	11-68	10-30	22
Maize ..	17-27	12-50	15-53	19-10	64-40	16-10	2-27	4-63	2-88	4-15	3-17	7
Milk and milk products ..	116-47	65-15	193-27	48-24	423-13	105-78	15-32	24-13	35-79	10-49	20-84	44
Sugar ..	28-46	8-59	41-25	19-18	97-48	24-37	3-75	3-18	7-64	4-17	4-80	10
Rice ..	8-30	6-56	20-49	3-25	38-60	9-65	1-09	2-43	3-79	0-71	1-90	4
Meat ..	14-88	10-66	..	..	25-54	6-39	1-06	3-95	..	..	1-26	3
Pulses ..	4-00	3-52	6-69	8-26	22-47	5-62	0-53	1-30	1-24	1-80	1-11	2
Vegetables ..	7-19	2-72	8-25	4-53	22-69	5-67	0-95	1-01	1-53	0-99	1-12	2
Fruit ..	2-97	5-22	..	6-60	14-79	3-70	0-39	1-93	..	1-43	0-73	2
Salt ..	0-62	0-39	1-16	0-88	3-05	0-76	0-08	0-15	0-21	0-19	0-15	..
Miscellaneous ..	12-94	9-44	3-78	13-75	39-91	9-98	1-70	3-50	0-70	2-99	1-97	4
<i>Total</i> ..	<i>273-70</i>	<i>163-82</i>	<i>346-05</i>	<i>177-54</i>	<i>961-11</i>	<i>240-28</i>	<i>36-01</i>	<i>60-68</i>	<i>64-08</i>	<i>38-60</i>	<i>47-35</i>	<i>100</i>

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Reference : page 30.

STATEMENT 13.

ARTICLES OF FOOD CONSUMED.

Total and Per Adult Male Unit Amounts of Articles of Food Consumed by each Family.

(Other Families except Rasulpur.)

Articles of Food.	TOTAL.						PER ADULT MALE UNIT.						
	Family.—				Total.	Average per family.	Family.—				Average.—		
	Ramunwal.	Dholanwal.	Doburji.	Bighan.			Ramunwal.	Dholanwal.	Doburji.	Bighan.	Per annum.	Per day.	Per head per day.
MAJOR COMMODITIES—	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Chh.	Chh.
Wheat	29.21	16.81	21.25	21.50	88.77	22.19	3.84	6.23	3.94	4.67	4.37	7.7	6.1
Milk and milk products	47.65	22.15	50.81	24.56	145.17	36.29	6.27	8.20	9.41	5.34	7.15	12.5	9.9
MINOR COMMODITIES—	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Chh.	Chh.
Maize ..	339	200	248	382	1,169	292	44.61	74.07	45.92	83.04	57.59	2.5	2.0
Sugar ..	202	49	294	211	756	189	28.68	18.15	54.44	45.87	37.24	1.6	1.3
Rice ..	50	40	272	29	391	98	6.58	14.81	50.37	6.30	19.26	0.8	0.7
Meat ..	48	28	..	..	76	19	6.32	10.37	..	..	3.74	0.2	0.1
Pulses ..	68	42	84	118	312	78	8.95	15.56	15.56	25.65	15.37	0.7	0.5
Salt ..	10	6	18	14	48	12	1.32	2.22	2.22	3.33	2.36	0.1	0.1

Reference: page 32.

STATEMENT 14.

SOURCES OF FOOD CONSUMED.

Proportion of Articles of Food Furnished by the Farm or Purchased from Outside.

(Other families except Rasulpur.)

Articles of Food.	FURNISHED BY THE FARM.					PURCHASED.					PERCENTAGE TO THE TOTAL.	
	Family—					Family—					Furnished by the Farm	Purchased.
	Ramun-wal.	Dholan-wal.	Doburji.	Bighan.	Total.	Ramun-wal.	Dholan-wal.	Doburji.	Bighan.	Total.		
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
Wheat ..	58-22	38-40	52-50	53-75	202-87	2-38	0-67	3-13	..	6-18	97	3
Maize ..	16-96	12-50	15-53	19-10	64-09	0-31	..	..	..	0-31	99	1
Milk and milk products ..	116-47	49-95	185-27	45-24	396-93	..	15-20	8-00	3-00	26-20	94	6
Sugar ..	10-02	2-00	..	..	12-02	18-44	6-59	41-25	19-18	85-46	12	88
Rice ..	..	..	20-49	..	20-49	8-30	6-56	..	3-25	18-11	53	47
Meat ..	..	..	..	..	..	14-88	10-66	..	..	25-54	..	100
Pulses ..	2-12	1-70	1-94	5-98	11-74	1-88	1-82	4-75	2-28	10-73	52	48
Vegetables ..	7-00	..	8-00	..	15-00	0-19	2-72	0-25	4-53	7-69	66	34
Fruit ..	0-09	3-00	..	..	3-09	2-88	2-22	..	6-60	11-70	21	79
Salt ..	..	..	..	..	..	0-62	0-39	1-16	0-88	3-05	..	100
Miscellaneous ..	..	..	..	2-54	2-54	12-94	9-44	3-78	11-21	37-37	6	94
Total ..	210-88	107-55	283-73	126-61	728-77	62-82	56-27	62-32	50-93	233-34	..	..
Percentage to total ..	77	66	82	71	76	23	34	18	29	24	76	24

STATEMENT 15.

Reference : page 33.

SUGAR CONSUMED

Total and Per Adult Male Unit Amount and Value of Sugar Consumed Per Annum.
(Other Families except Rasulpur).

Family.	PER FAMILY.						PER ADULT MALE UNIT.		
	Raw Sugar.			Refined sugar.	Total.	Per head.	Raw sugar.	Refined sugar.	Total.
	Furnished by the farm.	Purchased.	Total.						
	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.	Srs.
A. AMOUNT—									
Ramunwal ..	128	..	128	74	202	18·70	16·84	9·74	26·58
Dholanwal ..	16	8	24	25	49	15·81	8·89	9·26	18·15
Doburji ..	..	168	168	126	294	43·88	31·11	23·33	54·44
Bighan ..	..	188	188	23	211	42·20	40·87	5·00	45·87
Total ..	144	364	508	248	756	..	..	..	..
Average ..	36·00	91·00	127·00	62·00	189·00	29·53	25·02	12·22	37·24
B. VALUE—	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Ramunwal ..	10·02	..	10·02	18·44	28·46	2·64	1·32	2·43	3·75
Dholanwal ..	2·00	1·06	3·06	5·53	8·59	2·77	1·13	2·05	3·18
Doburji ..	..	14·75	14·75	26·50	41·25	6·16	2·73	4·91	7·64
Bighan ..	..	13·43	13·43	5·75	19·18	3·84	2·92	1·25	4·17
Total ..	12·02	29·24	41·26	56·22	97·48	..	..	..	..
Average ..	3·00	7·31	10·31	14·06	24·37	3·81	2·03	2·77	4·80

STATEMENT 16.

Reference: page 33.

PRODUCTION AND DISPOSAL OF MILK.

(Other Families except Rasulpur.)

Items.	TENANTS.				Total.	Average per family.
	Ramun-wal.	Dholan-wal.	Doburji.	Bighan.		
Total stock	8.67	3.83	4.92	3.58	21.00	5.25
Number of milch cattle ..	2.00	1.00	2.21	1.33	6.54	1.64
COST OF ROUGHAGES CONSUMED BY ALL CATTLE—	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Bhusa	74.40	74.71	70.41	43.60	263.12	65.78
Fodders	246.87	165.21	267.29	86.40	765.77	191.44
<i>Total</i>	<i>321.27</i>	<i>239.92</i>	<i>337.70</i>	<i>130.00</i>	<i>1,028.89</i>	<i>257.22</i>
COST OF UPKEEP—						
Share of roughages ..	74.11	62.64	151.69	48.30	336.74	84.18
Concentrates and Salt ..	70.09	25.79	19.22	18.50	133.60	33.40
Interest and depreciation on the value of milch cattle ..	16.00	12.80	27.60	12.27	68.67	17.17
Interest and depreciation on housing	3.11	3.22	3.03	3.59	12.95	3.24
Miscellaneous .. ..	..	0.17	1.00	..	1.17	0.29
<i>Total</i>	<i>163.31</i>	<i>104.62</i>	<i>202.54</i>	<i>82.66</i>	<i>553.13</i>	<i>138.23</i>
<i>Less</i> { Value of young stock ..	4.00	6.00	13.00	11.00	34.00	8.50
{ Manure produced	9.23	8.09	4.27	6.69	28.28	7.07
<i>Total</i>	<i>13.23</i>	<i>14.09</i>	<i>17.27</i>	<i>17.69</i>	<i>62.28</i>	<i>15.57</i>
<i>Total cost</i>	<i>150.08</i>	<i>90.53</i>	<i>185.27</i>	<i>64.97</i>	<i>490.85</i>	<i>122.71</i>
Total milk produced	Mds. 61.40	Mds. 30.45	Mds. 47.61	Mds. 33.55	Mds. 173.01	Mds. 43.25
Cost per maund	Rs. 2.44	Rs. 2.97	Rs. 3.89	Rs. 1.94	Rs. 2.84	Rs. 2.84
MILK SOLD—	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Quantity .. ..	..	13.65	..	..	13.65	3.41
Value realised	Rs. ..	Rs. 51.19	Rs. ..	Rs. ..	Rs. 51.19	Rs. 12.80
Profit .. ..	..	10.61	..	..	10.61	2.65
MILK CONSUMED—	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Quantity	47.65	16.80	47.61	23.36	135.42	33.86
Cost	Rs. 116.47	Rs. 49.95	Rs. 185.27	Rs. 45.24	Rs. 396.93	Rs. 99.23
GHI SOLD—	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Quantity	1.10	..	..	0.67	1.77	0.44
Value realised	Rs. 44.00	Rs. ..	Rs. ..	Rs. 25.24	Rs. 69.24	Rs. 17.31
Profit	10.39	..	..	5.51	15.90	3.98

APPENDIX
FORMS USED IN THE INQUIRY
Members of the Family.

FAMILY _____

Name.	Date of birth.	Relationship.	Work.	Remarks.

Daily Cash Account.

FAMILY _____

Date.	Particulars.	Quantity.	Income.	Expenditure.	Source or purpose.	Remarks.
			Rs. a. p.	Rs. a. p.		

Weekly Fuel Account.

FAMILY _____

Date.	Article.	Amount.	VALUE.			Remarks.
			Rs.	a.	p.	

Weekly Milk Record.

ANIMAL _____*

Date.	MILK.					GHI.			Monthly total of milk sold.	Remarks.
	Given to Calf.	Net Milked.	Sold.	Consumed.	Churned.	Made.	Sold.	Consumed.		

* Separate sheets should be used for buffaloes, cows, goats, etc.

Live Stock Account.

FAMILY _____

Name.	Age in the beginning of the year.	Value.	Date of purchase or beginning of useful period.	Date of disposal or end of useful period.	Remarks.

Inventory.

Dated _____

FAMILY _____

Particulars.	Quantity.	Rate.	VALUE.			Remarks.
			Rs.	a.	p.	
FOOD PRODUCTS:						
Wheat ..						
Maize ..						
Chi ..						
Sugar—						
Shakkar ..						
Gur ..						
Khand ..						
Rice ..						
Pulses—						
Mash ..						
Moth ..						
Mung ..						
Gram ..						
Masur ..						
Others ..						
Salt ..						
Others ..						
DRESS—						
Kapas ..						
Lint ..						
Yarn ..						
KEROSENE OIL ..						
ARTICLES OF FUEL						
OTHER ARTICLES—						
Cotton seed ..						
Oil cakes ..						
Mammni ..						

Cotton Account

FAMILY _____

Particulars.	KAPAS.		LINT.		YARN.		Remarks.
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	Srs.	Rs.	Srs.	Rs.	Srs.	Rs.	
1. Surplus from last year							
2. Purchased or gifts received ..							
3. Produced ..							
<i>Total</i> ..							
4. Sold ..							
5. Given to kamins ..							
6. Used at home—							
(i) Bartered for cloth							
(ii) Ginned (kapas only) ..							
(iii) Used for quilts (lint only) ..							
(iv) Spun into yarn (lint only) ..							
(v) Turned into cloth (yarn only) in the village ..							
7. Surplus ..							
<i>Total</i> ..							

HOME-MADE CLOTH ACCOUNT.			CLOTH IN EXCHANGE FOR KAPAS, LINT OR YARN ACCOUNT.			QUILT ACCOUNT.		
Particulars.	Quantity.	Value.	Particulars.	Quantity.	Value.	Particulars.	Quantity.	Value.
		Rs.			Rs.			Rs.
1. Lint ..			1. Kapas ..			1. Cloth ..		
2. Carding charges—			2. Lint ..			2. Printing and dyeing—		
(i) Cash ..			3. Yarn ..			(i) Cash ..		
(ii) Kind ..			4. Cash ..			(ii) Kind ..		
3. Spinning charges—			5. Kind ..			3. Carding and stuffing—		
(i) Cash ..			6. Carding charges—			(i) Cash ..		
(ii) Kind ..			(i) Cash ..			(ii) Kind ..		
4. Charges of weaver—			(ii) Kind ..			4. Stitching—		
(i) Cash ..			7. Spinning charges—			(i) Cash ..		
(ii) Kind ..			(i) Cash ..			(ii) Kind ..		
<i>Total</i> ..			(ii) Kind ..			<i>Total</i> ..		
5. Length ..			<i>Total</i> ..			5. No. of quilts ..		
6. Cost per yard ..			8. Length ..			6. Cost per quilt ..		
			9. Cost per yard ..					

GLOSSARY

ANNA	.. One-sixteenth of a rupee. (Abbrev.=A.).
ARAIN	.. Mohammedan agricultural tribe noted for its industry and cultivation; often found as market-gardeners near cities.
BHUSA	.. Straw of wheat stalks broken and crushed into short lengths by bullocks treading on it at the time of threshing.
CHADDAR	.. Sheet of cloth ; shawl.
CHARPOY	.. Bedstead.
CHHATAK	.. Indian weight : one-sixteenth of a seer ; equal to 2.057 ozs. (Abbrev.=Chh.)
DAHI	.. Curd.
DOPATTA	.. Sheet of thin cloth used by women to cover the head.
DURRI	.. Carpet.
GHAGRA	.. Skirt of voluminous folds.
GHI	.. Clarified butter, commonly used in upper India instead of lard or other cooking fats.
GUR	.. Raw unrefined cane-sugar in lumps.
GURDWARA	.. Worshipping place of Sikhs.
'ID	.. Mohammendan 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.
KAMIN	.. Menial ; village servant.
KANAL	.. Measure of area ; in Lyallpur District equals one-eighth of an acre.
KAPAS	.. Raw unginned cotton.
KHAND	.. Crystallised sugar.
LASSI	.. Butter-milk.
MAMMNI	.. Refuse separated from wheat during the process of winnowing ; contains shrivelled and diseased grains of wheat, weed seeds and dust.
MARLA	.. Measure of area ; equals one-twentieth of a kanal.
MASH	.. Pulse, much valued as human food (<i>Phaseolus radiatus</i>).
MASSAR	.. Lentil (<i>Lens esculenta</i>).
MAULVI	.. Muslim man of learning ; a teacher.

MAUND	.. Indian standard weight of forty seers ; equal to $82 \frac{2}{7}$ lbs. (Abbrev.=Mds.).
MOTH	.. Small pulse (<i>Phaseolus aconitifolius</i>).
MUNG	.. Pulse, much valued as food for invalids (<i>Phaseolus mungo</i>).
PIE	.. One-twelfth of an anna (Abbrev.=P.).
PIRI	.. Low stool.
RUPEE	.. Indian standard coin, fixed at 1s. 6d. sterling in 1927.
SAG	.. Spinach ; greens ; pot-herb.
SARSON	.. Indian colza ; an oil seed (<i>Brassica campestris</i> var. <i>sarson</i>).
SEER	.. One-fortieth of a maund ; 32·9 ozs. (Abbrev.=Srs.)
SHAKKAR	.. Roughly ground raw cane-sugar.
SHILWAR	.. Baggy pyjamas worn in North India.
SIKH	.. The martial religious sect of the Punjab. At the 1931 census they numbered 4,071,624 or 14·3 per cent. of the Punjab population.
SQUARE	.. Division of land, in certain Canal Colonies (including Lyallpur) ; size, 1,100 feet by 1,100 feet ; equivalent to 27·8 acres.
SUTHAN	.. Women's trousers.
TEHMAT	.. Sheet of thick striped cloth worn around the legs like a sarong.

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

PUBLICATION NO. 64.

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

**RELATIONSHIP BETWEEN
FERTILITY AND ECONOMIC
AND SOCIAL STATUS**

**IN THE
PUNJAB.**

**Being the results of an inquiry conducted in 275 villages in
25 districts of the Punjab and comprising
about 20,000 rural families.**

BY

S. P. JAIN, M. Sc.

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

1939

Some Reports of the Board of Economic Inquiry, Punjab.

FOOD REPORTS.

1. Rates of Food Consumption in the Attock District. (Publication No. 6.)
2. Rates of Food Consumption in the Multan District. (Publication No. 29.)
3. Sixty Years of Punjab Food Prices (1861-1920). (Publication No. 7.)
4. Eighty Years of Punjab Food Prices (1841-1920). (Publication No. 13.)

RURAL FAMILY BUDGETS.

1. Family Budgets, 1932-3, of Four Tenant-Cultivators. (Publication No. 40.)
2. Family Budgets, 1933-4, of Six Tenant-Cultivators. (Publication No. 44.)
3. Family Budgets, 1934-5, of Six Tenant-Cultivators. (Publication No. 50.)
4. Family Budgets, 1935-6, of Six Tenant-Cultivators. (Publication No. 59.)
5. Family Budgets, 1936-7, of Eleven Cultivators. (Publication No. 62.)

A complete list of the Board's Publications is given at the end of the book.

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PREFACE

There is widespread interest in the world population movements. Some very fascinating theories and beliefs have come to be recognised in this connection. A significant result of studies in the western countries is the view that human fertility decreases as man goes higher up in the social scale. Its importance will be admitted by all interested in human welfare. It then becomes necessary to inquire whether the observation is universally and absolutely true or whether the phenomenon is controlled by some factors which may be concomitants of certain special conditions. These conditions may or may not apply to all countries alike. It was because of the importance of the problem that the Board undertook the present study at the suggestion of Dr. R. A. Fisher.

The actual process adopted to conduct the inquiry is described in the report, and a summary of the main results immediately follows the Preface, but a few points require to be mentioned clearly so that the report may be considered in its proper perspective. The inquiry was extended over practically the whole of the Punjab—so wide a field that, owing to the limited resources of the Board, proper checks could not be exercised to verify the accuracy of the information collected. The information, moreover, was collected by village school teachers—honorary workers with little leisure—who had to deal with the villager, a person who does not generally feel easy when questioned about his income, womenfolk or other domestic affairs and whose notions about age are usually vague. It would require careful and tactful cross-questioning on the part of an investigator to get at real facts regarding children born and dead and their ages, and it is not very certain whether the school teachers came up to the requirements of the case. For example, the children were not recorded in their birth order with the result that discussions and analyses based on the birth order of children could not be taken up.

The method selected for study is based on the work on the subject by authorities like David Heron, Carr Saunders and Pearson. Western studies generally deal with characteristics pertaining to fertility and economic status as exhibited in definite local units, since this allows for more or less homogeneous conditions of environment. Similarly, here the data have been considered district-wise. It may be well to state that the question of celibacy which has some importance in the West is not of much significance in the Punjab in view of the universality of marriage.

The economic status of a couple has been measured by their gross annual income in the year of inquiry (1934-35) which was a fairly normal year. In the case of couples who were members of a joint family, the income was with a certain element of arbitrariness weighted by 20 per cent. (in view of some common interests between the couples of the family) and divided by the number of couples in the family to arrive at the economic status figure. The local conditions justify such a weightage.

The problem has been studied from the point of view of social as well as religious groups. The variations due to economic position within the same social groups have also been considered. The number of children born, and the number surviving, per 100 couples, which have been called respectively total and effective fertility, have been determined to study district characteristics.

In the presentation of the report, care has been taken to give the primary figures, while providing tables illustrative of the result. Although the necessity of checking the data by preliminary sifting and by rejecting unreliable work was constantly kept in view, it was not practicable to examine the data thoroughly from a research standpoint, and owing to various difficulties, statistical analysis could not be carried out in detail. In view, however, of the great interest and importance of the present inquiry, it has been considered proper to publish the report. The main merit of this study lies in the fact that it presents a new aspect of the problem, namely that the reduced fertility of socially higher classes is due not so much to economic as to cultural differences.

In the end, it is only fair to add that the Report owes much to Mr. S. P. Jain who was employed by the Board to scrutinise and collate the material from the point of view of the statistician. The inquiry being of a very novel character, the task was a difficult one and he discharged it to the satisfaction of the Board.

Lahore:
June 23, 1939.

L. C. JAIN,
Acting Secretary.

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The problem has been studied from the point of view of social as well as religious groups. The variations due to economic position within the same social groups have also been considered. The number of children born, and the number surviving, per 100 couples, which have been called respectively total and effective fertility, have been determined to study district characteristics.

In the presentation of the report, care has been taken to give the primary figures, while providing tables illustrative of the result. Although the necessity of checking the data by preliminary sifting and by rejecting unreliable work was constantly kept in view, it was not practicable to examine the data thoroughly from a research standpoint, and owing to various difficulties, statistical analysis could not be carried out in detail. In view, however, of the great interest and importance of the present inquiry, it has been considered proper to publish the report. The main merit of this study lies in the fact that it presents a new aspect of the problem, namely that the reduced fertility of socially higher classes is due not so much to economic as to cultural differences.

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SUMMARY

Section 1 formulates the problem and Section 2 deals with the collection of the data. Sections 3 and 4 give an account of the methods adopted with a view to studying the following characters:

- (i) Correlation between economic status and fertility. (Section 4-a.)
- (ii) The number of children born and dead per 100 couples in the eight social classes into which the data have been sifted. (Section 4-b.)
- (iii) The number of children born and dead per 100 couples in the four main religious groups of the Punjab, sub-divided into three main social classes. (Section 4-c.)

Section 5 contains the results of the study of item (i) above and shows that fertility increases slightly with the rise of economic status.

Section 6 enumerates the results of the study of item (ii). Here it is found that the total fertility *i.e.*, the number of children born per 100 couples of the agriculturist class is greater than that of the menial class, which in its turn shows a higher fertility than the non-agriculturist class. In point of effective fertility (*i.e.*, the number of children surviving per 100 couples), the order of the three main social classes is found to be—agriculturist, non-agriculturist and menial. In the three economic sub-divisions of the first two classes, the upper comes first, the middle next and the lower one last, both in point of total fertility as well as of effective fertility. The fertility of the menial class is found to be higher than that of the lower agriculturist or the non-agriculturist class. The total fertility as also the effective fertility of the professional class turns out to be comparatively low. However, the differences in total fertility of the various classes are smaller compared to those in effective fertility.

Section 7 deals with an interesting side-line. Here an attempt has been made to put the districts in the order of wealth of their rural areas.

Section 8 gives the results of the study of item (iii) above. The Christians almost invariably show the highest total as well as effective fertility. The Muslims have a higher fertility than the Hindus who are more prolific than the Sikhs. The survival rate among the Muslims and the Sikhs is higher than that among the Hindus. The same relative position as found in Section 6 is traceable in the three main social sub-divisions of the same religious group, excepting that the non-agriculturist class shows the highest total fertility among the Hindus. Among the agriculturists and the menials, the Muslims and the Sikhs have higher total and effective fertilities than the Hindus in the same social classes. Amongst the non-agriculturists the total fertility of the Hindu is slightly higher than that of the Sikh, but his effective fertility is smaller. Thus, class against class, the Muslims and the Sikhs have a higher effective fertility than the Hindus.

In Section 9 the implications of the above results are discussed and two interesting conclusions emerge. One is that the total and effective fertilities are affected by an interplay of social and economic factors. The menial class does show a higher fertility, but owing to poor economic position it does not find full expression. When the income position is lowered below a certain standard, the fertility is to some extent adversely affected. The other is that the more potent among the causes of the lowered fertility of socially superior classes observed in the West is the higher education and culture in those grades of society. This may perhaps be appreciated by those interested in rural reconstruction who aim at checking the growth of population in the Punjab in order to raise the general standard of living.

AN INQUIRY INTO THE RELATIONSHIP BETWEEN FERTILITY AND ECONOMIC AND SOCIAL STATUS

Section 1.—The Problem

Of late, considerable interest is being shown in the study of tendencies in population movements all the world over. Studies in the West have made a good case for the view that reproductive selection is at present working in the direction of national degeneracy. They seem to show that the reduction in the size of the families has begun at the wrong end of the social scale and is going on in the wrong way. That section of population which is better equipped and is more desirable from the point of the advancement of human society is showing a poorer reproductive rate as compared with the other section which shows undesirable social characters, although the latter section has a higher mortality of children. This has led to the conclusion that higher social status or economic position brings about reduction in fertility in man. It is of importance to see how far these reactions, which have disturbed the equanimity of the West, are operative under Indian conditions. Professor P. C. Mahalanobis, an eminent statistician, has in a recent note put concisely some aspects of the problem from the Indian point of view as follows:

“We do not know whether the size of the family increases, remains constant, or decreases with an increase in the income of the family. We do not know whether there is any differential fertility between different communities, or different occupational groups or different economic strata It is imperative that Government should take immediate action to enable a scientific study of population problems being made in their various aspects.”*

The main object of the present study is to investigate these very points. It may, however, be mentioned that this inquiry was taken up by the Board much before the above note was written.

The subject is clearly one of great importance in the problem of national welfare. Professor R. A. Fisher, while recommending the undertaking of such an inquiry by the Board, wrote that the problem “has certainly a considerable economic importance, for a rate of reproduction which favours the richer has an equalising influence on the distribution of wealth, while that which favours the poorer tends to enhance existing inequalities of distribution, and is in the West one of the major causes of discontent, and of such expedients as the attempt to relieve the poor at the expense of the rich by means of taxation.” The problem has another phase. It is now generally believed that physical and mental characters are inherited. What calls for discussion is only the manner or intensity of inheritance. In their English studies it has been shown by Pearson† and confirmed by Powys‡ that 25 per

*See “*Sankhya*,” Vol. 3, Part I, page 58. “The Need of a Sample Survey of the Growth of Population in India.”

†Reproductive Selection: The Chances of Death, Vol. I, page 80 et seq; 92.

‡On Fatality, Duration of Life and Reproductive Selection: *Biometrika*, Vol. IV, Part III, page 250.

cent. of the married population produce 50 per cent. of the next generation. In order to prevent the beginning and the spread of degeneration, it is necessary to determine the nature and conditions of the more fertile classes of the community as also to examine whether that 25 per cent. is the better or the worse portion of the community. In the words of Professor H. Lindborg, ". . . nations which early enough realise the importance of herited health and act upon this realisation will advance triumphantly, they attain to a higher morality, a more intelligent culture, a happier and healthier state of being."

There are alarmists' predictions that the actual growth of population in India will be large in the immediate future, and this prophecy is fraught with the usual economic consequences. In India, villages are the seed-beds of population. If it is desirable to control the growth of population, then attention has to be directed to the villages. The first step in the direction is to inquire into the forces which govern the size of the family in the villages.

Section 2.—The Inquiry

The inquiry was conducted in 275 villages in 25 districts of the Punjab.* Acknowledgment is made to the Director of Public Instruction, Punjab, who kindly placed the services of the village schoolmasters at the disposal of the Board for conducting the inquiry. The selection of villages for the purpose of the inquiry was, therefore, made from amongst such as had a school. Owing to practical difficulties in the way of instituting inquiries, big villages were left out of consideration. Such factors as the area, the population, and the important tribes of a district decided the number of villages to be selected from each district. As a first move, the District Inspectors of schools (who know the local conditions of their circles fairly well), were requested to put up a list of such villages in their respective circles as did not have a big population and as afforded facilities for conducting the desired inquiry. Of the three distinct social classes in a Punjab village—agriculturist, non-agriculturist and menial—the agriculturist largely predominates, and this fact was given due weight in the selection of villages. As a district is divided into tahsils, which are further subdivided into two or three revenue assessment circles on the basis of kinds of soils, it was decided to include at least one village from each assessment circle. The number of villages to be selected from each assessment circle was arrived at on the basis of the size and important classes inhabiting the circle. The required number from each circle was selected at random† from the list of villages proposed by the District Inspectors which was representative of the most important cultivating classes of the district. The number of villages in which the inquiry was instituted varied from 8 to 12 in each district. The population of the selected villages ranges from 400 to 1,800, but a great majority of them have a population between 800 and 1,200 with about 200 families each.

*Out of these, the district of Attock (11 villages) has been left out because of the defective returns of schedules and other difficulties. No investigation was held in the Kangra and the Simla Districts (Mountainous), Shahpur District (Canal Colonies) and Hissar District (Eastern).

†In a few cases, some villages were deliberately selected to ensure representation of a particular class. For instance, Clarkabad (Lahore) was included so as to have a Christian village.

The work of investigation was done by the teachers in their spare time. Where a village happened to be too big for one man, the work was divided between two teachers of the school, otherwise one teacher filled up all the schedules for the village. Some members of the Board's staff, duly trained for the inquiry, went to the villages to explain the questionnaire personally to the teachers concerned and to fill up a few schedules in their presence.

The schedules (which were in Urdu and an English translation of which is given at the end of the report), aimed at collecting information on the following points:

1. Names of members living in a family (defined by a common hearth and purse) and their relationship with the head of the family.
2. Religion, caste and occupation of the head of the family.
3. Age of a couple at marriage, muklawa,* and at the time of birth of the first issue.
4. Sex and age of children (at death, if dead).
5. Income of the family from agricultural and other sources; land owned and cultivated in the case of an agricultural family.
6. Seasonal produce in the year of inquiry (kharif 1934 and rabi 1935) in the case of an agricultural source of income. (The year was a fairly normal one.)
7. Some other miscellaneous information (which was, however, incompletely returned, e.g., extent of debt, cattle owned, cause of death of children, literacy, etc.).

Section 3.—Treatment of the Data

The number of children born alive per couple is usually taken as an index of fertility in man. This index is influenced by the ages of husband and wife at marriage and by the duration of marriage. A third factor considered in western studies, namely, frequency of celibacy, is of little significance in India where marriage is almost universal, as shown in the Indian Census Report of 1931.† In order to eliminate these influences, as far as practicable, the data were made more or less homogeneous with respect to these characters. This procedure is based on the paper "Genetic (Reproductive) Selection: Inheritance of Fertility in Man and of Fecundity in thoroughbred Racehorses," by Karl Pearson and others.‡

Accordingly, cases of very early and late marriages were excluded. Thus, cases where the wife at the time of marriage was under 12 years of age or the husband under 15 years of age were not considered. Similarly, cases where the wife at the time of marriage was over 20 years of age or the husband over 25 years of age were ignored. In a few districts (Mianwali, Jhelum, Gujranwala, Rawalpindi, Gujrat, Jhang, Ferozepore and Attock) it was found that the imposition of these limits would seriously curtail the number of cases to be considered, the obvious reason being that the age of the wife at marriage is usually higher in these areas. Hence in these districts, only those cases were rejected where the wife at the time of marriage was over 25 years

*Muklawa marks the time from which the wife begins to live with her husband.

†Vol. XVII (Punjab), Part I, page 172.

‡Transactions of Royal Society, Series A, Vol. cxcii, 1899, page 257.

of age or the husband over 30 years of age. These various age-limits at the time of marriage are generally considered to be suitable for the purpose in view.

To eliminate the effect of the duration of marriage, as far as practicable, the cases where the couple had led a married life for less than 10 years were left out. This 10 years' restriction is not entirely arbitrary. The following figures (relating to a sample inquiry) taken from the Indian Census Report,* are instructive in this connection.

Duration of Marriage and Fertility

Duration of marriage with present wife.	Number of families.	Number of children born.	Average number of children born per 100 families.
Under 10 years ..	43,215	80,993	187
10 years ..	10,452	29,721	284
Between 10—19 ..	53,657	217,608	405
„ 20—31 ..	44,434	233,602	525
32 years and over ..	21,644	124,869	577

The period of marriage "has been reckoned from the date on which the wife shifted to her husband's home" and "family" is taken in the sense of a couple. This shows that the inclusion of marriages with a duration less than 10 years would seriously affect the fertility results as deduced by considering the number of children born per couple. The most common duration of marriage met with is that from 10 to 19 years. Thus, by basing conclusions on cases where the marriage had lasted for 10 years at least, whatever be its actual duration, no serious error is introduced.

Thus, the aim throughout this study being to consider fertility, children of only such couples have been taken note of as had led a married life for at least 10 years and where the wife at the time of marriage was under 20 years but over 12 years of age and the husband under 25 years but over 15 years; only in a few districts was the upper limit raised, as already stated.

In working out figures for income, a peculiar difficulty was felt. Most of the cases considered belonged to the agriculturist class, where a statement of the seasonal produce of the year (after deducting the customary charges of the menials) was obtained. It was only in a few cases that it was possible to get the figures of prices which the produce had fetched. However, the difficulty of evaluating the income in cases where only seasonal produce was available and not the price it had fetched, was reduced by the fact that the cultivation in the villages is very simple and confined to staple articles and a few cereals. A statement of the village market prices prevalent at the time when the agriculturists sold their produce was also returned by the village investigator. A flat rate of prices for a district was fixed by considering the statements of prices returned for the various villages in the district together with the "Fortnightly Report of Market Prices" for the Punjab districts (issued by the Director of Land Records, Punjab); Milne's "Field and Garden Crops of the Punjab" proved useful in supplying certain necessary information regarding agricultural produce.

*Ibid., page 184.

Section 4 (a).—Classification according to Economic Status

In Section 5, the association between fertility and the economic status of a couple has been studied. As is the case with all social inquiries of the type, the comparisons have to be indirect. The economic status has been measured by the gross annual income. It is believed that this gives a fair index of the economic status of a couple, specially under conditions obtaining in an Indian village. The income figures from their very nature could not be exact and hence they have been grouped in class intervals of Rs. 100 beginning with the class 0—100.

Under the Indian joint-family system of a common purse, there arises the difficulty of assigning income to couples who belong to a joint family. Unlike social status, the economic status of a couple is not determined only by the income or status of the family but is also dependent upon the number of couples in the family. Hence, in cases where there were more than one married couples in the family, the income of the family has been weighted by 20 per cent. and then divided into the number of couples in the family in order to determine the income to be assigned to each couple. This weightage has been applied in view of some common heads of expenditure, like food, other domestic expenses, field implements, etc.

In order to place the fertility figures on a comparable basis, and to further minimise fluctuations due to different durations of marriage, two alternative methods have been adopted. The first is to correlate the economic status with the total number of children born to a couple, considering only those couples which had been in a married state for 20 years at least. The Census table shows that there is not any rapid increase in the average number of children born per couple married over 20 years. Dr. K. C. K. E. Raja of the All-India Institute of Hygiene and Public Health asserts that a woman makes about 80 to 85 per cent. of the total contribution before she reaches 35 years of age. This roughly works out to 20 years' duration of marriage. The actual figures of the data themselves show that a very great part of the total contribution of children is made within 20 years of marriage. Thus this correlation will show whether people with larger incomes have correspondingly greater or smaller number of children, and hence will establish whether fertility is independent of or increases or decreases with economic status. The difficulty in this method is that the number of cases that can be taken is considerably reduced.

In the second method, the index of fertility has been taken to be the number of children born within the first 20 years after muklawa. Here, of course, all cases where the couples had been in a married state for 10 years at least have been considered, so that a greater number of cases as compared with those that could be taken in the first method, have been included. In case a couple had been in a married state for a period lying between 10 and 20 years, the actual number of children has been weighted proportionately, in order to arrive at the number the couple is assumed to have in the 20-year period. For instance a couple, which has lived together for 15 years and has 4 children, is assumed to have $4 \times \frac{20}{15}$ i.e., 5 children, the lower whole number in a fractional value being always taken. Since the method assumes that a great proportion of the total number of children born to a couple is contributed within the first 20 years, all those cases where couples got a greater number of children after the 20-year period have been rejected. The correlation has been

studied between economic status and this new index of fertility. The results obtained by the two methods have been placed side by side for the sake of comparison.

The frequency distributions obtained by either of the methods are fairly symmetrical with regard to the number of children, but, as could be anticipated, are highly skew with regard to income. There are many more cases of lower income as compared with those of higher income. Consequently, the coefficient of contingency has also been worked out in each case. Based as it is on deviations from independence values, it gives a more reliable measure of association in such cases than the coefficient of correlation. For this purpose, income has been considered in four groups, namely those between Rs. 0—100, Rs. 100—200, Rs. 200—300, and Rs. 300 and over, and the number of children in these groups as between 0—3, 4—6, 7—9, 10 and over. Thus, a fourfold contingency table has been obtained in each case. The classification has not been made finer, because of the prohibitive labour, as well as because of the fact that in such a case this coefficient is affected largely by casual irregularities of no physical significance in the class frequencies.

Section 4 (b).—Classification according to Social Status

In Section 6 the relation between social status and fertility has been studied. There are three main social classes in a Punjab village, the agriculturist, the non-agriculturist and the menial. (The classification is with regard to the status of the husband.) It is true that a hard-and-fast distinction may not be possible in all cases; there are bound to be border-line cases which can only be classified on individual merits. However, the general principles that have been observed in the classification are that an agriculturist is one who either owns land above 10 acres or whose income is entirely or at least predominantly from agricultural sources; the others have been considered to be non-agriculturists excepting when they could be placed in the menial class. The non-agriculturist class is mainly composed of shopkeepers, money-lenders and of those following other vocations. A menial (the vernacular equivalent being Kamin) has been taken to be one whose labour is customarily paid for in kind and not in cash, and on whose services the villagers generally have a claim. Owing to the impact of conditions in urban areas, sometimes, though not frequently, labour such as that of a carpenter or of a blacksmith, which is generally taken to be of a menial nature, is paid in cash in rural areas as well. In such cases, of course, occupation has been the main guide, but couples whose income from the occupation went above Rs. 200 per annum have been placed in the non-agriculturist group. In view of the structure of society in the rural areas of the Punjab, artisans, who are generally known by the name of Sepi, have, as a rule, come under the menial class.

Agriculturist and non-agriculturist classes have been further subdivided into Upper, Middle and Lower, according to their economic position. These sub-divisions may not correspond to different classes with distinct social status in the village society, but they do have a distinct importance from the point of view of this inquiry. An affluent agriculturist is care-free as compared with a poor agriculturist. It is worth while to see if there is any difference in their fertility. Another class, among the non-agriculturists, which, besides having a distinct social standing, is specially interesting for the purposes of this inquiry,

is what may be called for want of a more expressive term, the "professional" class of the village. The class includes school teachers, priests, patwaris and other officials of the type. This class has had some education and is generally more refined than the others, the vocation of the class being of a "gentleman's work" character. Thus, the following eight social classes have formed:

- I. Upper Agriculturist—either land owned 20 acres or above, or income Rs. 400 per annum or over.
- II. Middle Agriculturist—land owned between 10—20 acres or income Rs. 200—400 per annum.
- III. Lower Agriculturist—income below Rs. 200 per annum.
- IV. Upper Non-agriculturist—income Rs. 400 per annum or over.
- V. Middle Non-agriculturist—income Rs. 200—400 per annum.
- VI. Lower Non-agriculturist—income below Rs. 200 per annum.
- VII. Professional—mainly composed of school teachers, religious priests and patwaris.
- VIII. Menial—carpenter, barber, blacksmith, etc.

For Classes I and II an ownership of land above 10 acres has been taken to be a conclusive test, otherwise the main source of income has been the criterion for allocating cases to agriculturist or non-agriculturist classes. The total income of the family has been considered in placing a particular case in the upper, middle or lower sub-division. The social class of a couple has been taken to be the same as that of the family to which it belongs, except when it could be placed in the "professional" class. It sometimes happens that other members of a family follow agricultural pursuits while one member is a school teacher. In such a case the particular couple formed by that member has been placed in the "professional" class, while the others have been placed in the group to which the status of the family entitles them.

It will be seen that although the criterion of classification is primarily one of social status, these social grades are also distinguished by economic and occupational differences. This classification of social groups may be considered to be parallel to that devised by the Registrar-General of England for separating occupied males into "different social grades."

There may be differences of opinion about the order in which these classes should be placed in the social scale, but one descending order which may appeal to reason is the arrangement:

Classes I, II, IV, VII, V, III, VI, VIII.

The number of children born and the number of children dead per 100 couples of each class have been obtained for each district, and thus the fertility of different classes has been compared. Professor Carr Saunders in his paper, on "Differential Fertility" has considered the number of children born per 100 families, children dead per 1,000 born and children surviving per 100 families. The last he calls "effective fertility." His data have been drawn from the Census of England and Wales (1911). He took all cases where wives were below forty-five years of age at Census irrespective of duration of marriage. He points

out that a relevant factor in discussing the contribution of each class to the next generation is the amount of marriage within each class. For this he took the proportion of married men aged forty-five to fifty-five per 1,000 occupied males of the same age in each class, as an index of frequency of marriage. Unfortunately no figures, which can be taken as measures of frequency of marriage within each class, are available in the case of the rural Punjab. Differences in this respect may exist between the various groups of society in the rural areas. The conditions in the rural and the urban tracts are different, and any discussion on these lines will, therefore, have to be based mainly on impressions. However, as Carr Saunders states, differences in birth rate are more important than differences in amount of marriage so far as contributions to the next generation are concerned.

Section 4 (c).—Classification according to Religion

In Section 8, the data have been reclassified according to four main religions in the Punjab, namely, Hindus, Muslims, Sikhs and Christians. Each religious group has been sub-divided into three classes: (i) Agriculturist, (ii) Non-Agriculturist, and (iii) Menial.

Throughout this study a character which is exhibited by a great majority of the districts has been taken into consideration in formulating results. The number of children born and the number dead per 100 couples in each group have been calculated for each district to study the variations of fertility and of effective fertility with religion.

Section 5.—Fertility and Economic Status

Table 1 contains the various statistical characteristics of the frequency distributions marked "A" and "B," "A" being obtained by considering the income and the number of children born within the first twenty years of marriage, and "B" by taking the income and the total number of children born of couples with at least 20 years' duration of marriage. The various characteristics have not been given with their standard error, owing to the fact that the income distribution is skew. The more familiar expressions for standard errors do not have any reliable significance in the case of skew distributions, and the less known complex expressions applicable to the cases require such elaborate calculations that the labour involved is not commensurate with the results.

It will be seen that the range of variation of income is high. The corresponding average incomes obtained in "A" and "B" are not very different; as a matter of fact, comparatively high values in one correspond to similar values in the other. The values of average number of children in "B" are, generally speaking, higher than of those in "A," which can be explained by the fact that in "B" the duration of marriage is greater than that in "A." In these two types of distributions values of r (coefficient of correlation) as well as those of c (coefficient of contingency) do not differ materially, generally those districts which have comparatively higher values in one have similar values in the other type. The values of r (put down correct to two places of decimals) do not show any appreciable correlation effect. Barring four values which are practically zero, r is nowhere negative. On the whole, values of c tell the same tale, but they indicate slightly greater association than is shown by the values of r .

It may be remarked that c cannot be greater than .866 in the case of a four-contingency table. In order that a layman may appreciate the meanings of correlation coefficients, Dr. David Heron gives the

following rough description: "Unity marks a complete casual relationship, correlation between .00 and .25 may be spoken of as small, although such relationships may be quite sensible; correlations between .25 and .50 are moderate; when between .5 and .75 we may speak of them as large, and if between .75 and 1 as very large." Similar limits may be enunciated for the contingency coefficient of a fourfold type. Values of c between .0 and .2 may be taken to indicate small though possibly sensible association, those between .2 and .4 as moderate, between .4 and .6 as large, and between .6 and .866 as very large. Thus c shows that there is a small association, whether it is positive or negative values of c we cannot say. However, the fact that r is almost always positive and in view of the other evidence which is put forward in the subsequent sections, it may be said that fertility, as measured by the number of children, is increased slightly with an increase in the economic status as measured by income in the rural areas of the Punjab. It may be repeated that the association is only small and not even moderate. This result will be discussed in Section 9, where all the results have been collected.

Section 6.—Fertility and Social Status

Table 2 gives the primary figures of the section. It will be observed that in each district the agriculturist group (Classes I, II and III) predominates, and the menial class (VIII) comes next. The non-agriculturist group (Classes IV, V, VI and VII) is small. A good number of cases is obtained in Classes I, II, III and VIII, while the number in Classes IV, V, VI and VII is often too small to lead to any reliable conclusions district-wise. The advantage in making comparisons district-wise, however, is that the data is more or less equally affected by the general, geographical and other physical environment. Instances coming under Classes III and VII are particularly few. All this could be expected from the structure of society in the rural Punjab, where the non-agriculturist class is considered to be superimposed, as it were.

In Table 3 the number of children born and surviving per 100 couples in the three main social groups—agriculturist, non-agriculturist and menial—are given for each district. It will be seen that in a great majority of the districts the agriculturist and the menial classes have a greater number of children born than has the non-agriculturist. The difference in the fertility of the menial and the agriculturist is not so marked. The differences are, however, appreciable when the effective fertility (children surviving per 100 couples) is considered. The order is agriculturist, non-agriculturist and menial. The same state of affairs is indicated by the average figures for all the districts taken together. The fertility percentages for the agriculturist, the non-agriculturist and the menial turn out to be 507, 499 and 501 respectively while the corresponding effective fertility percentages are 348, 330 and 318. The remarkable fact is the smallness of differences in fertility. These differences are, however, accentuated in effective fertility, apparently due to a higher death ratio in the case of menials and a comparatively better survival rate in that of the agriculturists. The menial class is characterised by small incomes, bad and unhealthy environment and comparatively unhygienic habits.

Table 4 gives the number of children born and surviving per 100 couples in each of the eight social classes. As has already been remarked, the number of cases examined in some classes comes out to be too few. In order that some instances may be got in each class

without including very small samples, figures for those classes where the number of cases fell below 50 have not been entered in the table. Still the number of cases in Classes V and VI generally and IV and VII in particular are so small that they are liable to be affected by chance irregularities. Hence the results should not be interpreted very rigidly, only broad comparisons can be made.

It may be difficult to comprehend the facts indicated by such a big table. Accordingly in Table 5 the social classes in each district have been placed in the descending order as revealed by considering (i) the number of children born per 100 couples, and (ii) the number of children surviving per 100 couples. A strict mathematical order of figures has been observed in placing the classes in order, although such a procedure may not have actually any real significance in cases where the two figures are fairly close.

The table clearly brings out the high fertility and effective fertility of the upper class agriculturist. Considering the fertility first, the leading position is generally occupied by Class I, sometimes by Class IV and occasionally by Class VIII. Class VIII occurs quite early in each district, showing that the fertility of the menials is fairly high, although it may not be as high as that of the upper class agriculturist. The Classes which come generally at the end are either III, VI, or VII. Classes III and VI are marked by low economic conditions and Class VII is what might be called the educated class of a village. It occurs fairly towards the end in many of the districts where the class itself is entered. This fact of lowered fertility of Class VII will be considered in the general discussion of the results. Similarly, the comparatively poor fertility of Classes III and VI will also be noticed. The order according to fertility of the three economic divisions of the agriculturist class is—upper, middle and lower, with the middle and lower sometimes changing places. Similarly, in the non-agriculturist group, the order is Classes IV, V and VI. The fertility of the upper class non-agriculturist is often comparable with that of the upper class agriculturist. These facts serve to show that fertility is slightly reduced with the lowering of economic status.

Taking up the question of effective fertility, one important change is noticeable and that in the position of Class VIII. In cases where this class is fairly high up according to fertility, it is low in the effective fertility chart. This points to the fact that a greater proportion of children die in the menial group. Otherwise, the same general conclusions as in the case of fertility hold good in the case of effective fertility also. The effective fertility of Class VIII is generally higher than that of Class VI.

The same position is reflected in the figures for all the districts. The low total and effective fertility of Classes III, VI and VIII may be particularly noticed. The lowering in effective fertility of Class VIII, due to a higher death rate, is shown by these figures.

To summarise the results of the section, it may be said that the fertility of the upper classes (socially or economically) is higher than that of the lower classes, and the difference is accentuated when effective fertility is considered. The low effective fertility of the menial class is due more to higher death rate of children born than to fertility. Taking different economic classes in the agriculturist or the non-agriculturist group, it seems that fertility as well as effective fertility

is slightly lowered with the lowering of economic status—the decrease is more evident when the difference in the economic status is increased. The low total and effective fertilities of the “professional” class exhibited by these figures, few as they are, are worth noticing.

Section 7.—Districts grouped according to Wealth

In the rural Punjab, the agriculturist predominates. It is, therefore, believed that the number of upper class agriculturists per 1,000 cases examined would give a fair measure of the wealth of rural areas of each district. It may be worth repeating that an upper class agriculturist has been defined as one who either has an annual income of Rs. 400 or over or owns at least 20 acres of land. Reliable income figures are very difficult to obtain, hence it would not be wise to measure wealth by the value of average income that has been obtained in Section 5 for each district, more so because the incomes have been grouped in class intervals of Rs. 100 and the concentration is greater towards lowest incomes. Of the suggested measures, land is a stable factor in determining wealth. Generally the two tests of land or income have been found to be mutually corroborative. Professor M. Boldrini (Italy) took income by profession, for example, the liberal professions, as an index of the wealth of a district and graded the districts according to this index. A similar idea is traceable in the suggested index. The descending order in which the districts can thus be placed is as follows:

Upper class agricul- turists per 1,000 cases examined	Upper class agricul- turists per 1,000 cases examined
1. Ferozepore 319	13. Amritsar 171
2. Lyallpur 264	14. Sheikhpura 167
3. Jullundur 252	15. Gurdaspur 151
4. Montgomery 249	16. Gujranwala 150
5. Mianwali 238	17. Rawalpindi 150
6. Multan 210	18. Gujrat 146
7. Karnal 207	19. Ludhiana 126
8. Rohtak 206	20. Gurgaon 121
9. Ambala 205	21. Hoshiarpur 113
10. Dera Ghazi Khan .. 193	22. Jhang 110
11. Jhelum 192	23. Muzaffargarh .. 100
12. Lahore 178	24. Sialkot 68

The following note in this connection has very kindly been written by Rev. E.D. Lucas, M.A., D.D., Ph.D., to whom warm thanks are due for his constant interest in the inquiry:

Note by Dr. E. D. Lucas

I have been asked to write a note on the results obtained by our Statistician, Mr. S. P. Jain, in arranging certain Districts of the Punjab in the order of frequency in which upper class agriculturists are found per thousand cases examined. Upper class agriculturist means a landowner who has an income of Rs. 400 or more per annum or owns 20 or more acres of land.

Nothing more can be claimed for this attempt than that it is broadly indicative of the relative economic state of the peasantry in each district dealt with.

Four districts stand at the top of the list whether income alone is taken to classify agriculturists in groups of descending economic status or income and/or ownership of 20 or more acres of land. These four are Ferozepore, Lyallpur, Jullundur and Montgomery. This is more or less what one would expect from a knowledge of agricultural conditions prevailing in the rural Punjab. Ferozepore is a very large district, comparatively recently opened up by communications and canals, with large land holdings and cultivated by Sikh Jats predominantly, who are reckoned amongst the best cultivators in India. Lyallpur and Montgomery are the most fertile and best canal served districts with fairly large and consolidated holdings and growing a high proportion of commercial crops and well served by markets, communications and agricultural propaganda by the provincial Agricultural Department.

Jullundur is a densely settled district with more well-cultivation than any other and famous for its hard-working Arain farmers and their market gardening type of cultivation. It is a very fertile district where the co-operative movement has made most headway.

Mianwali is high up in this list probably largely because of the size of its holdings. It is doubtful whether it would be so high if income alone were considered. But most cultivation in Mianwali is well or river flood land cultivation which probably gives good yields. There are many large flocks of sheep and herds of camel reared because of large areas of waste to supplement cultivation. Multan and Rohtak which stand sixth and eighth on the list are newly opened canal areas with much virgin soil. Multan has many large holdings and the Hindu "Kirars" (Aroras)* have shown unusual ability in improving their holdings. Rohtak is the home of the Hindu Jat who is perhaps the most industrious of all the Jat class.

It is a little surprising to find Karnal ranking seventh though the area of canal irrigation has been expanding and the district is not densely settled, there being much waste land. Seasons differ much here owing to the amount of rainfall received and good seasons (as 1934-35 was) probably put the district higher up than an average over several seasons would do.

Ambala is probably brought higher than it deserves to be, because of the great fertility of villages nearer the mountains and the existence of good markets.

Dera Ghazi Khan is tenth probably solely because of large holdings.

Jhelum is a district where villages would differ greatly in wealth, according as they are in bottom lands or valleys or in uplands where they would be very poor.

It is surprising to find Lahore, Amritsar and Sheikhpura occupying the twelfth, thirteenth and fourteenth positions. Lahore and Amritsar are dominated by the two big cities in each. Amritsar is densely populated and there has been some water-logging and much malaria. Lahore is not a very fertile district except in certain restricted areas and the most enterprising of the village population is drawn off to the cities.

Sheikhpura has been badly water-logged and is poorly served by communications and is a new district. The submontane districts of

*Money-lending and trading caste.

Gurdaspur, Hoshiarpur and Sialkot stand fifteenth, twenty-first and twenty-fourth (the bottom place) in the list. Hoshiarpur has a central spine of foothills (Siwaliks) running down its entire length which has been denuded of woods and from which destructive hill torrents issue. It also is poorly served by markets and communications. Sialkot is very densely populated and is more largely industrial than most other districts. There is considerable water-logging in parts and a scarcity of subsoil water in others. The cultivators are predominantly Muslim Jats and Rajputs who are not noted for enterprise.

It is surprising to find the very fertile Gurdaspur district at the fifteenth position, but holdings are small and population dense and increasing rapidly. There is much malaria and hookworm.

Not much need be said about the place occupied by other districts. Gujranwala (16th place), Rawalpindi (17th), Gujrat (18th), Ludhiana (19th), Gurgaon (20th), Jhang (22nd) and Muzaffargarh (23rd) might all be expected to be in the lower positions, as all of them suffer from serious handicaps of one kind or another. Gujranwala is not secured widely by canals or wells, though the former have been spreading out more widely over the district. Rawalpindi is a very rugged district with small holdings. Gujrat, Ludhiana and Gurgaon are not widely secured by either wells or canals and Gurgaon has a most uncertain rainfall as well. Jhang and Muzaffargarh are at the outskirts of the province, poorly served by markets and communications and dominated by rapacious landlords with a feckless cultivating class beneath them. So that to one knowing something about general economic conditions in the province there is nothing in the arrangement of the districts in this table to awaken distrust.

Section 8.—Fertility and Religion

The primary figures of the section are in Table 6. Before considering the results in this section, it would be well to recapitulate a few facts about the distribution of the various religious groups in the districts, to which the figures of the inquiry relate. A glance at the table on page 317 of the Indian Census Report, 1931, Vol. XVII (Punjab), Part I, would show that most of the districts are predominantly Muslim. Even allowing for the fact that depressed classes have not been considered separately as in the Census, it appears that Rohtak is the only district which can be called predominantly Hindu. In Gurgaon and Karnal the Hindus are in a considerable majority over the Muslims, while in Ambala and Hoshiarpur the two are more or less equal in strength. In Sheikhpura, Gujrat, Jhelum, Rawalpindi, Attock, Muzaffargarh and Dera Ghazi Khan the Hindus are in an ineffective minority. In Gujranwala, Mianwali, Montgomery, Lyallpur, Jhang, Multan, the strength of the Hindus compares slightly better with that of the Muslims than it does in the districts mentioned in the preceding sentence, but still the proportion of the Hindus is poor. In the remaining districts the Muslims are in a good majority. Coupled with these remarks is the fact that the Hindus are more concentrated in the urban areas. These facts are reflected in the figures obtained in the section. Thus in many instances the number of Hindu cases in a district is small as compared with the corresponding number of Muslim cases in the district.

Again, the Census shows that the Sikhs form an insignificant part of the population in Mianwali, Muzaffargarh, Dera Ghazi Khan, Rohtak

and Gurgaon, which accounts for the fact that practically no Sikh case was obtained in these districts. In Karnal, Multan, Jhang and Attock, the proportion is so low that not even 50 cases could be got. In other districts the number of Sikhs is at least comparable with the corresponding Hindu population. In Ludhiana the Sikhs form the majority community. Ferozepore, Amritsar, Jullundur, Ambala, Sheikhpura, Lahore, Montgomery and Lyallpur are the districts where the Sikhs form an effective group and are in a strength superior to that of the Hindus. In these districts the difference between the number of the Hindus and the Sikhs is not great. Villages in the Punjab are characterised by the fact that each is generally inhabited dominantly by a particular religious group. Thus the inclusion or exclusion of a particular village is an important matter from the point of view of securing representation of the various religious groups. This is why the actual relative position of the Hindus and the Sikhs in the districts just mentioned is not accurately reflected in the figures obtained.

The Christians are few, and their proportion in the rural population is smaller still. The Census shows that it is only in Lahore, Amritsar, Gurdaspur, Sialkot, Gujranwala, Sheikhpura, Montgomery and Lyallpur that they are in a number worth taking note of. As it is, very few Christian cases were obtained in Montgomery and they have not been entered accordingly. The number of Christian cases actually obtained is much too small to give any reliable results. Reliable information about Christians can be gathered only when an inquiry is held in Christian families specially; in random sampling they are not likely to find much representation. Taken on the whole, the figures obtained in the section bring out the differential position of the main religious groups in the various districts.

Table 7 gives the total and effective fertility of the four religious groups. As before, classes where the number of cases turns out to be less than 50 have been ignored. It will be seen from the table that in a great majority of the districts the Muslims get more children per 100 couples than the Hindus do, who in turn have more children than the Sikhs. This conforms to the general belief that the Muslims are more prolific. The difference between the fertility of the Sikhs and the Hindus is not much, while the difference between the fertility of the Muslims and the Hindus is considerable. If the difference between the number of children per 100 couples for the Hindus and the Muslims is considered with the list of the districts in order of their wealth obtained in Section 7, an interesting fact is brought to light. Broadly speaking, those districts which are higher up in the list show a greater difference in the fertility of the two groups than those down in the list. The explanation may probably lie in the fact that where the conditions of living are easier, the difference in fertility is brought out more sharply; on the contrary, where the struggle for existence is stiffer, the differences are rounded off.

The number of children dead per 1,000 born also shows variation with each religious group. A greater proportion of children dies among the Muslims than among the Hindus. Among the Sikhs the death rate of children is distinctly lower than among the Hindus, and much lower than among the Muslims. The variation in this respect between the Hindu and the Muslim groups is, however, not big enough to turn the balance of effective fertility in favour of the Hindus.

Figures for a majority of the districts show that Muslims have a greater number of children surviving per 100 couples than the Hindus, although sometimes the difference is not much. The Sikhs, owing to a smaller number of children dying per 1,000 children born to them, show a better effective fertility than the Hindus. The survival rate seems to be almost equal for the Sikhs and the Muslims, but the figures by themselves do not show any particular tendency. In the Census reports it is often repeated that the number of the Hindus is going down in the Punjab. Among the perhaps more potent causes may be this factor of lower effective fertility.

From the figures, for all they can show concerning the Christians, it seems that their fertility is high, or, at any rate, not lower than of the Hindus or the Sikhs. The number of children dead per 1,000 born is comparatively low, so that the effective fertility compares well with that of the religious groups showing high fertility. These conclusions are borne out by the high birth and survival figures and the low death figures for "all the districts" taken together. Similarly, figures for the other religions, however, point to a slightly different conclusion to what has been reached by considering figures for each district. Although the birth figures for the Sikhs turn out to be less than those for the Muslims, they are higher than those for the Hindus—and this is contrary to our main conclusion. The explanation may be that in those districts where Sikh cases were available for comparison, the birth figures for the Hindus, as mentioned, are slightly higher, but owing to poor fertility of the Hindus in other districts, the average for all the districts is brought down. The death figure for the Sikhs is the lowest and the survival figure is highest. Again the birth figure for the Muslims is considerably higher, but the death figure, contrary to the earlier conclusion, is higher for the Hindus. Thus the survival figure for the Hindus is lower for a double reason. The explanation again may be found in the poor representation of the Hindus in certain districts, but this is not so obvious here.

These conclusions may be compared with those arrived at in a special inquiry conducted for the purpose along with the Census of 1931. The following relevant figures have been adapted from the table on page 179 in the Census report. (Figures in brackets are the corresponding ones obtained in this inquiry.)

Children Born and Surviving per 100 Families

	Children born per 100 families	Children dying per 1,000 born	Children surviving per 100 families
Hindus ..	409 (484)	283 (345)	206 (317)
Muslims ..	378 (512)	277 (338)	273 (339)
Sikhs ..	411 (498)	285 (301)	295 (348)
Christians ..	431 (553)	279 (296)	311 (393)

The two sets of figures are not exactly comparable, as the Census Inquiry takes Ad Dharmis* and Jains separately, while in this inquiry they have been taken with the Hindus.

It may be observed that the differences in absolute magnitude of the figures obtained in the Census and the present inquiry need not be stressed. In the Census Inquiry the figures were arrived at, irrespective of marriage and age of the couples at marriage. That these factors seriously bring down the average number of children born and surviving per 100 families is clear from what has been said in Section 3 in connection with the table taken from the Census report. When one thinks of the normal size of the family one certainly has those families in mind which have reached a more or less stable condition as regards size. Another familiar example of a similar distortion in the presentation of facts is the official figure for the average age of an Indian. Owing to the inclusion of infants, whose mortality is high in India, the average works out to be low. The birth and survival figures of this inquiry are expected to be higher, but why the death figures should be persistently higher is not clear. One pertinent fact which may be noted is that the Census Inquiry was conducted in "typical areas of each district and state." An important explanation of the difference may be found in the expression "typical," for this inquiry is entirely rural. For another thing, it has already been noted that the grouping of Ad Dharmis and Jains has been different in the two cases.

The conclusions of the Census Inquiry are at variance with those of this inquiry mainly in two respects. Firstly, the Census Inquiry shows the Muslims to be having an appreciably smaller number of children than the Hindus; this conclusion, in the very words of the Census, "will cause surprise so far as Muslims are concerned, as they are well known to be fairly prolific." The apology for this result that is given by the Census, namely, that the Muslims, who are comparatively more ignorant, forget some of their children they may have lost, speaks for itself. Another significant quotation from the Census that occurs on page 70 is, "the survival rate is highest among Indian Christians and fairly high among Muslims, who have higher birth and death rates than the Hindus." Secondly, the Census Inquiry brings out a comparatively higher death figure for the Sikhs than for the Hindus or the Muslims. In other respects, the results tally or the variation is due to these two differences. Comparison beyond this stage with the Census Inquiry would be meaningless, as the classification adopted there is different from the one taken in this inquiry.

Table 8 gives the number of children born and surviving per 100 couples according to the main religious groups sub-divided into the main social classes. Here, as in the case of tables on social classes, figures for those sub-divisions where the number of cases fell below 50 have not been entered. This has resulted in ruling out the consideration of Christian cases. Only a few Sikh groups could be taken up. In some cases a few Hindu and Muslim groups had to be ignored.

Among the Hindus the non-agriculturist class has on the average more children born than the agriculturist or the menial class. There is no marked difference in fertility between the agriculturist and the menial class. Among the Muslims the non-agriculturist has a

*Lowest class of people, corresponding to the Untouchables in other parts of India.

smaller average of children born than the other two social classes. The same story is told by the average for all the districts, which shows that the Sikh non-agriculturist has the smallest birth figure amongst the Sikhs. Among the Christians the descending order in point of fertility is agriculturist, non-agriculturist and menial. The same order is shown by the three social classes as regards effective fertility in each of the religious groups.

Taking up the same social groups, the Muslim agriculturist shows a higher total and effective fertility than the Hindu or the Sikh. Comparison with the Sikhs can only be made on the basis of the average for all the districts. The Sikh agriculturist and menial classes have a higher total fertility than the corresponding Hindus. The effective fertility of each social class among the Sikhs is higher than that of the corresponding class among the Hindus. The Christian class has steadily a higher total effective fertility for each social group.

In closing, it may again be repeated that the differences in total fertility are small; it is only in effective fertility that the differences become appreciable. Also, it may be of interest to note that the average number of children which a couple gets (on reaching steady state) in the Punjab is 5.03, of which 3.35 survive. These figures are based on the data for all the districts taken together.

Section 9.—Conclusions

The statistical side of the inquiry having been dealt with, it is now proposed to discuss the results and their implications. The first and foremost conclusion, which is persistently shown in the different analyses of the data, is that total as well as effective fertility increases slightly with an increase in income. The menials who are lowest down in the social scale and include the artisans do show a comparatively higher fertility than the other groups (such as III and VI) which are near them in economic conditions. The economic factor exercises an important influence on fertility within the same social class, fertility being higher in the case of the upper sub-divisions. In the case of effective fertility, the economic factor is so dominant that the number of children surviving is considerably lowered with a descent in the social or economic scale. Thus, it seems that fertility is affected by an interplay of social and economic causes. In India, there is a very unequal distribution of wealth with extremes of poverty and richness. The same is true of the rural Punjab, where there are many who have hardly enough means to keep life going. The criterion adopted for classifying a case as a lower agriculturist or a non-agriculturist is an average income of Rs. 200 per annum at the maximum. This can scarcely be said to be sufficient to meet the bare needs of a couple with a family of other dependents to support even under the rural conditions of few wants and simple living. The middle section in each class has a better economic position, or, at any rate, has enough to meet the elementary needs, with the result that the fertility rises. The upper section is economically well off, and the fertility is increased due probably to the easier conditions of living. In this connection a quotation from Pell's "Law of Births and Deaths" (page 109) may be given. He says: "Well fed and mentally active people of the town will be relatively infertile. Well fed and sluggish country people will be relatively fertile. But in the case of poorer townspeople the effect of greater nervous activity will, in a large

measure, be counteracted by bad feeding and overwork." In the rural Punjab, in the three main social classes, the social habits are more or less uniform and the nature of work is not varied in each class. Thus the differences in each class are purely economic. This discussion, then, seems to point that with a decrease in income the fertility is to some extent affected adversely. Owing to the greater care which the richer class can afford to bestow on children, the survival rate is higher as compared to the poorer class. Thus, at present, the upper classes are contributing to the next generation more than the poorer ones. The amount of marriage in each class—a factor which could not be taken up so far due to lack of statistics—is believed to be working in the same direction. Upper classes have presumably higher marriage rates than the poorer ones. Of the social classes, the menials do show a higher fertility, but their contribution to the next generation is not high, because of the smaller survival rate of children due to poor economic conditions.

A second point which deserves special notice is the relatively low total and effective fertilities of Class VII, the "professional" class of the village. This is the only group in a village which, as a class, is educated and is comparatively more refined in habits and culture. It is high up in the social scale, whatever be its economic position. Of course, it is not quite safe to generalise on the basis of the small number of cases that could be got in this class. However, if one is permitted to risk it, it may be said that the indication is that the real factor behind the observed low fertility of the socially better classes in the West is the cultural difference. In this inquiry classes have been considered where there is not much cultural difference—the difference being mainly economic—and the above effect of reduced fertility was not observed. The results of this study go to substantiate the opinion expressed by Dr. J. H. Hutton in the following words:

"In order that a higher standard of living may affect the rate of reproduction, it is apparent that not only is an increase in education and culture involved, since it seems definitely established that intellectual activity acts as a check on fertility but also the psychological appreciation of a higher probability of survival."

An argument in favour of the theory that fertility and social status are negatively associated is that in brain workers the nervous system is developed at the expense of the reproductive system. In the case of the rural Punjab, this argument does not have much significance, since there is no substantial difference in the intellectual development of the different grades of society. The intellectual activities of the more affluent are in no wise more advanced than those of the poorer classes. The class which is somewhat more intellectual than the general lot of villagers is the "professional" class, which does show a comparatively lower fertility. This agrees with the view-point of those who advocate spreading of education and culture in the masses for a control of population.

Even in England, conditions in respect of fertility in the nineteenth century were not what they have been observed to be to-day. David Heron has studied the problem in his paper, "On Relation of Fertility

to Social Status" by taking certain district characteristics. He observes: "We are driven to the almost certain conclusion that differences in the mean age of wives were amply sufficient in 1851 to account for the differential birth rate of districts with divergent social status. On the other hand, in 1901 the districts with the lower social status had, in a much greater degree than in 1851, a higher birth rate than those with higher social status and at least 50 per cent. of this is not attributable to differences of age at marriage, but must be associated with a reduced fertility or a less exercised fertility in the wives of those with a higher social status. We conclude, therefore, that while in the last 50 years there has been 100 per cent. increase in the intensity of the relation between low social status and higher birth rate, this increase has arisen from new causes."

Dr. Stevenson and Professor Julian Huxley have expressed similar opinions. The position in this respect of a primitive agricultural area like the one studied here can now be better imagined.

A strong reason given by those who have observed the reduced fertility of socially higher classes in the West is deliberate restriction. As Professor Carr Saunders remarked, "differences in number of children born irrespective of age are due to greater deliberate limitation of families in some groups than in others and that no facts are inexplicable on this hypothesis." (Proceedings, World Population Conference, 1927, page 140.)

On this point it would be pertinent to reproduce from "Wisdom and Waste in the Punjab" by Sir M. L. Darling (page 193) a significant dialogue between a Jatni (peasant woman) and Sir Malcolm's associate:

- "How many children do you think a woman should have?"
 "Mother earth is not satisfied with the amount of her rain, nor is the mother woman with the number of her children. A barren field and a barren woman—who will take them?"
 "But cannot a woman have too many children?"
 "Without children how can we have men, and without men who will look after God's creatures, and who will dig the tanks that we may have water to drink?"
 "But if there are many children, will they not be poor?"
 "To run the world both rich and poor are needed. If all are rich like you, who will cut the grass for your horse?"
 "How will you feed many children?"
 "It is not a mother's work to do this. Her work is to bear them and to rear them. Other things God will provide."
 "Can a woman, then, not have too many children?"
 "No number is too great. In four days the disease of khattak* took away three men from my family."
 "In Europe people would have few children, for they have anxiety how they shall live and what they shall eat."
 "They are fools (*murakh*) to think like this. God has given them to rule over other countries, and we have lost this country because we killed our daughters."

The above dialogue reflects the typical mental outlook of villagers on the question of fertility.

*This refers to the influenza of 1918.

There are indications, however that the peasant woman is beginning to inquire whether it is necessary to have many children. As Sir Malcolm puts it, elsewhere in the same book (page 311):

“This is a new voice in Indian village life, and it is inspired by two feelings. The first is profoundly human; there comes a point when a woman feels she can bear no more. ‘I have borne him fourteen children,’ said the servant’s wife, ‘I cannot bear him another.’ The second feeling is entirely modern. ‘If (said the Minstrel’s wife) there are more than four, we cannot give them proper care; they cannot get shirts and shoes and they run about naked.’”

If those who are interested in the rural reconstruction work, catch the signs and direct their energies towards making the village people, specially the womenfolk, realise the necessity for some sort of check, useful results can be achieved. Not only will the growth of population be controlled but also a better standard of living would be possible.

TABLE 1.

CORRELATION BETWEEN ECONOMIC STATUS AND FERTILITY.

References :

1. Figures in rows "A" relate to the cases when the children born within the first 20 years of marriage are taken.
2. Figures in rows "B" relate to the cases when the total number of children are taken, only couples with at least 20 years' duration of marriage being considered.
3. N stands for number of cases considered.
 My and Ty stand for the average and standard deviation of income in hundreds of rupees, Mx and Tx for the average and standard deviation of children.
 r stands for the coefficient of correlation.
 C stands for Pearson's mean square contingency coefficient.

District.		N	My	Ty	Mx	Tx	r	C
Rohtak	.. A	1,387	1.60	1.58	4.76	2.25	.04	.195
	B	949	1.60	2.61	5.30	2.70	.07	.054
Sialkot	.. A	797	1.84	1.54	5.50	2.33	.07	.149
	B	577	1.94	1.24	6.26	2.83	.13	.155
Jullundur	.. A	1,184	2.24	2.53	4.89	2.19	.11	.154
	B	818	2.22	2.52	5.13	2.61	.06	.114
Gurdaspur	.. A	1,086	1.58	1.89	5.14	2.25	.01	.131
	B	744	1.72	1.84	5.89	2.82	.04	.053
Amritsar	.. A	1,137	1.75	1.75	4.95	2.11	.03	.226
	B	970	1.80	1.77	5.75	2.54	.05	.116
Gurgaon	.. A	1,155	1.30	1.38	4.69	2.14	.16	.185
	B	825	1.28	1.29	5.68	2.78	.16	.194
Sheikhpura	.. A	969	1.81	1.91	6.07	2.34	.05	.235
	B	611	1.81	1.80	6.88	2.78	.07	.174
Lyallpur	.. A	897	2.11	2.12	5.84	2.26	.01	.090
	B	628	2.02	1.99	6.90	2.60	.06	.151
Karnal	.. A	552	1.38	1.56	5.93	3.01	.12	.234
	B	270	1.49	1.50	5.75	2.61	.08	.231
Ambala	.. A	551	1.55	1.54	4.53	2.30	.02	.182
	B	461	1.71	1.61	6.02	2.71	.12	.240
Hoshiarpur	.. A	951	1.48	1.73	5.32	2.44	-.01	.065
	B	707	1.61	1.85	5.24	2.30	.00	.079
Ludhiana	.. A	775	1.47	1.62	5.50	2.75	-.01	.153
	B	550	1.54	1.68	5.34	2.58	.01	.129
Ferozepore	.. A	839	2.02	2.04	6.23	2.55	.01	.103
	B	592	2.13	2.15	6.04	2.47	.01	.114
Gujranwala	.. A	919	1.51	1.68	6.01	2.55	.04	.131
	B	599	1.61	1.81	6.00	2.38	.03	.169
Gujrat	.. A	987	1.52	1.40	4.33	2.15	.08	.141
	B	769	1.43	1.48	5.69	2.73	.02	.158
Miauwali	.. A	825	1.77	1.90	4.63	2.11	.02	.097
	B	604	1.63	1.77	6.10	2.63	.00	.113
Jhang	.. A	1,145	1.55	1.54	5.20	2.19	.09	.105
	B	782	1.58	1.53	6.15	2.55	.10	.279
Lahore	.. A	947	1.85	1.60	4.66	2.10	.13	.146
	B	652	1.50	1.28	6.13	2.76	.19	.195
Jhelum	.. A	747	2.12	2.60	4.21	1.91	-.02	.168
	B	572	1.90	2.24	5.14	2.54	.03	.168
Rawalpindi	.. A	504	2.08	2.38	5.84	2.84	.03	.138
	B	366	2.14	2.44	5.80	2.63	.13	.167
Montgomery	.. A	626	2.27	2.29	6.35	2.63	.07	.160
	B	434	2.42	2.39	6.25	2.44	.03	.193
Multan	.. A	677	1.66	1.66	4.56	2.70	.14	.219
	B	538	1.67	1.63	5.62	2.58	.11	.190
Muzaffargarh	.. A	588	1.35	1.36	3.86	2.07	.11	.216
	B	395	1.40	1.48	5.33	2.58	-.03	.193
D. G. Khan	.. A	687	1.02	1.20	3.74	1.83	.08	.135
	B	492	.978	1.22	5.03	2.46	.06	.170

TABLE 2.

NUMBER OF CHILDREN BORN AND DEAD IN THE SOCIAL CLASSES.

References : Figures in Roman indicate the social class mentioned in Section 4-b.

Columns (a) give the number of cases examined.

„ (b) give the number of total children born.

„ (c) give the number of total children dead.

	I.			II.			III.			IV.			V.			VI.			VII.			VIII.		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Lyallpur ..	258	1,613	433	170	1,052	277	81	502	149	12	87	14	32	190	49	68	399	112	33	188	49	323	1,995	631
Sialkot ..	86	529	187	88	495	171	182	906	339	59	335	119	84	465	183	125	636	214	61	323	119	294	1,638	576
Gurdaspur ..	207	1,174	337	132	670	199	244	1,119	387	56	308	70	80	416	126	80	393	139	86	372	135	489	2,336	801
Sheikhupura ..	178	1,101	312	83	496	116	307	1,701	494	15	103	30	21	120	35	41	196	74	40	238	64	380	2,349	1,011
Gurgaon ..	176	987	328	186	909	324	366	1,582	546	55	281	97	69	341	136	102	427	215	68	326	136	438	1,981	863
Amritsar ..	307	1,619	436	282	1,463	400	225	1,207	397	100	559	188	94	501	166	152	754	240	91	474	194	549	2,650	902
Jullundur ..	487	2,255	610	271	1,045	300	233	1,055	335	83	398	114	57	315	85	76	362	119	114	555	201	605	2,944	935
Rohtak ..	342	1,650	394	330	1,562	522	396	1,860	636	84	390	122	100	434	159	48	205	70	12	49	11	348	1,588	555
Karnal ..	193	1,029	441	157	748	293	154	733	312	19	141	58	47	293	139	35	173	99	13	54	18	315	1,479	617
Ambala ..	169	932	402	154	781	285	177	910	422	36	176	63	32	159	53	46	240	131	18	68	40	191	922	342
Hoshiarpur ..	182	907	227	220	1,085	260	458	2,147	773	84	425	113	126	631	206	97	489	159	83	406	130	355	1,745	659
Ludhiana ..	162	856	237	211	1,071	273	245	1,155	368	50	264	79	82	416	151	62	323	139	55	232	96	417	2,035	815
Ferozepore ..	428	2,345	759	220	1,187	451	132	1,714	251	25	119	36	25	119	30	56	298	112	38	221	82	419	2,320	864
Gujranwala ..	226	1,217	430	195	1,019	352	188	966	376	44	228	82	96	514	203	135	699	250	51	252	91	573	3,029	1,250
Gujrat ..	184	1,010	307	198	954	298	322	1,543	538	90	453	134	91	456	166	63	244	78	35	167	38	335	1,627	591
Mianwali ..	265	1,450	437	102	543	208	131	707	282	61	311	74	70	350	94	96	465	196	41	214	81	346	1,806	709
Jhang ..	141	769	157	133	713	183	265	1,421	378	27	159	43	65	380	74	121	594	214	33	173	54	491	2,605	849
Lahore ..	191	1,102	276	153	848	267	205	976	304	6	34	3	34	165	40	62	326	107	37	192	62	377	1,932	606
Jhelum ..	188	859	273	190	897	287	153	678	217	49	259	49	55	239	48	107	488	137	68	285	86	169	810	297
Rawalpindi ..	142	714	193	136	655	160	222	1,028	277	67	361	72	129	643	231	79	392	116	69	299	82	102	470	166
Montgomery ..	260	1,494	418	169	941	273	154	822	198	27	158	69	52	286	101	58	309	95	30	151	39	297	1,631	566
Multan ..	251	1,242	408	109	573	187	53	259	69	48	263	79	101	615	150	135	580	217	53	234	87	443	1,979	681
Muzaffargarh ..	75	363	116	44	176	41	155	718	216	35	171	48	80	373	159	111	464	183	24	90	27	225	913	321
D. G. Khan ..	190	828	299	104	463	163	192	805	264	16	70	27	28	132	67	69	291	119	18	76	24	367	1,474	613

TABLE 3.

NUMBER OF CHILDREN BORN AND SURVIVING PER 100 COUPLES IN THE MAIN SOCIAL CLASSES.

References :

Columns I give number of cases taken.

 " II give children born per 100 couples.

 " III give children surviving per 100 couples.

District.	AGRICULTURIST.			NON-AGRICULTURIST.			MENIAL.		
	I.	II.	III.	I.	II.	III.	I.	II.	III.
Lyalpur ..	509	622	453	145	596	442	323	618	423
Sialkot ..	356	542	346	329	535	342	294	557	361
Gurdaspur ..	583	521	363	302	493	337	489	478	314
Sheikhupura ..	568	582	420	117	553	379	380	618	352
Gurgaon ..	728	478	313	294	472	273	438	452	255
Amritsar ..	814	527	376	437	521	341	549	483	319
Jullundur ..	991	440	315	330	493	315	605	490	336
Rohtak ..	1,068	475	330	244	441	293	348	456	297
Karnal ..	504	498	291	114	579	304	315	470	274
Ambala ..	500	525	303	132	487	326	191	483	304
Hoshiarpur ..	860	481	324	390	500	304	355	492	306
Ludhiana ..	618	498	356	249	492	306	417	488	293
Ferozepore ..	780	544	357	144	526	346	419	554	348
Gujranwala ..	608	527	335	326	520	328	573	529	311
Gujrat ..	714	492	332	279	473	323	335	486	309
Mianwali ..	498	541	355	268	500	336	346	521	316
Jhang ..	539	539	406	246	512	365	491	531	358
Lahore ..	549	533	380	139	516	363	377	512	351
Jhelum ..	531	458	312	279	456	341	169	479	303
Rawalpindi ..	500	479	353	344	493	347	102	461	298
Montgomery ..	583	559	406	167	541	359	297	549	358
Multan ..	413	502	341	337	472	314	443	447	293
Muzaffargarh ..	274	459	323	250	439	272	225	406	263
D. G. Khan ..	486	431	282	131	434	253	367	402	235
<i>All the Districts</i> ..	<i>14,574</i>	<i>507</i>	<i>348</i>	<i>5,993</i>	<i>499</i>	<i>330</i>	<i>8,848</i>	<i>501</i>	<i>318</i>

TABLE 4.
NUMBER OF CHILDREN BORN AND SURVIVING PER HUNDRED COUPLES IN THE SOCIAL CLASSES.

References :—Figures in capital Romans indicate the social class.

Columns (i) give number of cases examined.

" (ii) give number of children born per 100 couples.

" (iii) give number of children surviving per 100 couples.

District.	I			II			III			IV			V			VI			VII			VIII		
	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)
Lyallpur ..	258	625	458	170	619	456	81	620	436	..	..	..	..	..	..	68	586	421	..	..	..	323	618	423
Sialkot ..	86	615	398	88	563	369	182	498	312	59	568	366	84	554	336	125	509	338	61	530	335	294	557	361
Gurdaspur ..	207	567	404	132	508	357	244	488	329	56	550	425	80	520	362	80	491	317	86	433	276	489	478	314
Sheikhupura ..	178	619	444	83	597	457	307	554	393	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gurgaon ..	176	561	375	186	489	321	366	432	281	55	511	333	69	494	297	102	418	218	68	480	280	439	452	255
Amritsar ..	307	527	385	282	520	379	225	536	360	100	559	371	94	533	357	152	496	337	91	521	398	549	483	319
24 Jullundur ..	487	463	338	271	386	265	233	453	310	83	480	343	57	553	404	76	476	320	114	487	312	605	490	336
Rohtak ..	342	482	367	330	473	315	396	470	309	84	464	281	100	434	275	48	427	281	..	..	..	348	456	297
Karnal ..	193	533	305	159	476	290	154	476	274	..	..	..	..	..	..	..	..	..	..	..	..	315	470	274
Ambala ..	169	552	314	154	507	322	177	514	276	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hoshiarpur ..	182	498	373	220	493	375	458	469	300	84	506	371	126	501	338	97	504	340	83	489	332	355	492	306
Ludhiana ..	162	528	382	211	508	379	245	471	321	50	528	370	82	507	323	62	521	297	55	422	247	417	498	293
Ferozepore ..	428	548	371	220	540	335	132	541	251	..	..	..	..	..	..	56	532	332	..	..	..	419	554	348
Gujrauwala ..	226	538	348	194	525	344	188	514	314	..	..	..	96	536	325	135	518	333	51	494	316	573	529	311
Gujrat ..	194	521	363	198	482	331	322	478	311	90	503	394	91	501	320	63	387	263	..	..	..	335	486	309
Mianwali ..	265	547	382	102	532	328	131	536	321	61	510	389	70	500	366	96	484	290	..	..	..	346	521	316
Jhang ..	141	545	434	133	535	397	265	536	393	..	..	..	65	585	471	121	574	397	..	..	..	491	531	358
Lahore ..	191	577	433	153	554	386	205	476	328	..	..	..	..	..	..	62	526	354	..	..	..	377	512	351
Jhelum ..	188	457	312	190	472	321	153	443	301	..	..	..	55	435	348	107	456	328	68	419	293	169	479	303
Rawalpindi ..	142	503	367	136	481	363	222	463	338	67	539	432	129	498	319	79	496	349	69	433	314	102	461	298
Montgomery ..	260	575	414	169	557	395	154	534	405	..	..	..	52	554	360	58	533	369	..	..	..	297	549	358
Multan ..	251	495	332	109	526	354	53	489	359	..	..	..	101	510	361	135	430	270	53	442	278	443	447	293
Muzaffargarh ..	75	484	329	..	..	..	155	463	324	..	..	..	80	466	267	111	418	253	..	..	..	225	406	263
D. G. Khan ..	190	436	279	104	445	288	192	419	281	..	..	..	..	..	..	69	422	250	..	..	..	367	402	235
<i>All the Districts</i>	<i>5,298</i>	<i>529</i>	<i>370</i>	<i>4,037</i>	<i>504</i>	<i>348</i>	<i>5,240</i>	<i>487</i>	<i>324</i>	<i>1,148</i>	<i>527</i>	<i>372</i>	<i>1,650</i>	<i>512</i>	<i>339</i>	<i>2,024</i>	<i>482</i>	<i>308</i>	<i>1,171</i>	<i>482</i>	<i>316</i>	<i>8,848</i>	<i>500</i>	<i>317</i>

TABLE 5.
CHART SHOWING THE RELATIVE POSITION OF THE SOCIAL CLASSES WHEN PLACED IN ORDER OF FERTILITY
AND EFFECTIVE FERTILITY FIGURES (DISTRICT-WISE).

Reference :—

Figures in Roman indicate the Social Class, as follows :

- | | |
|-------------------------------|-------------------------------|
| I.—Upper Agriculturists. | V.—Middle Non-agriculturists. |
| II.—Middle Agriculturists. | VI.—Lower Non-agriculturists. |
| III.—Lower Agriculturists. | VII.—Professionals. |
| IV.—Upper Non-agriculturists. | VIII.—Menials. |

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District. Position—	FERTILITY.								EFFECTIVE FERTILITY.							
	1st	2nd	3rd	4th	5th	6th	7th	8th	1st	2nd	3rd	4th	5th	6th	7th	8th
Lyallpur ..	I	III	II	VIII	VI	..	..	..	I	II	III	VIII	VI	..	..	..
Sialkot ..	I	IV	II	VIII	V	VII	VI	III	I	II	IV	VIII	VI	V	VII	III
Gurdaspur ..	I	IV	V	II	VI	III	VIII	VII	IV	I	V	II	III	VI	VIII	VII
Sheikhupura ..	I	VIII	II	III	..	..	..	..	II	I	III	VIII	..	..	..	..
Gurgaon ..	I	IV	V	II	VII	VIII	III	VI	I	IV	II	V	III	VII	VIII	VI
Amritsar ..	IV	III	V	I	VII	II	VI	VIII	I	II	IV	III	V	VI	VIII	VII
Jullundur ..	V	VIII	VII	IV	VI	I	III	II	V	IV	I	VIII	VI	VII	III	II
Rohtak ..	I	II	III	IV	VIII	V	VI	..	I	II	III	VIII	IV	VI	V	..
Karnal ..	I	II	III	VIII	..	..	..	..	I	II	III	VIII	..	..	..	..
Ambala ..	I	III	II	VIII	..	..	..	..	II	I	VIII	III	..	..	..	..
Hoshiarpur ..	IV	VI	V	I	II	VIII	VII	III	II	I	IV	VI	V	VII	VIII	III
Ludhiana ..	I	IV	VI	II	V	VIII	III	VII	I	II	IV	V	III	VI	VIII	VII
Ferozepore ..	VIII	I	III	II	VI	..	..	..	I	VIII	II	VI	III	..	..	..
Gujranwala ..	I	V	VIII	II	VI	III	VII	..	I	II	VI	V	VII	III	VIII	..
Gujrat ..	I	IV	V	VIII	II	III	VI	..	I	IV	II	V	III	VIII	VI	..
Mianwali ..	I	III	II	VIII	IV	V	VI	..	IV	I	V	II	III	VIII	VI	..
Jhang ..	V	VI	I	III	II	VIII	..	..	V	I	II	VI	III	VIII	..	..
Lahore ..	I	II	VI	VIII	III	..	..	..	I	II	VI	VIII	III	..	..	..
Jhelum ..	VIII	II	I	VI	III	V	VII	..	V	VI	II	I	VIII	III	VII	..
Rawalpindi ..	IV	I	V	VI	II	III	VIII	VII	IV	I	II	VI	III	V	VII	VIII
Montgomery ..	I	II	V	VIII	III	VI	..	..	I	III	II	V	VI	..	..	..
Multan ..	II	V	I	III	VIII	VII	VI	..	V	III	II	I	VIII	VII	VI	..
Muzaffargarh ..	I	V	III	VI	VIII	..	..	..	I	III	V	VIII	VI	..	..	..
D. G. Khan ..	II	I	VI	III	VIII	..	..	..	II	III	I	VI	VIII	..	..	..

TABLE 6.

NUMBER OF CHILDREN BORN AND DEAD ACCORDING TO MAIN RELIGION AND MAIN SOCIAL CLASS.

References :

Columns I refer to agriculturist class.
Columns II refer to non-agriculturist class.
Columns III refer to menial class.

Rows (a) give the number of cases examined.
Rows (b) give the number of children born.
Rows (c) give the number of children dead.

District.	HINDUS.			Total Hindus.	MUSLIMS.			Total Muslims	SIKHS.			Total Sikhs.	CHRISTIANS.			Total Christians.	
	I	II	III		I	II	III		I	II	III		I	II	III		
Iyallpur	(a)	20	39	125	184	385	89	160	634	97	15	36	148	7	2	14	23
	(b)	124	219	736	1,079	2,468	512	956	3,936	553	89	217	859	38	7	87	132
	(c)	31	69	215	315	641	129	369	1,139	140	20	65	225	12	1	23	36
Sialkot	(a)	84	124	118	326	234	162	148	544	39	11	4	54	6	35	54	95
	(b)	465	619	587	1,701	1,316	909	798	3,023	200	55	24	279	30	195	305	530
	(c)	104	243	217	654	415	337	271	1,023	52	16	6	74	12	61	96	169
Gurdaasur	(a)	151	152	206	508	269	94	219	572	143	52	36	231	15	23	44	82
	(b)	768	778	1,019	2,565	1,408	452	1,037	2,895	718	235	193	1,146	87	112	225	424
	(c)	311	398	393	1,092	362	152	329	843	225	57	34	316	21	29	50	100
Sheikhpura	(a)	19	32	12	63	302	23	287	612	161	16	6	183	94	36	93	223
	(b)	117	189	79	385	1,794	161	1,792	3,747	929	106	30	974	595	198	479	1,272
	(c)	39	49	43	131	487	65	660	1,212	244	40	10	294	154	68	154	366
Gurgaon	(a)	451	188	331	970	286	106	116	508	..	..	..	..	..	..	..	..
	(b)	2,012	939	1,555	4,506	1,318	504	529	2,351	..	..	..	..	..	..	..	..
	(c)	694	349	613	1,656	484	202	221	907	..	..	..	..	..	..	..	..
Amritsar	(a)	121	89	90	300	378	237	312	927	280	71	85	436	22	9	43	74
	(b)	586	460	394	1,440	2,049	1,184	1,588	4,821	1,339	308	372	2,019	97	60	199	356
	(c)	178	162	139	479	617	390	607	1,518	368	72	124	564	24	25	57	106
Jullundur	(a)	165	111	277	653	685	173	275	1,133	164	37	25	226	..	..	..	..
	(b)	743	532	1,244	2,519	3,218	827	1,346	5,391	744	185	137	1,066	..	..	..	..
	(c)	228	193	438	859	1,068	308	481	1,857	242	60	68	360	..	..	..	..
Rohtak	(a)	869	222	278	1,369	188	20	51	259	..	..	..	..	..	..	..	..
	(b)	4,012	969	1,253	6,234	893	110	229	1,232	..	..	..	..	..	..	..	..
	(c)	1,190	332	430	1,952	314	29	94	437	..	..	..	..	..	..	..	..
Karnal	(a)	461	80	223	764	151	23	103	277	..	..	..	..	..	..	..	..
	(b)	2,410	487	1,050	3,947	854	124	495	1,473	..	..	..	..	..	..	..	..
	(c)	730	244	408	1,382	280	49	203	532	..	..	..	..	..	..	..	..
Ambala	(a)	184	63	140	387	176	36	45	257	64	46	60	160	..	..	..	..
	(b)	915	314	684	1,913	1,007	146	218	1,371	331	205	243	779	..	..	..	..
	(c)	392	118	263	773	421	71	86	578	122	81	82	285	..	..	..	..

(Continued)

Hoshiarpur	(a)	480	309	232	1,021	243	78	91	412	143	22	7	172	..	..	..	..
	(b)	2,153	1,511	1,024	4,688	1,318	406	461	2,185	675	88	31	794	..	..	..	..
	(c)	630	474	387	1,491	381	134	146	661	180	28	16	224	..	..	..	..
Ludhiana	(a)	32	90	169	291	392	84	179	655	223	77	56	356	..	..	..	..
	(b)	156	404	816	1,376	1,815	426	905	3,146	1,027	371	263	1,661	..	..	..	..
	(c)	50	128	281	459	539	176	307	1,022	274	119	112	505	..	..	..	..
Ferozepore	(a)	54	23	81	158	313	77	250	640	400	41	94	535	..	..	..	..
	(b)	331	106	398	835	1,778	411	1,454	3,643	2,038	215	528	2,781	..	..	..	..
	(c)	104	50	130	284	629	150	570	1,349	702	57	162	921	..	..	..	..
Gujranwala	(a)	71	129	31	231	480	166	504	1,150	88	19	7	114	15	9	73	97
	(b)	377	716	163	1,256	2,505	876	2,654	6,035	462	91	30	583	79	46	366	491
	(c)	92	256	56	404	939	299	1,077	2,315	187	35	22	244	25	7	146	173
Gujrat	(a)	46	39	18	103	640	183	309	1,132	18	48	34	100	..	..	..	..
	(b)	243	244	88	575	3,771	1,013	1,840	6,624	103	286	196	585	..	..	..	..
	(c)	57	71	29	152	1,050	265	555	1,870	26	71	61	158	..	..	..	..
Mianwali	(a)	117	121	31	269	380	140	315	835	..	..	..	..	..	..	..	..
	(b)	567	590	194	1,341	2,078	726	1,606	4,410	..	..	..	..	..	..	..	..
	(c)	181	188	85	454	756	238	610	1,604	..	..	..	..	..	..	..	..
Jhang	(a)	81	152	79	312	451	75	430	956	14	20	3	37	..	..	..	..
	(b)	431	768	400	1,599	2,422	385	2,193	5,000	81	113	10	204	..	..	..	..
	(c)	158	261	158	577	872	141	720	1,733	18	26	1	45	..	..	..	..
Lahore	(a)	4	29	17	50	344	78	239	661	79	3	25	107	120	48	73	241
	(b)	30	116	81	227	1,815	394	1,412	3,621	375	16	127	518	739	307	412	1,458
	(c)	11	43	28	82	493	111	385	989	103	9	29	131	196	92	136	424
Jhelum	(a)	23	84	6	113	504	169	160	833	15	31	51	97	..	..	..	..
	(b)	136	455	37	628	2,814	912	832	4,558	79	158	275	502	..	..	..	..
	(c)	30	152	9	191	860	296	313	1,469	21	41	63	125	..	..	..	..
Rawalpindi	(a)	7	18	..	25	495	225	104	824	9	86	4	99	..	..	..	..
	(b)	34	83	..	117	2,359	1,007	444	3,810	68	406	4	478	..	..	..	..
	(c)	11	17	..	28	561	283	151	995	14	117	..	131	..	..	..	..
Montgomery	(a)	56	51	36	143	468	87	224	779	54	35	42	131	..	..	..	..
	(b)	272	256	177	705	2,506	438	1,228	4,172	285	166	215	666	..	..	..	..
	(c)	77	94	88	259	771	134	412	1,317	92	40	45	177	..	..	..	..
Multan	(a)	192	185	73	450	211	124	363	698	10	5	5	20	..	..	..	..
	(b)	915	901	348	2,164	1,070	601	1,789	3,460	39	24	24	87	..	..	..	..
	(c)	310	324	126	760	327	201	725	1,253	7	11	4	22	..	..	..	..
Muzaffargarh	(a)	88	159	40	287	178	79	185	442	..	..	..	..	..	..	..	..
	(b)	372	670	172	1,214	784	328	772	1,884	..	..	..	..	..	..	..	..
	(c)	116	239	79	434	242	124	288	654	..	..	..	..	..	..	..	..
Dera Ghazi Khan	(a)	76	40	14	130	354	85	309	748	..	..	..	..	..	..	..	..
	(b)	324	165	65	554	1,556	360	1,227	3,143	..	..	..	..	..	..	..	..
	(c)	116	67	22	205	533	145	523	1,201	..	..	..	..	..	..	..	..

TABLE 7.
NUMBER OF CHILDREN BORN AND SURVIVING PER 100 COUPLES ACCORDING TO RELIGION.

References —

Columns I give the number of cases examined.

Columns II give the children born per 100 couples.

Columns III give the children dead per 1,000 born.

Columns IV give the children surviving per 100 couples.

District.	HINDUS.				MUSLIMS.				SIKHS.				CHRISTIANS.			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Lyallpur ..	184	584	294	412	634	620	387	440	97	580	264	427	..	..	..	..
Sialkot ..	326	522	385	321	544	556	338	368	54	518	264	381	95	558	317	381
Gurdaspur ..	508	504	305	350	572	506	292	358	231	496	276	359	82	516	300	394
Gurgaon ..	970	465	368	320	508	462	380	328	..	..	..	..	..	..	..	..
Sheikhpura ..	63	611	340	403	612	612	300	430	183	582	280	421	223	570	280	413
Amritsar ..	300	480	333	320	927	502	346	328	436	463	272	336	74	481	300	338
Jullundur ..	553	466	341	301	1,133	476	444	312	226	471	338	311	..	..	..	..
Rohtak ..	1,369	455	314	312	259	476	355	307	..	..	..	..	..	..	..	..
Karnal ..	764	517	350	336	277	532	357	342	..	..	..	..	..	..	..	..
Ambala ..	387	494	403	295	257	533	422	308	160	487	365	359	..	..	..	..
Hoshiarpur ..	1,021	460	301	314	412	530	300	370	172	460	287	328	..	..	..	..
Ludhiana ..	291	472	303	314	655	480	325	324	356	466	303	325	..	..	..	..
Ferozepore ..	158	529	340	349	640	570	570	359	535	520	303	348	..	..	..	..
Gujranwala ..	231	545	321	370	1,150	525	383	324	114	516	361	381	97	506	363	322
Gujrat ..	103	558	273	406	1,132	585	282	420	100	585	270	427	..	..	..	..
Mianwali ..	269	499	339	270	835	528	363	336	..	..	..	..	..	..	..	..
Jhang ..	313	513	323	328	956	523	346	312	..	..	..	..	..	..	..	..
Lahore ..	50	494	332	330	661	548	273	398	107	484	252	362	241	605	291	429
Jhelum ..	113	556	306	386	833	547	320	372	97	528	242	401	..	..	..	..
Rawalpindi ..	..	..	..	..	824	462	262	341	99	478	273	346	..	..	..	..
Montgomery ..	143	486	309	305	779	536	315	367	131	509	265	374	..	..	..	..
Multan ..	450	481	351	312	698	496	365	315	..	..	..	..	..	..	..	..
Muzaffargarh ..	287	424	356	273	442	426	349	277	..	..	..	..	..	..	..	..
D. G. Khan ..	130	426	370	268	748	420	383	259	..	..	..	..	..	..	..	..
<i>All the Districts ..</i>	<i>9,907</i>	<i>481</i>	<i>315</i>	<i>317</i>	<i>16,145</i>	<i>512</i>	<i>338</i>	<i>339</i>	<i>3,206</i>	<i>478</i>	<i>301</i>	<i>346</i>	<i>835</i>	<i>558</i>	<i>296</i>	<i>393</i>

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TABLE 8.

NUMBER OF CHILDREN BORN AND SURVIVING PER 100 COUPLES
ACCORDING TO THE MAIN RELIGIOUS GROUPS SUB-DIVIDED
INTO MAIN SOCIAL CLASS.

References :

Columns I refer to Agriculturist class.

" II refer to Non-agriculturist class.

" III refer to Menial class.

Figures in rows "A" relate to the number of children born and those in rows "B" to the number of children surviving per 100 couples.

		HINDUS.			MUSLIMS.			SIKHS.		
		I	II	III	I	II	III	I	II	III
1. Lyallpur	.. A	..	..	589	641	575	598	570	..	..
	.. B	..	..	417	475	430	367	426	..	..
2. Sialkot	.. A	554	523	497	562	561	539	..	..	..
	.. B	323	327	313	385	41	356	..	..	..
3. Gurdaspur	.. A	509	512	495	523	481	474	502	452	..
	.. B	303	250	311	388	319	324	345	342	..
4. Sheikhpura	.. A	..	..	..	594	..	624	534	..	..
	.. B	..	..	..	433	..	392	428	..	..
5. Gurgaon	.. A	446	500	470	458	475	456	..	..	..
	.. B	292	314	285	289	284	265	..	..	..
6. Amritsar	.. A	484	517	438	542	507	509	478	434	438
	.. B	337	335	284	379	335	314	347	333	222
7. Jullundur	.. A	450	480	449	470	478	489	454	..	..
	.. B	312	306	291	314	300	314	306	..	..
8. Rohtak	.. A	462	436	451	475	..	449	..	..	..
	.. B	325	286	206	308	..	265	..	..	..
9. Karnal	.. A	523	609	408	566	..	481	..	..	..
	.. B	365	304	288	381	..	294	..	..	..
10. Ambala	.. A	497	498	489	572	..	..	517	..	486
	.. B	284	311	301	333	..	..	326	..	324
11. Hoshiarpur	.. A	449	489	441	542	546	507	472	..	..
	.. B	318	336	274	385	374	347	346	..	..
12. Ludhiana	.. A	..	449	493	463	507	506	461	482	470
	.. B	..	307	317	318	306	335	338	328	298
13. Ferozepore	.. A	613	..	491	568	534	582	510	..	562
	.. B	420	..	331	367	339	354	334	..	390
14. Gujranwala	.. A	531	555	..	522	523	527	525	..	..
	.. B	401	357	..	326	348	313	312	..	..
15. Gujrat	.. A	..	..	..	589	554	596	..	..	..
	.. B	..	..	..	425	409	416	..	..	..
16. Mianwali	.. A	485	488	594	547	519	510	..	..	..
	.. B	331	333	320	348	349	316	..	..	..
17. Jhang	.. A	532	505	506	537	513	510	..	..	..
	.. B	337	333	306	344	325	343	..	..	..
18. Lahore	.. A	..	..	..	528	505	591	475	..	..
	.. B	..	..	..	379	361	330	345	..	..
19. Jhelum	.. A	..	542	..	558	539	520	..	..	540
	.. B	..	361	..	387	264	324	..	..	417
20. Rawalpindi	.. A	..	..	..	476	448	427	..	472	..
	.. B	..	..	..	363	322	282	..	336	..
21. Montgomery	.. A	490	520	..	535	503	548	528	..	..
	.. B	352	336	..	370	349	364	358	..	..
22. Multan	.. A	476	486	477	508	484	493	..	..	..
	.. B	315	311	304	353	322	293	..	..	..
23. Muzaffargarh	.. A	423	421	430	440	415	417	..	..	..
	.. B	291	252	232	304	258	261	..	..	..
24. D. G. Khan	.. A	426	..	..	440	423	397	..	..	..
	.. B	269	..	..	299	250	228	..	..	..
<i>All the Districts</i>	.. A	480	495	478	513	505	508	500	491	503
	.. B	326	316	302	348	339	320	354	388	346
<i>Christians of all the Districts</i>	.. A	597	571	526						
	.. B	438	402	358						

QUESTIONNAIRE USED IN THE INQUIRY BOARD OF ECONOMIC INQUIRY, PUNJAB

INQUIRY INTO THE RELATIONSHIP BETWEEN FERTILITY AND ECONOMIC STATUS

Village _____

Date _____

Serial No. _____

PART I

FERTILITY

1. Is the family single or joint ?.....
2. Head of family : Name..... Father's name.....
Religion..... Caste..... Profession.....
3. Number of persons living in the family : (Persons temporarily absent should be included and guests and married daughters staying with the family for a short time should be excluded.)

MALES.			FEMALES.		
Name and relationship with head of family.	Profession.	Present age in years.	Relationship with male head of family.	Present age in years.	Profession, if any.
1	..		1	..	
2	..		2	..	
3	..		3	..	
4	..		4	..	
5	..		5	..	
6	..		6	..	
7	..		7	..	
8	..		8	..	
9	..		9	..	
10	..		10	..	
11	..		11	..	
12	..		12	..	

Note.—1. Name of the head of family must be entered.
2. If a man has more than one wife, mention the fact.

4. Age at which marriage took place, of all married males in the family :

	Name.	AGE AT MARRIAGE—		Age of wife at time of "muklava."*	Age of wife when first child was born.	Remarks.
		Bridegroom.	Bride.			
1	..					
2	..					
3	..					
4	..					
5	..					
6	..					
7	..					
8	..					
9	..					
10	..					

* "Muklava" means when the bride went to live with her husband permanently.

Note.—If a man has married more than once, give the ages at each marriage.

5. Total number of children (living or dead) born to each married male in the family. Children, whether minor or grown up, and married daughters, living away from the family should be included. If a man has married more than once mention separately the children by each wife, whether she is living or dead.

Father's name.	CHILDREN.									
	MALES.					FEMALES.				
	Total born.	No. living.	Present ages.	No. dead.	Age at death.	Total born.	No. living.	Present ages.	No. dead.	Age at death.

6. If possible, give here the genealogical tree of the family (starting with the head of the family or slightly earlier): persons dead should be encircled. Give also causes of death, e. g., fever, consumption, pneumonia, small-pox, plague, accident, etc.

PART II
ECONOMIC STATUS

1. Enter the land owned, if any, in the following table :

Kind of land.	TOTAL AREA OWNED—		OF WHICH MORTGAGED—	
	In the village.	Outside.	In the village.	Outside.
	Acres.	Acres.	Acres.	Acres.
Chahi (well-irrigated) ..				
Nahri (canal-irrigated) ..				
Barani (rained) ..				
Others ..				
Uncultivated ..				
TOTAL ..				

2-A.—Land cultivated by the family in kharif 1934 and rabi 1935 :

("Kharif" : summer crops or autumn harvest; "Rabi" : winter crops or summer harvest.)

	OWNED.	TAKEN ON BATAI.*		TAKEN ON CASH RENT.		OTHERS, e.g., on mortgage	TOTAL.
		Area.	Rate.	Area.	Rent†		
		Acres.	Acres.	Acres.	Rs.			Acres.	Acres.
In the village ..							
Outside ..							
TOTAL ..							

*Share-rental.

†Give total rent and not per acre.

2-B.—Land leased out in kharif 1934 and rabi 1935 :

	ON BATAI RENT.		ON CASH RENT.		ON OTHERS.	
	Rate.	Area.	Rate.	Area.	Rate.	Area.
	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.
In the village ..						
Outside ..						
TOTAL ..						

3. Total land revenue paid on all land whether owned or cultivated (For kharif 1934 and rabi 1935.)

4. If not a cultivator, amount of professional (halsiyat) or income-tax paid
Halsiyat tax, Rs. _____; Income-tax, Rs. _____.

5. Annual income from sources other than land :

	Rs.
(a) Cartage	
(b) Sale of fuel and grass	
(c) Sale of milk or milk produce	
(d) Sale of poultry	
(e) Casual labour	
(f) Service	
(g) Miscellaneous	
TOTAL	<u> </u> <u> </u>

6. For members employed in service, if any, give the nature of the service of each person, and his wages or salary drawn per annum :

7. Give the number of milch and plough animals kept by the family :

8. Is the family in debt? If so, give your estimate of the amount of debt (principal and interest accrued), and the rates of interest paid :

9. If the family is not in debt, state the amount saved, if any, to meet emergencies :

10. Give the amount of debt incurred on account of litigation during the last few years :

11. Give your opinion as to whether the family under inquiry can be classed as :

-(a) Indigent.
-(b) Living above indigence but not in comfort.
-(c) Living in comfort.
-(d) Living in luxury.

(Put a cross (X) against the class in which the family comes.)

PART III
INCOME IN KIND FROM LAND

- Note.*—1. For cultivators and landowners give the total amounts they received from all their land whether within or without the village, after deductions had been made on the threshing floor for menials, etc.
2. For menials give the total amounts they received as customary dues from all the cultivators for whom they have worked.
3. Values of produce sold should be ascertained from the seller.
4. For fodders give the area in acres and kanals.

Crop.	Amount received.	AMOUNT SOLD.		Amount given in debt.	Amount retained for home consumption.
		Amount.	Value.		
	Mds.	Mds.	Rs.	Mds.	Mds.
<i>Khari</i> 1934—					
Sugarcane ..					
Cotton, desi ..					
" , American ..					
Rice ..					
Maize ..					
Jowar ..					
Bajra ..					
Minor grains ..					
Mash ..					
Mung ..					
Moth ..					
Arhar ..					
Other lentils ..					
Chari ..					
Gowara ..					
Other fodders ..					
San-hemp ..					
Sankukra ..					
Vegetables ..					
Melons ..					
Other fruits ..					
Chillies ..					
Spices ..					
Indigo ..					
Others ..					
<i>Rabi</i> 1935—					
Wheat ..					
Barley ..					
Gram ..					
Wheat-gram ..					
Linseed ..					
Rai ..					
Taramira ..					
Sarson or sarshaf ..					
Senji ..					
Other fodders ..					
Massar ..					
Mattar ..					
Other pulses ..					
Condiments and spices ..					
Potatoes ..					
Carrots ..					
Other vegetables ..					
Fruits ..					
Others ..					
TOTAL ..					

[August, 1939]

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