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REPORT

ON

AN ECONOMIC SURVEY BY RANDOM SAMPLING

OF THE

RURAL AREAS

OF

AJMER MERWARA

Rajasthan

CENSUS OF RAJPUTANA AND AJMER-MERWARA.

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F O R E W O R D.

In September of 1940 I made a suggestion in words as under to the Hon'ble the Resident in Rajputana and Chief Commissioner for Ajmer-Merwara, that an Economic Survey by random sampling should be made of the rural population of Ajmer-Merwara:-

"I have the honour to state that the list of questions to be asked of every individual on the occasion of the 1941 Census includes several questions designed to produce information on such subjects as unemployment, seasonal occupation, labour contribution by members of the family, fertility rates of women, education, principal and subsidiary occupation, etc., etc."

"To bring the results of these inquiries into proper perspective, it is desirable to undertake an inquiry into economic life in rural areas."

"Since both time and money factors preclude such an investigation in each and every village it is necessary to resort to 'sampling', if such a survey is to become a practical possibility. The Census Commissioner for India has approved this system."

"The desirability of such a survey was recently stressed at a Meeting of the governing body of the Imperial Council of Agricultural Research. The opinion was expressed by that body that the time had arrived for correlating the needs of research with the practical economic needs of each part of the country. It is felt that the scheme as proposed herein will, in part at least, help to meet that need in this part of the country."

"In my general approach to this subject, I have from the outset been faced by several difficulties. Firstly, my Census charge comprises twenty-four different jurisdictions, each conducting and financing its own census. This fact in itself is antagonistic to that homogeneity which is so essential a condition for reliable sampling. Secondly, in practically the whole of Rajputana and Ajmer-Merwara the last three Monsoons have been unsatisfactory, so that any picture drawn solely at the present juncture from such a survey, is bound to be painted in the darkest colours. And thirdly, a survey of this nature requires skilled tabulators and enumerators who in many States may not be found, at any rate easily or in sufficient numbers."

"Taking all these difficulties into consideration I am of opinion that the survey should be limited to Ajmer-Merwara and those States which express a desire to carry it out and have the necessary technical officers available."

The proposal was accepted and the collection of data was completed during January 1941. Compilation and abstraction were commenced in April of the same year, and this volume represents the results.

The nature of the questionnaire, methods

of drawing the sample, technique of abstraction, etc., need not detain us here. All are fully dealt with in the pages that follow.

Here I wish chiefly to acknowledge the voluntary and valuable help which we received, and without which the survey could not have been undertaken. To the Principals of the Mayo College, of the Government College, Ajmer and of the Government Normal School the sincere thanks of the Census Department are due for agreeing to permit members of their staffs and senior students to collect data for the survey. Among those Masters and Professors who actually took part in the survey, Messrs. N.K. Joshi, J.A.M. Ede, M.M. Jain, P.N. Sahni, D.M. Jain and R.C. Banerjee were especially helpful. To them and to the students, who made up the various survey parties, I venture to offer my humble but grateful appreciation of their labours.

Lastly, to Mr. H.C. Kothari, Dr. B. Rama Murti and Mr. D.M. Jain who wrote these reports, I feel that a very great debt of gratitude is due. All these gentlemen are in active service and have given up their spare time and holidays to complete the work.

Jaipur,
27-10-1941.

Superintendent of Census Operations,
Rajputana and Ajmer-Merwara.

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PART I.

ECONOMIC SURVEY

BY

Dr. B. Ramamurti, M.A., D.Sc.
Professor of Mathematics,
Government College,
AJMER.

ECONOMIC SURVEY IN RURAL AREAS OF AJMER-MERWARA.

By Prof. B. Ramamurti, D.Sc.

I.

"India's wealth in an overwhelming degree is in her Agriculture; upon the fields of the cultivators, is founded the whole structure of India's Economy. The peasant now as ever is the chief source and creator both of her wealth and her greatness, and of him it may, with truth, be said, that he is India." (Lord Linlithgow. Indian Peasant page 18).

The rural Economic Survey of Ajmer-Merwara was undertaken by the Superintendent of Census, Rajputana and Ajmer-Merwara, along with the decennial Census in January 1941.

Need For A Survey.

The population Census attempts, by eliciting answers to simple questions put to every individual of the country, to provide a framework for a picture of the significant social and economic facts in the life of the nation. The growing and vital importance of the economic aspect is evident from the evolution of the Census questionnaire relating to it. From a single question on occupation in 1891, we have four in 1921, and eight out of 22 questions in the 1941 Census, eliciting information on the degree of importance of the occupations, their sufficiency and the degree of dependence. Although the questionnaire has undoubtedly improved in form and detail, still, as Census after Census has shown, it has transcended the capacity of the poorly educated enumerator to pilot it through the appalling depths of illiteracy of the rural folk. Thus, while on the one hand there is a pressing need for forming a detailed picture of the economic life of the nation there is, on the other, the difficulty of execution with the help of the Census machinery, and following the Census method. It was as a step towards finding a solution to this difficult problem that the Rural Economic Survey of Ajmer Merwara was undertaken by the Superintendent of Census with the help of an intelligent group of enthusiastic field workers.

Importance Of Rural Survey.

India is almost rural. Eighty-nine per cent of her people live in villages. Agriculture is the very backbone of village life. Of the peasant, as observed by Lord Linlithgow, it may be said that he is India. Naturally a picture of his economic condition demands our first attention. The Royal Commission of Agriculture in India (1928) has stressed the need for forming such a picture, before any attempt at any rehabilitation of his life is made.

Random Sample Method.

In order to secure the above picture, it is impossible to survey every village considering the time, labour and money involved. Hence decisions have to be formed from a study over a well-

designed representative sample, and careful estimation for the whole population. For this purpose the random sample method, advocated by *Bowley and Robertson, has been followed. This method is described in detail in Chapter II and the main advantages of this method are: (1). We can obtain by mathematical process the margin of error in each estimate and (2) as the survey was taken along with the population Census, tests are provided for finding the reliability of the sample. - See Chapter II.

Method Of Collecting Data.

The material was collected by the schedule or interview method. A copy of the schedule together with suggestions for its improvement is printed in an Appendix. The schedule is based on the following main trends of inquiry:

1). Means of occupation, family composition, food consumption, family budget and indebtedness.

2). Land, size of holdings, fragmentation and production.

3). Agricultural livestock, loss during famine, dairy income and expenditure.

4). Subsidiary occupations, period of under-employment.

5). Education and health.

In fact the schedule seeks information on all the important factors in the economic life of the villager.

Selection And Training Of Investigators.

The whole Survey was under the direct charge and supervision of the Superintendent of Census. Fifteen out of the 706 inhabited villages, numbering in all 1701, were surveyed. Each village was surveyed by a party of four investigators, one of whom was the party leader. Ten parties were formed from the pupil teachers of the Government Normal School, from the Economic students of the Government College, and one from the Mayo College.

Training classes were held for the investigators in which the exact scope of the schedule and the methods of collecting the information were explained. Detailed instructions were given for filling up the schedule. A copy of these is printed in the Appendix. The parties were sent to the respective villages in

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* See Bowley and Robertson. A scheme for an Economic Census of India. Government of India Publication - 1934.

January 1941, where they stayed for over a week. At first the village ecclesia was gathered, friendly relations established, and assurances given that the data to be collected would be kept confidential and would be used for their own benefit. With the help of the village Patel, house to house enquiry was conducted, information obtained with great tact and persuasion, and the schedule filled up. Each party leader was requested to submit an essay on the village under his survey embodying answers to an exhaustive set of questions issued to them, and Mr. Josni, Head Master of the Government Normal School, has embodied his experiences in the form of an essay entitled: 'The Lessons I Learnt.'

Analysis And Its Special Features.

It is probably for the first time in India that a random sample survey of a province (or a district) has been carried out to obtain a cross-section of its economic life at a particular moment. The schedule contains a mine of information, but in the analysis the central emphasis is laid on the villager himself, the important features of his family living, and on the statistical problems connected with their measurement. Thus the special features of the analysis are:

1). We have for the first time in India a scientific analysis of the actual content and levels of living of rural families, and this has been obtained by following the procedure laid down by The League of Nations International Labour Office in their monograph "Method of Family Living Studies," Bulletin No.23 (1940).

2). For this purpose it was necessary to reduce the varying age and sex composition of families to a common measure. To this end, a food consumption expenditure scale was worked out from the data obtained, by the statistical method of fitting Regression Equations. This took us the major part of our time, and the result is of vital importance and may be compared with the scale based on dietetic standards obtained for India by Aykroyd in the Government of India Health Bulletin No.23.

3). The influence of famine income upon the levels of living, is studied and an appraisal is made as to how far Famine Labour Relief has made up for the usual channels of income, which had been frozen up due to famine conditions.

4). In addition, we have a scientific estimate of the size and composition of the family, the extent of subdivision and fragmentation of holdings, cattle loss in famine, economic condition of the village artisans, and extent of indebtedness existing ideas about most of them seem to be somewhat vague and nebulous. (See the Evidence before the Banking Inquiry Report 1928). Attention is

concentrated on figures likely to be of use for the Local and Imperial Governments.

Special Features From A Statistical Point Of View.

Statistical principles were followed in the construction of Tables. Checks were provided at every stage in the computation in order to ensure accuracy. It is well-known that mere averages will not do. "They are like military clothing which does for everybody but fits none well". In all cases attempts have been made to exhibit the dispersion, either by calculating the standard deviation or by forming frequency distributions in suitably-sized classes, the most important of these being the classification of families according to economic levels of living. The estimates of important statistics for the population from that of the sample have been provided with their margin of error.

Comparison With Other International Surbeys.

In a recent issue of the International Labour Review Vol. XL.III No.4 (1941) an international survey on Recent Farm Family living studies has been rade. The survey comprises 18 inquiries in 11 countries of which only one of them, conducted in United States, exceeds more than 1000 families. Even in the cases of samples spread over the whole country it is remarked that it is difficult to appraise to what extent the samples selected were representative of the population. Our survey compares quite well, with the above in as much as (1) it includes 1701 families, of which 1340 are Agriculturists, (2) on account of its having been conducted along with the general Census, tests are provided for the reliability of the sample and (3) the analysis is based on the scientific methods advocated by the I.L.O. publications. (4) we have used a consumption scale calculated from our own data.

Apolφgia.

The survey was taken immediately after the ravages of one of the most severe famines of Ajmer-Merwara. In the words of the Census Superintendent "the picture drawn at the present juncture is bound to be painted in the darkest colours." However a future survey, we hope, will show in bold relief the temporary phase of the present situation.

The sample may be reliable, the analysis may be precise. The investigator may be cultured and more capable. Still the training the questioners had received cannot be considered quite sufficient for a survey of this kind. The limitation pointed out on the other

side (i.e.) on the side of the village-folk questioned stands as before. The villager is illiterate and hardly keeps an account. The data were collected with tact and persuasion. Attempts have been made to collect figures as accurately as possible considering the time and financial resources available; still the degree of coarseness of the data is no doubt a limitation and has to be constantly kept in mind.

The Survey is a comprehensive one, covering many aspects of village life which may require technical knowledge for the Agricultural, Co-operative Medical and Veterinary Departments. We have not had expert guidance, and hence could not get details beyond the capacity of a layman. In the attempt at comprehensiveness, details have perhaps been sacrificed. Still it is hoped that the picture we have pieced out will be fairly true in its main lines, if not in details, and hence may provide a base for more carefully planned surveys regarding special topics.

A Request.

It is hoped that inquiries covering the same classes will be conducted at periodic intervals of say 5 years; then the present study will serve as a base, for the measurement of the changes in living conditions. For this purpose however it is requested that as far as possible the same method, similar groups and bases of classification will be adopted, even though they may not be quite perfect. Any violent change, may perhaps improve the future picture, but will render effective comparison, which is more important in a economic study, impossible.

Lastly, it may be pointed out that this study is built up around the significant figures emanating from a statistical analysis of a huge mass of data, which purport to illustrate the various phases in the economic life of rural Ajmer-Merwara. Figures, by themselves, may not serve the purpose of the laymen, and hence they are clothed with the barest commentary. The whole study is an attempt to piece together and form a picture as it is, and as for the Norm (i.e.) what should be and how to approximate nearer to that standard, it is for competent authorities to decide.

Caution.

Finally, it should be borne in mind that our study and the figures we have given, relate to the whole of Ajmer-Merwara, including the Khalsa and Istimrari areas. Official figures in Government publications chiefly relate to the Khalsa areas and we cannot say how far our sample is representative for the Khalsa area only.

II.

The Method Of Random Sampling.

An exact measurement of the important features of family living, outlined in the previous chapter, needs a first hand and detailed investigation of all the families in all the villages. A complete survey of all the 706 villages is impossible, considering the limitations of time, men and financial resources. At best we may get a good approximation by an intensive study of a representative sample of villages. In the choice of the representative sample we follow the random sample method advocated as being suitable for villages by Bowley and Robertson in their scheme for the Economic Census of India (Government of India Publication 1934).

The term random sampling implies that there is no scope for personal bias in the choice of the sample. Free play is given to chance. The important feature of random sampling is that having fixed the number of villages to be surveyed, which was 15 in our case, the method of selection should be such that every village however small and untypical it may be, has an equal chance of being included. This is secured as follows. The villages are arranged in alphabetical order. Starting from any village at random in the first 47 villages (since 47 is the integer part of $\frac{706}{15}$) every 47th village from it in the alphabetical order is taken until the list is exhausted. We thus get 15 villages in the selection of which every village has had an equal chance of being included. Thus the first condition that the sample should be random is satisfied.

Each one of the 15 villages is surveyed in detail as described in chapter I. The degree of accuracy of our estimate for the whole population from the sample depends on:-

1). The accuracy of the data collected.

2). The size of the sample chosen and its reliability.

(1). The method of collection of data and the caution exercised in collecting them described in the chapters following are aimed to secure as accurate data as possible within the time and the resources at our disposal. They cannot still be claimed to be exact. The training of the field workers, and their acquaintance with the villages surveyed cannot be considered entirely satisfactory for a study of this kind. The illiteracy of the villager who is the main source of information is a great barrier against precision of data. Still, in general, the figures collected may be considered fairly reliable, and in every chapter we have pointed out how far the data which form the subject of analysis in that chapter are reliable.

(2). If the conclusions from the sample are to be absolutely correct, the sample must be the whole population itself. Naturally then, if we take a smaller number, there is bound to be a variation between the values of any particular statistical figure relating to the sample and the whole population. But the advantage of the random sample method is that by means of the Mathematical Theory of Probability, it is possible to calculate the margin of error due to chance. See at the end of this chapter where the formula for the margin of error is given. Hence in the estimate of all important figures the margin of error is given so that the figure for the whole province must, subject to errors of record, lie within the limits set on either side of the sample value by the margin of error. Thus for example the average size of the family is 4.74± .27.

Tests For The Reliability Of Sample.

The determination of the margin of error at once provides a test for the reliability of the sample. The survey was taken along with the general Census. In the latter we get by complete enumeration the exact value of certain statistics viz. the population per village, the number of families per village, the size of the family, the sex ratio and so on. The value of these Statistics for the sample are also obtained and a test whether the two figures for the sample and for the whole population differ by less than the margin of error or not, provides a measure of reliability of the sample.

The following table gives the comparative figures for certain statistics for the sample, for the whole population and the margin of error in each case:-

Table No. 1

Reliability of Sample.

	Population.	Sample.	Difference.	Margin of Error.
Population per village.	526	539	13	169
Families per village.	114	113	-1	36.8
Size of Family.	4.61	4.74	.13	.27
Percentage of Male Adults	31.20	32.35	1.15	.95
Percentage of Female Adults	29.79	30.33	.54	.77

Reliability Of Sample (contd.)

	Population.	Sample.	Difference.	Margin of Error
Percentage of Male children	20.73	19.53	-1.2	.89
Percentage of Female children	18.27	17.79	-.48	.50

We find that the agreement is fairly close and in most cases, the difference is less than the margin of error. It follows that the sample is a fairly reliable one. In fact the size of the sample viz. 15 was arrived at after taking samples of various sizes which could, with our resources be surveyed and choosing the one in which the sample values and the population values for certain important statistics agree to within 5 per cent.

Again, wherever official figures are available, either pertaining to the period of survey or an earlier period, for any data we have collected, we have tested whether the differences are significant or not and if significant, we have attempted to find out if possible the causes for the difference.

Synthesis Or Estimate For The Whole Population.

In the random sample method, if the data and the analysis be accurate and the sample reliable, the synthesis is quite simple. To estimate the total for the whole population, as for example the total population, we have only to multiply the value for the sample by the sampling factor which in our case is $\frac{706}{15} = 47$ roughly. As for the average value per village, or per family, the percentage distribution in terms of the total of any characteristic, their values from the sample are, estimates for the whole province as well.

Formula For The Margin Of Error.

If s is the standard deviation of the frequency group formed for the values of the characteristic for the n village surveyed, A its average, the estimate of the average for all the N village in the whole area is:

$$A \pm s\sqrt{\frac{1-K}{n}} .$$

where $K = \frac{n}{N}$ = the reciprocal of the sampling factor. Thus in our case for the size of the

family A=4.74. s=1.05 K=$\frac{15}{706}$ n=15. Hence the estimate of the average size of the family is 4.74 ± .27. (See Bowley. A scheme for an Economic Census of India Appendix II).

III.

The Family As The Economic Unit Of Village Life.

In India, the economic unit of rural life is the family, consisting of the head of the family, his wife, children and descendents along the male line. The land, the livestock and other property are under the joint ownership of the family. The labour needed for agriculture is supplied by all the able-bodied members of the family, each one according to his capacity. The farmer's wife besides looking to the domestic work, winnows the corn, grinds it and assists her husband during the busy harvest season. The adult son usually slips into the occupation of his father and assists him in his work. The grown up boy or daughter looks to the grazing of cattle.

The extra cash earnings of the members of the family are pooled together in a joint fund and expenditure is met out of this. With their limited resources, each one gets a share proportionate to what he or she needs, and not in proportion to what he or she earns. The decrepit old man and woman, the young wife of the farmer's son, all get their due share.

This being so, the standard of living cannot be assessed by the mode of living of the individual, but by the mode of living of the family. The Census and other departmental figures usually refer to individuals, and hence are not of so much importance for an economic study. It is the family that has to be studied. Hence throughout our study we take the family as the unit, and hence take the number or percentage of families and not the number or percentage of individuals in any group.

But there is one difficulty. The family although it is the proper economic unit is a variable unit and families differ from each other in the sex and age composition of members of the family. The difficulty is solved by adopting a scientific method of reducing the family size to a common measure.

IV.

Occupational D$stribution

Pluralism In Occupation.

Occupational classification is fundamental in an economic study. The important rural occupation is, of course, agriculture. Of the 1701 families surveyed 1340 families forming 78.8 p.c. are engaged in some agricultural operation or other, the remaining 360 families are non-agriculturists. But, on account of the uneconomically-small holdings and uncertain rainfall, agriculture, as a source of income, is mostly uncertain and hardly self-sufficient even in the best year. Hence the principal earner, during the off-season, and some of the other members of the family resort to other occupations. Similarly the non-agriculturist, with a view to supplement his meagre income, takes to agriculture as an additional occupation. This pluralism in occupation is a characteristic feature of rural life in Ajmer-Merwara. Hence for each family we have noted the principal occupation and the subsidiary one. In this we are purely guided by what the head of the family states. This it is hoped* will give their occupations according to their importance in a normal year, although during the year under survey most of the families from the landlords downwards have been reduced to labourers in Famine Camps.

Agriculture.

Our main interest is in agriculture. With this in mind, the families can broadly be divided into the following four classes based on the degree of importance of agriculture to the family:

Classification Type I.

Those having agriculture as (A): The only Occupation
(AN): The main Occupation
(NA): A Subsidiary Occupation
and (N): Non-Agriculturists.

Classification Type II.

In each of the above classes, we have the following four sub-classes, depending on the nature of their relationship to the land:

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* This is also borne out in the striking gradation in the size of family, the income, the indebtedness and other economic conditions of families belonging to Agriculture Main, Agriculture-subsidiary and non-Agriculture groups.

(1). Non-cultivating owner.
(2). Cultivating owner.
(3). Tenant.
(4). Agricultural Labour.

The following cross-table gives the distribution of the 1340 agriculturist families amongst the various sub-classes:

Table No. 1

	Non-cultivating owner	Cultivating owner	Tenant	Labour	Total
Ag. only	2	11	177	19	209
Ag. Main	7	188	650	34	879
Ag. Subsidiary	5	37	201	9	252
Total	14	236	1028	62	1340

The above cross-table needs a word of explanation. The number of families in any sub-class, say, the number of tenants for whom Agriculture is the main occupation, is 650 obtained by reading out the number in the row along Agriculture-Main and the column under tenants.

Type I.

It follows from the above table that of the agriculturists who form 78.8 p.c., 12.3 p.c., have agriculture as the only occupation, 51.7 p.c. as the main occupation and 14.8 p.c. as a subsidiary occupation. Hence the majority are supplemented by income from some other occupation.

Type II.

Again taking the second mode of classification of the agriculturists who form 78.8 p.c., the non-cultivating families form .9, the cultivating owners form 13.9 p.c., the tenants 60.4 p.c., and the labourers 3.6 p.c. The majority are tenants. This is due to the fact that out of the 15 villages surveyed, 7 villages including the biggest are Istimrari villages and the cultivators there are, as explained elsewhere, tenants-at-will. The non-cultivating owners, 14 in number, form the smallest minority. Two of them are Istimrardars, and the remaining 12 have small holdings, with other occupations which are more paying. A striking feature of the distribution is the very low percentage (viz. 3.6) of Agriculturist labourers. Most of these families are broken families, in which the husband having been dead, the widow is the only earner. The lower percentage of Labour families can be attributed to the following. The holdings are very small and hence the cultivator can command enough labour from the members of his own family. During the busy season, the cultivators themselves, particularly on small holdings, after finishing their work, hire out their labour to others.

their work, hire out their labour to others. They usually join together at the harvest season and finish off the work holding by holding. The unemployed village artisans are also drafted in, when there is pressure of work.

In the Khalsa areas, there are very few cultivating owners leasing out a part of their lands or taking on lease from others.* Hence in the second mode of classification the problem almost simplifies itself to cultivators and tenants. Hence in our family studies, while we study separately every one of the four strata in the first mode of classification, we restrict ourselves to cultivators and tenants in the second one.

Subsidiary And Other Occupations.

The occupations other than agriculture form quite a narrow range and are shared, although in varying proportions, by agriculturists and non-agriculturists. These occupations, and the income derived from them, are taken up for detailed study later on. However the following table exhibits the distribution of the families under each occupation in the agriculturist and non-agriculturist groups. Columns (5) and (6) give the percentage of families in each group supported by each occupation.

Table No. 2

	No. of families.	No. of Ag. families.	No. of Non-Ag. Families.	Ag. Families percentage.	Non-Ag Families percentage.
Dairy.	716	651	65	48.6	18.0
Famine & unskilled labour.	965	817	148	61.0	41.0
Skilled labour.	260	168	92	12.5	25.5
Service.	117	51	66	3.8	18.2
Trading.	76	35	41	2.6	11.3
Money-lending.	11	8	3	.6	.8
Begging.	57	44	13	3.3	3.6
Miscellaneous.	134	104	30	7.7	8.3

It will be seen from the above table, that for agriculturist families, the important subsidiary occupations are (1) Dairy and Cattle-Breeding. (2) Famine Labour and other unskilled labour providing respectively for 48.6 p.c., and 61.1 p.c., of them. On account of famine, the

* We were able to trace only 24 families coming under this category.

income from Dairy is practically nil. The remaining occupations of which the skilled labour is the most important, are the usual ones in the day-to-day economy of the ancient village of the self-sufficing type. The agriculturist families in the skilled labour, Trader and Money-lender groups, represent a flow from the non-agricultural side into the ranks of the Agriculturist, and the comparatively large number of them in the Agriculturist group indicates the extent to which they have made inroads into Agriculture.

Amongst the non-agriculturist group, the highest percentage comes under Famine and unskilled labour, next comes the skilled labour families forming 25.5 p.c. Dairy and Service take up about 18 p.c., each and the traders form only 11.3 p.c.

The economic conditions of the various types of skilled labour families, traders, money-lenders and those in service will be taken up in detail later on.

V.

Size Of The Family.

In every village selected all the families are surveyed. The size of the family ranges from one member to nineteen members and the families display a bewildering variety as regards age and sex composition of its members.

In obtaining the size of the family, the Census plan is followed. Only permanent members of the family are taken into account. Married daughters temporarily living with their parents are excluded. Permanent members are included even when they are absent at the time of the inquiry. This procedure is necessary (1) for a correct analysis of family living (2) for comparison with the Census figures with a view to test reliability of the sample.

Table I exhibits the average size, and its dispersion about it, its composition and its equivalent in consumption units for all families and for families in each occupational group.

Average Size And Its Composition.

The average size of the family works out to 4.74 with a margin of error of .27. The average size for the entire rural population as recorded in the Village Directory compiled by the Census Department is 4.61 and thus it agrees with the value in our sample to within the margin of error.

The average size of the rural family was 4.21 and 4.50 respectively at the Census of 1921 and 1931. Thus it shows a steady increase.

On an average then for 100 families there are 474 persons. Of these 155 are adult males, 145 adult females, 48 grown-up children between the ages 10 and 13, and 126 children below 10.

Table No. I.

Average size, its dispersion and composition.

Occupational Classification.

	Average size	Standard Deviation	Adult		Grown-up Children between 10 & 13	Children below 10	Average size in composition units
			Male	Female			
All Families	4.74	2.72	1.55	1.45	.48	1.26	3.54
Ag. only	4.64	2.24	1.46	1.43	.47	1.28	3.43
Ag. Main	5.28	2.79	1.71	1.57	.58	1.41	3.91
Ag. Subsidiary	4.66	2.48	1.45	1.41	.48	1.31	3.75
Non-Agriculture	3.54	2.31	1.23	1.16	.29	.85	2.73
Cultivating Owner	4.72	2.35	1.51	1.39	.58	1.24	3.52
Tenant	5.26	2.73	1.68	1.58	.56	1.44	3.88

In this classification, an adult is one of age equal to or greater than 14. The grown-up children between 10 and 13 usually do some remunerative work or other and thus add to the economic strength of the family. They form about 10 p.c., of the population. The children below 10 are entirely dependent and form 27 p.c., of the whole population.

Although the average size for all the villages is 4.74, in the various villages surveyed the average size fluctuates between 3.71 in Nayanagar and 5.84 in Daulatpura. -

Size And Occupation.

One of the chief causes for the varying size seems to be the occupational differences. Whereas for the Agriculture-Main group the average size is 5.28, for the Agriculture-subsidiary group it declings to 4.66 and for the Non-Agriculture group it declines further to 3.54. Further, as is evident from Table II, this gradation is made up of a gradation in each age group. The number of adult males is less, so also the number of adult females and the number of children. The large size of the Agriculturist family may be due to the continuance of the joint-family system (1) for supplying enough labour from amongst its own members, needed for the agricultural operations (2) for preventing an undesirable subdivision of an already small holding. In case of the Non-agriculturist families, since the earners do independent work and earn cash there is a tendency to branch off from the family. The agriculture-subsidiary group occupies an intermediate position between the two, with less interest in the land than the Agriculturist, and this explains also its intermediate position as regards the average size of the family and its composition.

Looked at from this point of view, we can understand the low average size in Nayanagar where the Non-agriculturists form a majority of 78 p.c., and the high average size in the Kekri villages surveyed where the Non-agriculturists form an insignificant minority of about 3 p.c.

Again from the second part of Table I, the average size of a tenant family is seen to be 5.26 and is thus greater than that of a cultivating owner which is 4.72.

Dispersion In Size About The Average.

Table I column 3 gives the standard deviation of the size in each group. These are all high compared to the corresponding average size. This implies, that there is no marked clustering of families about the average size. Hence, although the average size and its composition may serve as a basis for calculations regarding the whole population

in each group*, still it cannot be said to correspond to a typical family. This is also clear from the Table II in the next section, giving the distribution according to composition of Agriculturist and Non-Agriculturist families.

Table No. II.

Distribution of 1000 families according to composition.

Agriculturists.

Adults \ Children	0	1	2	3	More than 3	Total
1	60	19	7	8	3	97
2	72	64	78	62	46	322
3	67	60	54	51	36	268
4	29	26	38	30	24	147
More than 4	19	32	41	31	43	166
Total	247	201	218	181	152	1000

Children

Adults

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* In this connection the need for finding the composition of the average size may be pointed out. For calculating the total food consumption in Ajmer-Merwara, the Banking Inquiry Committee for the centrally administered areas (1928) has arbitrarily taken the composition of the average size 4.22 (according to 1921 Census) to be 1 adult male, 1 adult female and 2.22 children. This implies for every 2 adults there are 2.22 children which could not have been the case. In our sample for example the average size 4.74 consists of 1.55 Adult Male, 1.45 adult female and 1.74 children. Hence the corresponding composition at the time of the 1921 Census ought to have been worked out before calculating the total food consumption. A more precise and scientific method for this purpose is the method of reduction of size to consumption units which we have worked out now. - See Chapter VIII.

Non-Agriculturists.

Adults \ Children	0	1	2	3	More than 3	Total
1	216	14	..	12	6	248
2	163	97	89	33	22	404
3	55	47	30	28	22	182
4	14	19	17	22	6	78
More than 4	14	19	22	14	19	88
Total	462	196	158	109	75	1000

Composition Of Agriculturist Families.

From Table II we find no significant crowding of families in any particular composition type. There is an almost uniformly high distribution in the types bordered in the table. It is difficult to point out clearly the typical composition. The one, which has a slightly better claim than others, is the family consisting of the husband and the wife (adult male the adult female) and two children. Families of this type form only 7.8 p.c. Amongst families of different adult sizes, that consisting of the husband and wife is the most frequent forming 32.2 p.c., and amongst families with different children-strength, those with two children are the most numerous, if we exclude the single member families forming 21.8 p.c. The average size for the agriculturist 4.98, of which 1.61 are adult males, 1.53 adult females and 1.84 children, correspond most closely to families of 3 adults and 2 children which form only 5.4 p.c. The shift in the average size from the typical size is mostly due to the large size in joint families. 31.3 p.c., of the families have four or more adults in each and 15.2 p.c., of the families have more than 3 children.

Distribution Of Children Amongst Agriculturist Families.

Children form 37 p.c., of the population. 24.7 p.c., of the families have no children of which 6 p.c., are single member families. 20.1 p.c. of the families have each one child and they have amongst them 10.9 p.c., of the children. 21.8 p.c. have two children and take up 23.6 p.c., of the children. 29.3 p.c., of the children live with the families with three children which form 18.1 p.c., and the remaining 15.2 families support the remaining 36.2 p.c., of the children.

Non-Agriculturist Families.

Single members form the highest percentage viz. 21.6. Next come the families consisting of a husband and wife, forming 16.3 p.c. Families consisting of the husband wife, and one child, and the husband wife and two children are also fairly numerous.

Size Of The Family In Consumption Units.

The reduction of the family size to consumption units, provides a scientific procedure for allowing for the varying age, and sex composition of the members of the family. This is explained in detail elsewhere. It is enough here to point out that when we state that the size of the family is 3.54 consumption units, it means that the family composition is such that the food consumption needs of the family are 3.54 times the needs of an average adult male.

Size Of The Family And Levels Of Living.

The size and composition of the family no doubt plays an important part in determining the economic condition of the family. In this connection, the most interesting result is to be found in Chapter IX Table VII. This shows that as the level of the content of living rises, the size of the family decreases.

The average size of the family in each type of village artisan, like the Shoemaker, Carpenter, Weaver, etc., is obtained in Chapter X.

VI.

Land And Its Distribution.

Problems Of Distribution.

One of the important factors governing successful farming is the proper distribution of land amongst the cultivators. Here we attempt to set forth the existing distribution, leaving it to competent authorities to decide what is the best distribution (i.e.) what is the size of the most economic holding, and to devise ways and means of making the holding more and more economic.

For a study of the distribution we have to distinguish between the distributions amongst Right-Holders and Cultivators. The former is reflected in the latter, which is more important. In each case the two important problems are (1) the extent of sub-division of land (i.e.) the area of land held by each family (2) the extent of fragmentation (i.e.) the number of pieces held by each family.

In our study we take only the distribution amongst cultivators. As mentioned elsewhere, in the Khalsa area the majority of cultivators are themselves right-holders and hence the distribution between the two classes sinks into significance. In the Istimrari areas, all the cultivators are tenants-at-will. The right-holders are Istimrardars, few in number, and hence the problem of distribution amongst right-holders is not of much significance.

Average Cultivated Holding.

Broadly we have the irrigated and the dry lands. Chahi and Talabi are irrigated lands, the former from wells and the latter from tanks. Abi, formed by the beds of dried-up tanks, and Barani are dry lands. In our survey due to the absence of clear instructions the Talabi and the Abi were confused with one another so that we have unfortunately to take them together.

In our sample there are 1340 agriculturist families, of whom 62 are landless labourers and 14 non-cultivating owners, leaving 1264 actually cultivating families. The following table gives the average size of the holding of each type of land.

Table No. I.

Average Size Of The Holdings Of Cultivators.

	Chahi	Talabi	Barani
Average size of Bighas	4.94	3.03	6.85
Margin of error in Bighas	0.64	0.70	1.02

In this chapter the area is always given in Bighas. 1 acre is equivalent to 2½ Bighas.

The above figures under each type of land, represents the average holding, taking into account all the cultivating families and not the families cultivating that type of land only. (These are given in Table V).

The average holding is thus about 6 acres of which about 3 only are irrigated ones. Surely then, neither can it task to its full strength even the irreducible quantum of labour at the command of the cultivator viz., that of himself, the members of his family and his pair of bullocks, nor can it yield enough to maintain his family of about five members. The holdings are no doubt uneconomic. The following table gives the average size of the holding in the various occupational groups :

Table No. II.

Average Size Of The Holding. Occupational Classification.

	Chahi	Talabi	Barani	Total
Agriculture only	5.5	2.0	7.3	14.8
Agriculture Main	5.3	3.6	7.4	16.3
Agriculture Subsidiary	3.2	2.0	4.5	9.7
Cultivator	3.8	1.8	9.2	14.7
Tenant	5.2	3.3	6.2	14.8

Between the Agriculture-only group and the Agriculture-Main group, excepting for a slightly greater area of Talabi in the case of the latter, there is not much difference. But the holding of the Agriculture-Subsidiary group is deplorably small. It is less than 4 acres of which about 2 are irrigated. The cultivators of these small holdings have some other main occupation and agriculture is only subsidiary. If the year does not promise to be good, which is often the case, these holdings which form about 12 p.c., of the whole area under cultivation are sadly neglected, thus entailing complete economic waste.

As between the tenant and the cultivator the former has a better type of land than the other, although the total size is almost the same for both. Probably this reflects only the differences in the extent of each type of land in the Khalsa and the Istimrari areas.

Inequalities In The Type Of Land.

We have noted that the same cultivator possesses pieces of land of different type. When that is so, if added together the areas of all the pieces of land and work out the average

and dispersion it is bound to be misleading. Surely we cannot club together a holder of 5 Bighas of Chahi, with another holder of 5 Bighas of Barani lands. To resolve this difficulty we have to reduce them to a common measure, by weighting each type of land according to the quality. This is also necessary for studying the correlation of land with other factors like indebtedness and levels of living. For this purpose we have taken 1 Bigha of Talabi, Abi, and Barani to be respectively equivalent to ¼, 2/4, ¼th of a Bigha of Chahi and thus reduced the holding in terms of equivalent Chahi lands*. The following table gives the distribution of the families according to their holdings in equivalent Chahi lands.

Table No.III.

Distribution Of Families According To Area Of Holdings Of Cultivators In Equivalent Chahi.

Average size in equivalent Chahi
8.9 Bighas = 3.6 acres.

Area in Bighas.	1-4.9	5-9.9	10-14.9	15-19.9	20-24.9	25-49.9	50 and above.
Number of Families.	477	374	201	100	50	49	13
Percentage of families.	37.6	29.6	16.2	7.9	3.9	3.9	1.0

It follows from the table that there is not a wide variation in the size of the area cultivated. More than a third have less than 2 acres. About two-thirds have less than 4 acres. 83 per cent cultivate less than 6 acres. Only 5 p.c. have more than 10 acres.

Fragmentation.

Another great evil in the distribution of land is that this small holding is not held in one block. Mostly due to inheritance laws, it is split into a number of fragments at different places, thus entailing wastage of effort in moving from place to place, and greater cost in watering, fencing and wastage of manure in transit.

The following table gives the percentage distribution of the 1264 cultivating families according to the number of plots held by them :

Table No. IV.

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* These figures were suggested, in the course of a talk, by the settlement officer Ajmer-Merwara.

Table No. IV.

Distribution of Families according to the Number of Plots cultivated.

Number of Plots.	1	2	3	4	5	6	7 and more.
Percentage of cultivators with this no. of plots.	29.1	27.4	21.4	10.9	5.7	3.3	2.2

Nearly 29 p.c., have single blocks, and 78 p.c., have 3 plots or less. Only 6 p.c., have more than 6 plots. Considering that the cultivator has in general two types of land, an irrigated and dry one, if our data be correct then fragmentation is not considerable. This is due to the fact that the plots are so small as to discourage further fragmentation.

Subdivision And Fragmentation Of Each Type Of Land.

Table V gives in detail the subdivision and fragmentation of each type of land.

Table No. V.

Subdivision and Fragmentation Of Each Type Of Land.

Type of land.	Percentage of families cultivating this type.	Holding per family.	Plots per 10 families.	Average size of plot.
Chahi	73.5	6.7	15	4.4
Talabi & Abi.	40.0	7.5	14	5.5
Barani	46.3	14.8	17	8.9

Dispersion In The Size Of Chahi Plots.

The average size of the Chahi plot is 4.4 Bighas. However there is a wide variation in size from plot to plot, as is shown by the following table :

Table No.VI.

Dispersion In The Size Of Chahi Plots.

Size of Plot in Bighas.	1	2	3	4	5	6	7	8	9	10	Above 10
Percentage of plots of this size in terms of total.	12	21	17	13	10	7	3	3	2	3	9

It follows that 73 p.c., of the plots are less than 5 Bighas. The most numerous are plots of size 2 Bighas, forming 21 p.c. One Bigha plots form 21 p.c. 18 p.c., of the plots are between 5 to 10 bighas.

The high percentage of plots of small size is no doubt an indication of the extent of minute subdivision and fragmentation. However there is one advantage in this fragmentation. In his small holding the cultivator grows three or more staple crops so that the irregular distribution of rainfall may, if it destroys one crop, nevertheless yield a favourable return from the other. Further it provides him an occupation for a longer period in the year.

The largest Chahi plot is 120 Bighas in area. It belongs to a person who is also an money-lender. An idea of the inroads made by the Money-lender can be had from the fact that the money-lender has monopolised in all 140 Bighas forming 29 p.c., of the Chahi land in the village, containing 57 Chahi owning families of whom 74 p.c., own less than 3 bighas of Chahi. Chahi is the most valuable type of land. Naturally the largest percentage of families cultivate this type of land and the average size, and the average plot size are lowest.

Dispersion Comparison With Official Figures.

The following table gives the official figures and the estimated figures from our sample, of the total area under cultivation and its percentage distribution in each type of land :

Table No. VII.

	Official figures.	Estimate from our sample.
Area under cultivation in acres.	354403*	352680

* These figures were kindly supplied by the Commissioner, Ajmer-Merwara in his letter to the Census Superintendent dated 9-8-1941.

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Table No. VII. (contd.)

	Official figures.	Estimate from our sample.
Percentage of Chahi land.	23.8	33.3
Percentage of Talabi & Abi.	12.5	20.4
Percentage of Barani.	63.7	46.3

The total area cultivated, estimated from the sample, agrees to within 1 p.c., with the official figures. However, there is pronounced disagreement between the values for the distribution amongst the various types of land. In our sample, the Chahi area is higher by 10 p.c., the Talabi by about 8 p.c., and the Barani is low by 17.4 p.c. The official figures are generally accurate for the Khalsa area, but the same cannot be said of the Istimrari areas. Our sample too may not be quite a representative one, for as chance would have it, the largest village almost specialises in Chahi. This implies that, if the official figures are correct, our estimate of irrigated holding is higher and the estimate of unirrigated holding is lower than what might truly be the case.

VII.

Live Stock.

Importance Of Cattle In Ajmer-Merwara.

The importance of live-stock in the economy of the Indian village hardly needs emphasis. In Ajmer-Merwara, it is all the more so, since (a) the most important type of land, Chahi, which is double cropped and forms 23.8 of the cultivated land is irrigated by water drawn by bullocks from wells, and (b) dairy farming and cattle breeding form the most important subsidiary occupation of the agriculturist.

The type of live-stock needed primarily by agriculturists is draught animals. Bullocks are indispensable at every stage in farming - ploughing, lifting of water from wells for irrigation, threshing of corn, transportation of the produce, and for carting, as a subsidiary occupation, during the post harvest season. No wonder, then, that the villager, of all things precious to him, chooses his bullock by which to pledge his word (ધરતી બળદની સાખે). Cows are reared mainly as dams to produce bullocks of the future, and only secondarily as a source of milk. Where milk is the criterion the villager relies upon she-buffaloes, rather than upon cows. Butter-milk forms an important item in the villager's dietary and the sale of milk-products provides a subsidiary source of income. Goats and sheep are reared in large flocks by Gujars, particularly in villages with scrub jungles around, mainly for wool and mutton. The city of Beawar in Ajmer-Merwara forms an important centre for the export of wool. The dung of the cattle forms almost the only source of manure, of which the agriculturist in Ajmer-Merwara is greatly in need, on account of the poor intrinsic quality of his land.

Problem Of Fodder Supply.

In normal years, cattle do well in Ajmer-Merwara. With the possible exception of plough-bullocks, the cattle subsist almost entirely on grazing. About a third of the total area of the province is culturable, but not cultivated, and is used as grazing land. Although the growth of grass is sparse, still, grazing is of fairly good quality and cattle manage to exist on it. The villager stores only the amount of grass and hay needed for the season, by his plough-bullocks and cows-in-calf. No attempt is made in years of plenty to store fodder for lean years despite their frequent recur- ... Hence if the rains fail, there is practically no grazing and the villager's stock is quickly exhausted. This leads to fodder scarcity, and if the rains in the succeeding year also fail, then the scarcity becomes a fodder famine. This is what happened during the worsening agricultural conditions from 1937 onwards, culminating in an acute

famine during the Rabi season of the year under survey. In spite of the Government throwing open the forests to grazing and the import of 920 thousand maunds of hay (for which 3.6 lakhs were paid by the Government as two-thirds of the freight charges) the situation could not be tided over. Either the families migrated with their cattle to neighbouring districts where better grazing facilities existed, or the cattle had to be left to die of starvation.

The survey was taken early in 1941, when, after the ravages of an acute famine, normal conditions had been restored.

Live-Stock.

Table No. I.

(Comparative table showing Stock (1) at present (2) Dead during Famine) in the villages surveyed.

BOVINE SPECIES.

	Living on January 1941.	Dead during Famine.	Percentage dead during famine in terms of Total.
Bullocks.	1663	902	35
Male-Buffaloes.	56	82	59
She-Buffaloes.	722	937	56
Cows.	1808	3033	63
Calves.	668	984	59
TOTAL	4917	5938	54

OVINE SPECIES.

Goats.	4346	1010	19
Sheep.	3696	608	14
Total	8042	1618	17

Loss In Famine From 1937-40 June.

The following table gives comparative figures for the live-stock of each variety in the villages surveyed, (1) living now, and (2) dead during the famine. Column (4) shows the percentage of animals which died in terms of the total which existed before the famine. The figures, of course, are for the sample, but may be presumed to reflect a true picture of the conditions throughout Ajmer-Merwara. From these figures it is clear that the loss was very heavy

and that relief provided for cattle fell considerably below the amount provided for the human population. The loss in the bovine species was 54 p.c., while for the ovine species it was 17 p.c. The percentage of deaths was highest amongst cows, being 63 p.c. In one village surveyed it mounted up to 85 p.c. The loss of she-buffaloes was lower. Bullocks naturally were the best looked after, and the loss among them was about 35 p.c. Compared to the losses in cattle, the losses in goats and sheep were considerably less, the percentages being 19 and 14 respectively.

The high percentage of mortality among cows may be due to (1) less resistance on the part of cows against disease and the ordeals of starvation due to scarcity of fodder and good drinking water (2) greater neglect of cows as compared to bullocks on the part of the villagers. Even during normal times, the little attention paid to cows lasts only as long as they yield milk. When they get dry, they are often turned out to look after themselves. During famine time, even cows-in-calf have to join the ranks of the dry ones. The she-buffalo, more valued as a source of milk, receives a little more attention from the house-wife. As for the bullocks they are precious, and even if there is no field work during the famine, they are useful for carting, and the cultivator does his best to keep them alive for the coming year. So he manages to procure a bundle of fodder for his bullocks and will rather starve himself than starve his bullocks.

Cattle Strength During The Last Five Years.

The present live-stock strength in the villages surveyed is given in Table No.I Column 2. From this the cattle strength for the whole year of Ajmer-Merwara may be estimated. For January 1941, the estimated bovine strength (Bullocks, Cows, Buffaloes and Calves) works out to 230000 with a margin of error of about 30000 and the estimated ovine strength (sheep and goats) turns out to be 380000 with a margin of error of 80000. The figures for the whole of Ajmer-Merwara are not yet available for comparison. However, the following tables, giving the figures for the cattle strength during the last 5 years, bring forth clearly the heavy toll on cattle strength year after year due to the worsening agricultural conditions from 1937 onwards :

Table No. II.

	Bovine Strength.	Ovine Strength.
1936-37	431827	663208
1937-38	413217	496883
1938-39	370180	435256
1939-40	309427*	379765
1940-41 (Sample estimate)	230000	380000

* This figure has been kindly furnished by the Commissioner in his letter to the Census

Estimated Value In Rupees Of The Cattle Wealth In January 1941.

In our enquiry every family was not only asked the number of live-stock of each variety, but also the price of each. The prices thus recorded cannot be considered exact. Nevertheless they do provide a rough idea of the total cattle wealth. The estimated total cattle wealth in Ajmer-Merwara is 76 lakhs rupees with a margin of error of about 9 lakhs. It follows that the average cattle wealth per family is about Rs. 95.

Distribution Of Cattle According To Occupation.

The following table gives the percentage of families in each occupational group without cattle.

Table No. III.

Percentage Of Families In Each Group Without Cattle.

	No. of families.	No. of families without any live-stock.	Percentage of those without cattle.
Agriculture only.	209	42	20.1
Agriculture Main.	879	189	21.5
Agriculture Subsidiary.	252	87	34.5
Non-Agriculture.	361	236	65.3
ALL	1701	554	32.6

In all, nearly one-third of the families are without any livestock. The variations in the percentage of families without cattle are striking and are easily explained. The Agriculturist needs for his land the services of the cattle, the dung of the cattle for manure, and in turn his land provides, in addition to food for him,

Superintendent dated 9-8-1941. It is found that it differs from the figure given in the Administrative Report 1939-40. On comparison with details it is found that the figures given in the Report for cattle males and cattle females refer only to the young ones. The adult cattle males 6983 in number and the adult females seem to have been omitted.

food for his cattle too. The Non-agriculturist is mainly interested in the milk yield, and he has to purchase fodder for them, and hence the percentage of those without cattle is high. The percentage for the Agriculture-Subsidiary group reflects its intermediate position between the two groups, in his need for the cattle and the means to support them.

We shall now take up in detail the live-stock of each variety.

He-Buffaloes.

The number of buffaloes in the villages surveyed is 56, while the number of bullocks is 1663. Roughly then the labour of 100 bullocks is supplemented by that of 3 buffaloes, whereas for India as a whole we have 15 buffaloes for every 100 bullocks. Hence amongst the working animals the He-buffaloes form an insignificant minority. One wonders what happens to all the male offspring of the She-buffaloes. Many of them, we must surmise, either die of neglect and starvation or are slaughtered.

Bullocks.

The working animals are almost entirely bullocks. We shall study them in detail in the light of (1) their importance to the cultivator and (2) the reliability of the data. The average villager would rather forget the number of members of his family than the number of bullocks in his possession. The total number of bullocks in the villages surveyed is 1663. For the whole of Ajmer-Merwara the estimate is about 78000. The bullock wealth works out to Rs.29 lakhs and the average price of a bullock is Rs.37/-. From the price, it follows that the bullocks must be of poor quality.

Variation In The Number Of Bullocks In The Several Villages.

The number of bullocks varies from village to village. The following table giving the number of bullocks, the number of cultivating families and the area of land under cultivation in each village, has been prepared with a view to find the correlation, if any, amongst them. Column 5 gives the number of bullocks per cultivating family and column 6 gives the area of land under cultivation per bullock.*

From Column 5, it follows that there is a very close correlation between the number of bullocks and the number of cultivating families. Roughly we have for all the villages 13 bullocks for every 10 cultivating families. The figures for each village are very close to this value. The

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* We have no information how many of them are plough bullocks.

Table No, IV.

Correlation Between The Number Of Bullocks And (1) Number Of Cultivating Families
(2) Area under Cultivation In Equivalent Chahi.

Name of Village.		Number of cultivating families.	Number of Bullocks.	Area under cultivation in equivalent Chahi.	Bullocks per cultivating family.	Area cultivated per yoke.	Size of the holding.
Baheran	A.	45	56	465.7	1.2	16,9	10,3
Hansiawas	A.	50	10	177.0	0.2	35,4	3.5
Lehshwa	A.	69	102	742.7	1.5	14.6	10,8
Pharkia	A.	108	137	928.5	1.3	13.6	8,5
Amarpura	B.	29	30	241,2	1.0	16,0	8,3
Daulatpura	B.	102	155	1361,5	1.5	17,3	10,9
Jalia	B.	378	542	2603,0	1.4	9,6	6,8
Karwai	B.	15	16	124,5	1,0	15,6	8,2
Nayanagar	B.	8	200	60,5	2,5	6,0	7,5
Ravatmal	B.	90	124	628,5	1,4	10,2	6,9
Surajpura	B.	13	21	78,7	1,6	7,4	5,9
Barla	K.	113	147	1260,2	1,3	17,2	11,1
Jetpura	K.	97	117	919,5	1,2	15,8	9,5
Nimera	K.	107	137	1105,2	1,3	16,2	10,2
Jalera	K.	40	49	581,7	1,2	23,8	14,5
Total	- -	1264	1663	11278,7	1,3	13,6	8,9

only exceptions are Hansiavas and Nayanagar. The low figure in Hansiavas is due to the fact that it is an exceptional village, in which, out of 800 bighas of land under cultivation, only 40 bighas are Chahi lands under cultivation. Thus only 40 bighas require bullock labour for irrigation. Nayanagar is almost a non-agriculturist village in which the area of cultivation is too small to be taken into consideration.

There is less correlation between the number of bullocks and the area under cultivation. Where the area of the holding is less, the area per yoke is also in general less. Thus in Jalia and Ravat-Mal, there is minute subdivision of land. This is reflected in the corresponding low values of the area of cultivated land per yoke. On an average the are cultivated in equivalent Chahi is 13.6 bighas per yoke.

Distribution Amongst Cultivating Families.

The conclusion from the previous paragraph is that in the villages the bullocks are distributed according to the number of cultivating families in each village. The question arises whether within the villages the available bullock labour is equally distributed. The following table exhibits the distribution.

Table No. V.

Distribution Of Cultivating Families According To The Number Of Bullocks Owned.

	Total.	With no bullock.	With one bullock.	With two bullocks.	More than 2 bullocks.
No. of Families.	1264	547	133	426	158
Percentage.	100	43.3	10.5	33.7	12.5

The above table shows that the distribution is not uniform. Nearly one half of the number of families are without bullocks. This must be a great handicap to them during the season. About a third have a pair of bullocks. This figure is significant, since the minimum need of a cultivator with a small holding is a pair of bullocks for the plough. The cultivator owning a pair, will take the greatest care of them even during famine time, since even the loss of one will cripple his activities. About one-eight of the families have more than two bullocks. Obviously then those without bullocks must be utilising the services of bullocks in possession of others.

Cows And She-buffaloes.

In the villages surveyed there were 722 she-buffaloes and 1808 cows. (We have no data as to how many are yielding milk). Roughly for every two she-buffaloes there are five cows. The cow is kept more for the purpose of breeding. The she-buffalo is more valuable as a source of milk and as such she gets better attention and food. We shall take them together in order that we may study their relative importance amongst the occupational groups. The following table shows their distribution on an average per 10 families of each group.

Table No. VI.

Distribution of Milch Animals Per 10 Families In Each Group.

	Cows.	She-buffaloes.	Total.
Ag. Only	10	5	15
Ag. Main	16	5	21
Ag. Subsidiary	6	3	9
Non-Agriculture	2	2	4
Cultivating Owner	10	2	12
Tenant	14	6	20

It follows that the Ag.Main group possesses the largest number of milch animals, viz., about 2 per family, the Ag. Subsidiary a lower number and the Non-Agriculturist the least viz. 4 per 10 families. Considering the proportion of she-buffaloes to cows it is roughly ⅓ for the Ag. Main, ⅓ for the Ag. Subsidiary and 1: for the Non-Ag. group. The increasing proportion of she-buffaloes to cows can be easily understood. The Non-Agriculturist is more interested in the milk yield than in breeding, and that explains why he shows preference for the she-buffaloes.

Calves.

Unfortunately in our schedule the calves of cows and she-buffaloes are clubbed together and their sex not distinguished. In all we have 668 calves for 530 milch animals. If the data be reliable then either (1) there are a good number of barren and useless animals, and animals below the reproductive age or (2) the proportion of calves to milch cattle is poor. If the second be the case it is a matter of great concern. Calves are probably sadly neglected. Their smallness in numbers will affect the future trend of the cattle population.

Goats And Sheep.

The estimated number of Sheep is 205000 and that of Goats 175000, totalling in all 380000. They are mainly kept for wool and mutton. They are not uniformly distributed. They are concentrated in few families for whom goat and sheep rearing is almost the main occupation. There are two shearings in a year, and on an average every sheep yields about 2 lbs. of wool. On an average, 40000 maunds of wool are supplied from the rural parts to Beawar, the wool-clearing centre of Ajmer. Goats and Sheep are particularly suited to the villages in Ajmer-Merwara with scrub jungles around, as they are the least affected by the ordeal of famine.

Quality.

We have no data regarding the quality of the live-stock excepting what is indicated by the price; but from the reports it is found that the stock is of poor breed and in an emaciated condition. Thus many of them, instead of being an asset, are an additional burden on the slender resources of the Agriculturist. They are susceptible to disease, and modern veterinary aid does not seem to have penetrated deep enough to be available at the right moment. Famines are quite a normal feature and hence also fodder scarcity; still in years of plenty no attempt is made to store fodder in plenty. At the beginning of the rains, the young grass shooting forth is cropped by the cattle set at large, before it has any chance to grow. There is no systematic attempt at marketting of milk products and wool.

Selective breeding is absolutely essential. Proper utilization of the fodder resources by means of scientific system silage and rotational grazing is required. Such improvements in feed and breed, will increase the efficiency of cattle and will prevent the coming into existence of weaklings. The cultivator will be enabled to get more work from the draught animals and if possible get it done by a smaller number of them. On the other hand the cows will yield better and ampler supplies of milk. If cattle is to be the real backbone of agriculture, surely they demand our best attention. Now that the cattle strength is at the lowest and weaklings have been mostly eliminated by Providence, this is the most oppertune time for planning.

VIII.

Consumption.

To fill the belly is a hard task
A proverb in Ajmer-Merwara.

Importance Of Consumption Analysis.

Consumption expenditure, which is taken up for analysis in this chapter, almost determines the content of living, the assessment of which is the principal objective of our survey. Great care was taken in the collection of data and its analysis. The central results of the analysis are embodied in Tables III, IV, V and VI. It is hoped that the consumption scale which we have set up in Table V by Econometric Research will be of permanent value and will form the basis for future studies in rural Ajmer-Merwara and elsewhere in India. The other tables, in particular Table VI, provide valuable material for determining the cost of living of the villager.

Dietary Habits.

The primary problem of the villager is to find food for himself and the members of his family. Excepting for an insignificant minority, the rest are either by custom or by necessity vegetarians. The type of food is determined in the main by what is produced on the land. The staple food grains are barley, maize, bajra, joar and wheat. Barley is consumed throughout the year, while maize and bajra are consumed only in winter. It is only by the comparatively well-to-do classes that what is consumed. The poorer classes supplement barley partly by maize and bajra. Rotis are prepared out of barley, and the richer classes smear ghee over them, eating them along with boiled dhal and cooked vegetables. The poorer classes prepare thick rotis out of coarser grains and eat them with fresh onions, chillies and sometimes cooked vegetables. The vegetables are either grown or of so cheap a quality that they may be procured at a nominal cost. The villager takes in general one roti, prepared on the previous day early in the morning, two thick rotis at noon and two at night. Butter-milk forms an important item of food and is the only milk product consumed. Thus the main item of food-expenditure is on cereals, some of which is home-grown, and on chillies and other ingredients of the Masala, and on a little oil.

Consumption Rubric In Our Schedule.

The head of the family was asked the quantity of each cereal consumed by his family for the year. If he did not know it, the con-

sumption needs per day or per month was obtained and then calculated for the year. Of this, the amount of each cereal grown and consumed and the amount purchased, are shown separately.

Need For Conversion To Money.

The kinds of cereal, and the quantities of each consumed vary from family to family, and so do the miscellaneous items. This makes it difficult to compare families as regards food consumption, and to assess their standard of living. The only procedure, by no means ideal, is that of reducing food consumption to a common measure, by conversion in terms of money (i.e.) by fixing the prices and obtaining the cost of food consumed.

Price Of Cereals.

In fixing the prices, the local annual average price was taken. The miscellaneous items like Masala and oil were also valued at local prices, and the total food consumption expenditure obtained was posted on the expenditure side of the Family Budget Rubric.

Since the whole investigation is based on money economy, prices play an important part. The following table gives the average price of each cereal, the highest and the lowest price, the average being taken over all the schedules filled up.*

TABLE I : Prices of Cereals per Maund in Rupees.

	Price		
	Average	Highest	Lowest
Wheat	4.73	5	3.5
Barley	3.12	4	2.5
Maize	3.15	4	2.5
Bajra	3.44	4	2.5
Joar	3.27	4	2.5

One of the main reasons for the difference in prices seems to be the poor mobility of commodities from one place to another. In the first place, there is hardly a village producing more than what is required, and secondly the means of communication and

* A better procedure for future surveys would be to value the amount grown according to the price at the harvest field, and the amount purchased at the average annual price at the local retail shop, which is bound to be higher than the sale price at the field.

It is desirable that in future surveys, too, the quantities of each cereal consumed and their prices should be given, in order that effective comparisons may be made between two epochs, which is the main purpose of such surveys.

transport are poor. The price of any cereal is naturally lower in villages where it is produced.

Production and Consumption of Cereals.

Table II gives the total amount of each cereal consumed, the portion of it grown and the portion purchased, in all the villages surveyed. Table III gives the percentage of these in terms of the total amount of cereals consumed.

TABLE II : Production and Consumption.

	Production in maunds.	Consumption. Grown	Purchased	Total
Maize	6473	5240	9571	14811
Barley	8295	6777	17164	23941
Wheat	494	469	7323	7792
Bajra	2467	1921	4987	6908
Joar	855	684	3941	4625
TOTAL ...	18584	15091	42986	58077

TABLE III : Food Consumption Percentage Distribution.

	Grown.	Purchased.	Total.
Maize	9.0	16.5	25.5
Barley	11.7	29.5	41.2
Wheat	.8	12.6	13.4
Bajra	3.3	8.6	11.9
Joar	1.2	6.8	8.0
TOTAL ...	26.0	74.0	100

Estimate of Food Consumption for the Rural Population and Total Population.

The above figures are of considerable importance. From our sample, the estimate for the total amount of cereals needed for the consumption of the entire rural population of Ajmer-Merwara works out to 2733000 maunds with a margin of error of 54000 maunds. The proprietors and the cultivating families who form 75.1 p.c., of the total number of families, themselves require 2258679 maunds (i.e.) 82.7 p.c., of the total need. As against their requirements of about 22.6 lakhs of maunds the production for this year is estimated to be only 8.7 lakhs forming 32.p.c., of the total need, of which only 7.1 lakhs (i.e.) 26 p.c., of the total is retained for consumption.

Food Consumption calculated by the Banking Enquiry Committee.

In this connection, it may be pointed that the Banking Enquiry Committee had worked out similar figures for the year 1927-28. Taking the 1921 census figures for population and average size of the family, the total need for the rural population has been calculated to be 2222850 Mds., at the rate of 1 seer per day per adult and ½ seer per day per child. Again the need of the proprietor and cultivator of land is found to be 962140 maunds.*

In this study, we have provided more accurate and detailed data for working on the lines adopted by the Banking Enquiry Committee. In the first place they arbitrarily assumed the average family size of 4.22, to be composed of 1 male, 1 female and 2.2 children. Here we have worked out the actual composition of the average size 4.74. See Chapter V.

Secondly they have assumed an arbitrary consumption scale of 1 seer per day for adult male and ½ seer per day per child. Here we have worked out in a scientific manner the consumption scale for different age-sex groups.

Thirdly they have assumed the average size of family and the rate of food consumption of the agriculturist family to be the same as for the rest. Our analysis shows that this is not the case. Whereas the size of the agriculturist family is 4.98, the size of the non-agriculturist family is 3.54. Further the consumption per adult male per annum, in maunds of the Agriculturist is 9.17 whereas for the non-agriculturist it is 7.71.

Consumption of Different Cereals Weights for the Cost of Living Index.

The percentage of the amount of each cereal consumed in terms of the total cereals consumed given in column 4 of table III shows the relative importance of the various cereals in consumption. In fact they will serve as weights for the different cereals in calculating the cost of living index.+

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* See Report of the Banking Enquiry Committee for the centrally administered areas (1929-1930) page - 251.

\+ See Introductional Labour Office Studies Series No.9. Method of conducting family budget inquiries 1926.

Percentages of Families consuming Different Cereals.

The cereals consumed in the order of the amounts consumed and the number of families consuming them are barley, maize, wheat, bajra and joar. 79 p.c. consume barley and 72 p.c. maize. Hence at least 50 p.c., of the families should have been consuming both. Wheat is consumed by only 37 p.c., bajra by 31 p.c., and joar by 72 p.c., of the families.

REDUCTION OF FAMILY SIZE TO A COMION MEASURE.

Need for a Food-Consumption Scale.

We have so far considered the total cereals consumed. Now we shall take up the consumption per family. We have already pointed out that, in order to eliminate the variations in the kind of cereal and the amount of that cereal consumed from family to family, we have converted them into their money value, so that we have the total food expenditure per family. How are we to compare the modes of food expenditure between two different families ? Surely we cannot compare the total food expenditure of each family. For the family, although it is the economic unit, is a variable unit. One family may contain 6 members and another 5. The method of eliminating this variation is to work out the per-capita expenditure (i.e.) the expenditure per person. This does not go very far. Two families may have the same size, say 5 members. One may contain two adult males, two adult females and one child and the other one adult male one adult female and three children. The consumption of a woman differs from that of a man and the consumption of children of varying ages vary. Hence in order to eliminate the varying size, age and sex composition of the family, there is need for constructing a consumption scale. Supposing the food consumption of an average adult male is 1, what is the consumption of an adult female, a child between 10 and 13 and so on ?

There are two methods of building up a consumption scale* (1) by medical Research (2) by Econometric Research. In the first, the scale is based on what is physiologically needed for the efficiency of the human system. Such a scale has been set up for India by Dr. Aykroyd, Director of Nutrition Research Laboratories Coonoor in Health Bulletin No.23 issued by the Government of India.

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* Mathematical procedure and calculations are given in an Appendix.

Method adopted for Constructing the Consumption Scale.

In our study, we take up the second method of Econometric Research, and obtain a consumption scale from our data. For each family we have the total expenditure on food, the sex, and age of each member. Choosing convenient age-groups (here we have chosen so that the scale may be compared with that of Dr. Aykroyd) we calculate the food consumption expenditure in each age-group, by the statistical method of fitting Regression Equations. This work is of an advanced nature, and computations took us about a month. Checks were provided at every stage. The normal equations were solved by +Doo-little's method and the standard error of each coefficient is obtained.

The following table embodies the final results of this important and advanced work, giving the cost of food consumption in different age-sex groups, together with their standard error :

TABLE IV : Food Consumption - Age-sex Differences.

	Food Consumption per annum in Rupees	Sampling error
Adult Male 14 years and above	36.44	1.56
Adult Female 14 years and above	28.71	1.66
Child aged 10, 11 12, 13	24.64	2.00
Child aged 4 to 9	17.20	1.62
Infant aged 0-3	12.20	2.21
Average constant expenditure per family	10.47	2.92

Cost of Food Consumption per Adult Male.

In particular we find, that with the present prices given previously, the cost of food consumption per year, per adult male works out to Rs.60-7-0 with a standard error of about Rs.1-9-0. This works out roughly to Rupees three per month or about 6½ pice per day.

Consumption Scale.

To build the consumption scale, we have had to take the cost of food consumption of an

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+ See International Labour Office Studies Series No.9. See Chapter on Expenditure.

adult male to be unity and express the cost of food consumption in the various groups as a fraction of the former. The following table V exhibits the scale that is thus built from our own data and for the purpose of comparison, the scale worked out by Aykroyd from dietetic consideration in the Govt. of India Health Bulletin No.23 is given alongside.

TABLE V : Consumption Unit Scale.

Comparative Statement showing
(1) Scale worked out from our data
(2) Aykroyd's scale based on nutritional requirement.

	Consumption Scale from data.	Aykroyd's scale.
Adult Male Age 14 and above	1	1
Adult Female Age 14 and above	.79	.8
Child aged 10 to 13	.68	.74
Child aged 4 to 9	.47	.50
Infant aged 0-3	.33	.26

Aykroyd. Govt. of India Health Bulletin No.23.

Aykroyd has given the consumption-unit-equivalent for each age. In the above table, the weighted arithmetic mean in each age-group is obtained, the weights being the number of persons in our survey in each age-group.

We have probably for the first time in India worked out a food consumption scale by Econometric Research. The number of families surveyed is fairly large and great care has been bestowed in the collection of data and in the analysis. Further it is interesting to find that the scale built, is in fairly close agreement with the scale obtained by Aykroyd from entirely different considerations. Our's is based on what the villager actually consumes, while his scale is based on the needs of the human system. In the case of children between 10 and 13 our value is less and in the case of infants it is greater, than his. The sampling error is also greater in these two cases. Considering the values in two scales, it is suggested that the following scale may roughly be used in all studies in India on the method of family living in India.*

* For the various food consumption scales used in different countries, see International Labour Office Studies No.9. Methods of conducting family budget enquiries. Appendix.

TABLE VI : Consumption Scale suggested for Farm Family Living Studies in India.

Age	Consumption Scale
Adult Male	
Age 14 and above	1
Adult Female	
Age 14 and above	.8
Child aged 10 to 13	.7
Child aged 4 to 9	.5
Infant aged 0-3	.3

Constant Expenditure per Family.

In fitting the regression function, we have necessarily to introduce a constant term. This is found to be Rs.10.47 with a sampling error of 2.92 and hence is significant. The constant term has naturally to be interpreted to be the average of that part of the expenditure of every family, which is independent of the size of the family. It is difficult to explain how this actually arises. We can surmise one important item of food expenditure independent of the size of the family, in villages, and that is, alms for the poor. It may be a surprise to Westerners and to those living in cities that the beggars are more prosperous in villages than in cities. In every small group of villages there are always a few permanent beggars who make a living by begging from house to house in the villages, and who always get a dole from the village housewife however poor she may be. Obviously what she gives, does not depend on the size of her family. There may be other contributing factors for this constand expenditure, such as wastage. In all, the constant expenditure comes only to three-tenths of the needs of an adult male and is somewhat less than what is needed for an infant.

Reduction of the Family Size to Consumption Units.

The consumption scale we have built is made use of to reduce the size of every family in terms of the equivalent adult male who is taken as the consumption unit. Thus a family consisting of a husband, a wife, a grown up boy between 10 and 13 and an infant amounts to :

$$1 + .78 + .68 + .33 = 2.79 \text{ units.}$$

In this way the size of every family is reduced to consumption units. We have thus solved the problem of reducing the family size to a common measure, and hereafter we speak of the size of the family only in terms of consumption units.

Estimate of Total Consumption Units in Rural Ajmer-Merwara.

Working out the consumption units of each family, it is found that the total consumption units in the villages surveyed amount to 6018 units. Hence the total rural population of Ajmer-Merwara may be estimated to be equivalent to 283000 consumption units. In other words the total food requirements of the rural population of Ajmer-Merwara may be estimated to be equal to the needs of 283000 adult males.

Average Size of the Family.

The average size of the family in consumption units works out to 3.54. In other words the needs of an average family is 3.54 times the need of an adult male. The average size of the family in each of the various occupational groups is worked out in Chapter 5 Table I. The average size of the family in the various economic levels is determined in Chapter IX Table 7.

Food Consumption Details per Adult Male.

We have observed that the scale built here is in fairly close agreement with that of Aykroyd based on dietetic needs. It should be borne in mind however that this does not mean that the villager gets the necessary nutritional requirements. It only implies that the distribution of the slender food resources of the village family amongst its members seems on an average to be in proportion to their different dietetic needs. If the housewife consumes less, it may probably be due not to a less need, but to her in-born pact of sacrifice to forego a part of her food and distribute it to others. We shall now take up the question of sufficiency. That depends on what an adult male is able to secure for the Rs. 36-7-0 spent by him on food consumption.

For every family we have reduced its size to consumption units. For purposes of food requirements, we have to reckon also the constant expenditure of the family, independent of the size of the family. This forms .29 of the expenditure per adult male, and hence is equivalent to having .29 units more per family. Introducing this correction, the total size of all the families is worked out, and knowing the consumption details for all the families taken together (the expenditure on Masala and other miscellaneous items and the quantities of each cereal consumed), the details per adult male are worked out. The results are summarised below :

Food Consumption Analysis per Adult Male per annum.

TABLE VI.

A.	Expenditure on food ...	Rs.	36- 7-0
	" " cereals ...		29-12-0
	" " Masala, oil, etc.		6-11-0
B.	Amount of cereal consumed ...		8.93 maunds.
	per day is 15⅔ chattaks=33⅓ oz.		890 grains.

C. Composition of cereals consumed per day.

	Quality in grains	Calorific value
Wheat	120	412
Barley	366	1226
Maize	228	776
Bajra	105	378
Joar	71	252
Total ...	890	3044

FOOD CONSUMPTION.

Advantage of Analysis of Quantities Consumed.

Of the total expenditure of Rs.36-7-0 on food consumption, Rs. 29-1, forming 81.6, are spent on cereals.

The expenditure on food depends upon the prices of the commodities consumed. Prices of commodities differ from prices of commodities purchased. Further, fluctuations of prices from time to time render comparisons between cost of food consumption at different times difficult. However, an analysis of the actual quantities of each cereal consumed per consumption unit is not subject to these limitations, and hence is more useful for purposes of comparison. The results of such an analysis are given in B and C above.

Cereal Consumption Highest in Farm Families.

The cereal consumed per adult male is a little less than 1 seer per day. The needs of members in different age groups can be calculated from our Consumption Scale. In a survey of industrial families, the consumption per unit amounts only to 25 oz., of which cereals form only 20 oz.* According to the Famine Code the famine wage per adult

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* Working class Budgets Bombay (1923). By Findlay Shiras Page 20.

male digger per day is 36 oz. This is to cover all items of the ration and the amount for cereal above is considered to be 4/7 of it (i.e.) 20½ oz. Comparing with these, the consumption per adult male in the rural area is the highest. This seems to be the case not only in India but also in other countries too. In an international survey of recent family living studies in I.L.O. Review Vol.43 (1941), it is remarked "The striking feature on the consumption of farm families as compared with industrial worker's household is in so far as the rather meagre data available for the former group permit of drawing a conclusion the fact that farm families consume more than industrial worker's families per unit not only in the case of dairy products but also in that of bread and cereals." As observed therein, the larger consumption may be to the larger food requirements on account of strenuous agricultural work and to the fact that part of the food is supplied in the farm itself without spending money on purchasing them.

Calorific Value of Cereals Consumed.

Food-supply provides fuel for the body and make up for the wear and tear of the tissues. For this purpose a sufficient and well-balanced diet is necessary. Quantitative food requirements are measured in heat-units (i.e.) Calories. According to Aykroyd, normally an adult male with easy agricultural work requires 2600 calories per day with 300 calories more for every hour of very hard work. Working out the calorific value of the cereals consumed per day by the villager it amounts to 3044 calories.*

Poor Quality of Diet.

It does not follow therefore that the villager has a sufficient diet. It is deplorably poor in quality. It is not enough to provide the energy for daily work. It is necessary to take sufficient protective foods to protect the system against wastage of tissues. The diet should have the necessary amount of proteins, vitamins and mineral salts. Capt. Brink, Famine Medical Officer conducted a dietetic survey of 44 families on famine relief and found that while the calorie intake is alright, the diet is very poor in protective foods and that this accounts for deficiency diseases like Scurvy. The problem is therefore how best to improve the diet of the villager without increasing its cost. In this connection, the experiment of Capt. Brink on the supply of sprouted grams,

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* See Final Health Report on Famine in 1939-40 in Ajmer-Merwara by the Famine Medical Officer.

CLOTHING.

Next to food the most important item of expenditure is clothing. Ajmer-Merwara is a place of extremes in temperature. The villager naturally needs protection of the body against the great heat of summer and the cold of winter. The villager is rarely bare-bodied. The dress of an ordinary villager consists of a long turban about 12 yards only, an angarki or shirt, a dhoti, a chaddar sheet (pacheora) and a pair of shoes. The turban is either white or coloured red. The angarki is also white, thick and close-fitting, full-armed and extending to the thigh. While at work he sometimes wears a bakhtari, a close-fitting banian. The dhoti is about five yards long and is of thick mill-made cloth. The shoes are country-made and thick-heeled. Normally a man requires two dhotis, and two shirts each year. The sheet and the turban last for a few years. The female is more colourful. She wears a gagra stitched with many folds, a kanchli or bodice covering the breasts and tied up at the back by a string, an orni or upper garment and a pair of artistic shoes. Her clothing is thick, coloured and spotted and, now-a-days, mill-made. Besides, she spends a trifle now and then on cheap ornaments and bangles. Normally she requires two aprons, two saris, 6 bodices and two pairs of shoes.

Entry for Clothing in Our Schedule.

The normal requirements of the family are ascertained and their value calculated at average prices. Where a piece of cloth lasts two years only half the cost is included. The total is entered under clothing.

Variable Size of the Family.

In the case of clothing also the problem of variable size arises. The scientific procedure is to build a clothing scale similar to food consumption scale. No such scale is available and considering the enormous labour involved it is not feasible. Further the expenditure on clothing is only about 20 p.c., of the food consumption expenditure. Hence we have taken the same food consumption scale for clothing also, although we know that the woman, instead of spending only 4/5th of what her husband spends, may spend a little more than what her husband does. Reducing the family size to Consumption units we find that on an average on adult male spends Rs. 7-11-0 on clothing per year.

Average Food-Clothing Expenditure per Adult Male.

Hence we find the expenditure per adult male per annum on food and clothing, the two major items of expenditure works out to Rs. 44-2-0.

Variations about the Average Food Clothing Consumption.

It should be noted that the figures for food-clothing-consumption per adult male which we have worked out in this chapter, represent the average for the whole rural area, and hence are of much use in the study of the rural population as a whole. So, it does not mean that every individual takes each of one of the five cereals, in the proportion worked out. Probably there may not be no one conforming exactly to the details of consumption worked out here. There will be wide variation from family to family about the average, and in fact the study of this variation is more important than that of an average which only provides a base for the measurement of variation. This is taken up in the next chapter.

IX.

Economic Levels of Living.

Purpose of the Survey.

The main purpose of the Survey is to analyse the economic conditions of the rural population. This requires (1) the determination of the actual content of living in every family (2) then an examination of income as the main source from which the cost of living is defrayed and (3) an analysis of indebtedness, which is the accumulated effect of the deficiency of income towards meeting the expenses of living, production and the other extraordinary expenditure on social ceremonies. This chapter is concerned with the first aspect - the measure of the actual content of living and its variation from family to family.

Levels of Living.

The level of living depends upon the expenditure of the family. Expenditure can be broadly divided into (1) Outgo, which includes all items which do not affect the assets and liabilities, such as food, clothing, taxes, etc., and (2) other disbursements such as payment of debts, and savings which affect the assets. The Outgo can be further sub-divided into two types (1) the consumption outgo, like those on food and clothing and (2) the non-consumption outgo, like interest on debts, taxes and amount given to relatives. But the content of living or rather the money measure of the content of living is naturally given by the consumption expenditure of the family.

As we have already noted, the family is a variable unit. In comparing the consumption of expenditure of families, we have to take into account the size of the families, the age and sex composition of its members. It is just for this purpose of reducing the family size to a common measure that we have worked out the consumption scale, reducing the size of the family to consumption units, and the consumption expenditure per adult-male is worked out. This at once measures the level of living of the family.

Levels based on Consumption Expenditure per Adult-Male.

This method of classification of families by consumption expenditure per consumption unit is advocated as preferable to classifications based on income, since it is only the former which measures the actual content of living.* In the conditions of our survey, this procedure gains further support from the following facts. In

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* See International Labour office Methods of Family Living Studies N(23) 1940 Chaper V.

normal years the level of expenditure is determined by the level of income. But during the year under survey, on account of famine conditions, there is considerable dislocation in the sources and amounts of income, and hence classification based on expenditure will be truer to normal conditions than one based on income. Secondly, as regards the major difficulty of getting information from the villager, the villager is on surer ground in his consumption expenditure than concerning income.

Items of Consumption Expenditure.

The question now arises, what are the items to be included in consumption expenditure ? The most important item is food and the next is clothing, and for these figures have been collected. We have no data regarding other items of consumption expenditure such as rent, house repairs, lighting and medicine. In the Arcadian simplicity of the villager's life, practically no rent is paid for his poor hovel. It is raised by him at very small cost, and hardly anything is spent on house repair. Regarding lighting, he has perhaps a small kerosene lamp but sparingly does he light it. Rarely does he buy medicine. Excepting for those treatments traditionally in vogue, which cost nothing, he relies upon nature cure. These expenses, all put together, may perhaps work out to a very small fraction of his consumption expenditure, but we have no means of obtaining them, and in view of their insignificance compared to the major expenditure on food and clothing, we will not be very far from reality by restricting ourselves, as we have done, only to food-clothing expenditure.

Level of Living.

Families are classified according to the food-clothing expenditure per adult male, and split into the following 5 groups or levels, the grouping being so arranged that they are symmetrical about the general average of Rs.44/- per family.

Level	Consumption expenditure per annum per adult-male.
Much below Average	Less than Rs. 15.
Below	Rs. 15 to Rs. 34.
Average	Rs. 35 to Rs. 54.
Above Average	Rs. 55 to Rs. 74.
Much above Average	Rs. 75 and above.

The following table No. I gives the distribution of the families in these five economic levels :

Table No. I.

Classification of Families according to Economic Levels based on Food-Clothing-Expenditure per Adult Male.

Level	No. of Families	Percentage.
Much Below Average Rs. Less than Rs. 15	26	1.5
Below Average Rs. 15 to 34.	326	19.2
Average Rs. 35 to 54.	849	49.9
Above Average Rs. 55 to 74.	359	21.1
Much Above Average Rs. 75 and above	141	8.3

Percentage of Families in each Level.

The general average consumption expenditure of Rs.44/- is almost at the centre of the average level. Nearly 50 p.c., of the families live in this level. 19.2 p.c., of the families are in the below average level. There are only 1.5 p.c., living in the Much-Below-Average level. The Above-average-level families comprise 21.1 p.c., of the families. The families above this level form 8.3 p.c.

Level based on the Content of Living as it is and not on as it should be.

It should be clearly borne in mind that in the characterisation of the above levels, we are guided by the content of living as lived. We have not attempted to assess what is needed for a decent standard of living. We have not drawn 'a poverty line' and examined the families in relation to that line. We have only chosen to call the level which includes the highest percentage of families, the average level, and characterised the other levels in relation to them. Hence we cannot say that that the average level is just the average level needed.

Comparison between Levels of Living in two groups.

If we take any sub-groups of families, say, agriculturists or skilled workers, the main problem is to study how they fare, when compared to the population as a whole. Thus, for example, if we want to compare the levels of living, the first step is to work out the average consumption per unit in that special group and compare it with

the general average. This average may agree but the dispersion may not. Hence we work out for this group the percentage distribution in the various levels and compare it with that for the whole population.

Content of Living in the various Economic Levels.

Before taking up the levels of living in the various groups, we shall first examine the content of living in each level. Table II below gives the details of the average food-clothing consumption per unit in each level. This table was prepared after great labour, since it required resorting of the schedules according to levels. It exhibits in a striking manner the factors which contribute to the differences in the levels of living. In the first place, the total amount of cereals consumed varies from level to level. The variation is not very great from the Below-Average-level to the Above-Average-level. It is very low in the Much-Below-Average level. There are only 26 families in this level. The majority of them are beggars and priests in temples. Hence in the schedules, either there was no entry for food consumption or the entry was imperfect. Hence, we shall hereafter ignore them, as they form only 1.5 p.c., of the total number of families. The high amount of food consumption in the Much-Above-Average level may be partly due to the fact that it is quite common amongst well-to-do families in a village to feed now and then poorer families, who do them some service or other.

Table No. II.

Analysis of the Content of Living in the various Economic levels.

Consumption details per adult male per annum.

Description of Contents of Living		Levels. Much below	Below	Average	Above	Much above
Cereals in maunds.	Wheat	.52	.29	.78	2.87	4.68
	Barley	1.40	3.13	4.41	3.75	4.03
	Bajra	.36	2.27	.94	.76	.75
	Maize	.53	1.52	2.82	2.77	2.97
	Joar	.11	.52	.95	.84	.65
	Total	2.92	7.73	9.90	10.99	13.08
Miscellaneous oil, masala, etc. in rupees		3.31	2.39	5.39	10.43	27.62
Clothin in rupees		3.25	4.98	7.09	9.83	19.69

Quality of Cereal.

Wheat is the rich man's cereal and bajra the poor man's. From the steady rise in the amount of wheat consumed, and the steady fall in that of bajra, as we go up higher in the levels, it is clear that the variation in the content of living is also due to the quality of the cereal.

Relative percentages of the Amount spent in each item.

In the cases of expenditure on cereals miscellaneous items, and clothing, each of these steadily increases with the level of living. The following table II A exhibits the varying proportions to the total expenditure in each level (the expenditure on cereals being calculated according to the prices in Chapter VIII.). It is interesting to find that the percentage expenditure on cereals shows a steady decrease while that on miscellaneous items shows a corresponding increase. May it be, that the famous Engel's law* is in operation even in these subsistence levels of living ? Comparatively speaking, a little boiled dhal, a little ghee smeared over rotis, are almost luxuries in the low levels of living under consideration !

Table No. II A.

Food-Clothing-Consumption.

(Percentages of amounts spent in each item in terms of total in various levels).

	Levels			
	Below Average	Average	Above	Much Above
Cereals	74.6	72.2	66.0	50.9
Masala,oil,etc.,	8.2	12.0	17.5	28.7
Clothing	17.2	15.8	16.5	20.4

* In a homogeneous group of families differing only in respect of income, the excess over (or defect from) the average of expenditures on any budget item bears a constant proportion to the excess over (or defect from) the average income. In the case of some goods, which may be described as necessaries, this rule results in a diminishing proportion of expenditure as income rises. In the case of other goods, which may be described as luxuries, the proportion of expenditure rises as income rises. (Family Expenditure by Allen and Bowley page 7.)

CONTENT AND LEVELS OF LIVING IN DIFFERENT VILLAGES.

Table III gives the percentage distribution of families in each village in the various levels. It is found, the modal level in two of the villages is the Below-Average-Level and in four of them it is the Above-Average-level. The modal level coincides with the general average in the remaining 9 villages, of which 7 lean towards the Above-Average-level and two towards the Below-Average-level.

Table No. III.

Percentage Distribution of Families according to Levels of Living.

Name of Village.*	M.b.	B.	A.	Above.	M.a.	Total
Baheran A.	8	35	35	7	15	100
Hansiawas A.	..	63	32	5	..	100
Lehshwa A.	3	59	36	2	..	100
Pharkia A.	2	16	62	18	2	100
Amarpura B.	..	6	15	55	24	100
Daulatpura B.	..	9	79	11	1	100
Jalia B.	1	18	55	18	8	100
Karwai B.	..	..	56	44	..	100
Nayanagar B.	7	7	32	35	19	100
Ravatmal B.	..	1	23	45	31	100
Surajpura B.	..	6	11	72	11	100
Barla K.	4	11	52	27	6	100
Jetpura K.	1	29	51	12	7	100
Nimera K.	..	9	61	25	5	100
Talera K.	..	5	53	40	2	100
Total ...	2	19	50	21	8	100

Table IV gives the details of the average food-clothing consumption per unit in the various villages. It is interesting to note that the total amount of cereals consumed does not vary as widely as in the different economic levels. The low consumption in Nayanagar is due to the fact that the majority of its inhabitants are non-agriculturists, who, as is evident from Table VI, consume less. Further, the smaller amount of cereal is made up by the miscellaneous item, the expenditure on account of which is highest in the village. The low consumption in Jetpura defies explanation.

* M.b.= Much below B=Below

M.a.= Much above A=Average

Table IV - Average Food-clothing Consumption per adult male per year

Name of Village		Consumption expenditure per Unit	Clothing per Unit in Rs.	Food per Unit in Rupees.	Cereals per unit in Mds.	Wheat	Barley	Maize	Bajra	Jowar	Miscellaneous in Rs.
		1	2	3	4	5	6	7	8	9	10
Baheran	A	41.1	6.9	34.2	8.16	1.31	2.93	2.60	.06	1.26	.20
Hansiawas	A	29.7	5.6	24.1	8.41	..	4.03	..	4.38	..	..
Lehshwa	A	29.4	5.1	24.3	9.03	.09	1.59	.01	7.34	..	..
Pharkia	A	42.3	6.4	35.9	9.24	1.91	1.97	1.01	1.98	2.37	2.20
Amarpura	B	59.3	7.7	51.6	9.11	6.42	1.15	1.30	.09	.16	10.60
Daulatpura	B	41.4	7.9	33.5	9.50	.31	4.83	2.83	.28	1.25	5.90
Jalia	B	43.2	8.1	35.1	9.44	.86	5.68	2.73	.13	.04	8.20
Karwai	B	47.3	7.5	39.8	9.50	.71	5.09	3.10	.19	.41	5.60
Nayanagar	B	51.7	11.1	40.6	7.19	2.60	.53	.96	2.83	.26	17.50
Ravatmal	B	65.5	13.1	52.4	8.39	4.35	1.33	1.87	.83	.10	15.70
Surajpura	B	59.2	7.4	51.8	9.17	5.66	.05	2.05	1.41	..	11.90
Barla	K	42.7	5.2	37.5	8.15	.61	3.09	2.75	.20	1.50	6.10
Jetpura	K	39.1	8.1	31.0	7.47	.99	2.33	2.34	.19	1.62	5.90
Nimera	K	47.1	6.5	40.6	9.12	.13	3.28	4.14	..	1.57	4.90
Talera	K	46.4	7.5	38.9	9.01	.85	3.23	3.29	.14	1.50	5.10
Total Villages		44.1	7.7	36.4	8.93	1.20	3.68	2.28	1.06	.71	6.70

The correlation between average consumption expenditure per unit (Col.1) and amount of wheat consumed is striking. The main reason for the different levels of living is due to differences in the quality of food and the amount spent on miscellaneous items. Even in this poor standard of life the freedom of spending manifests itself in the miscellaneous items.

Occupational Differences.

Tables V and VI exhibit respectively the levels of living and the average content of living in the various occupational groups.

Table No. V.

Percentage Distribution of Families in various Economic Levels.

	Much below	Below Average	Above	Much above
Occupational Classification I				
	Levels			
Ag. only	1.9	20.1	54.1	17.2	6.7
Ag. main	.7	18.5	52.3	21.7	6.8
Ag. subsidiary	2.4	26.2	44.4	19.1	8.0
Non-Ag.	2.8	15.2	45.4	23.3	13.3
Occupational Classification II					
Cultivating Owner	.8	17.0	39.8	28.4	13.9
Tenant	1.4	19.7	54.4	19.2	5.2

Table No. VI.

Content of Living in the various Occupational groups.

	Cereals in Maunds							
	Wheat	Barley	Maize	Bajra	Jowar	Total	Misc. in Rs.	F&C* Exp. Rs.
Ag. Only	.72	4.17	2.97	.93	.32	9.11	7.61	44.8
Ag. Main	1.07	3.95	2.46	.90	1.02	9.40	5.79	43.6
Ag. Subsidiary	1.08	3.29	1.99	1.56	.47	8.99	5.47	43.5
Non-Ag.	2.05	2,76	1.51	1.25	.14	7.71	10.07	45.0
Cultivating Owner	2.54	2.18	1.35	2.41	1.04	9.52	7.13	49.2
Tenant	.78	5.01	3.15	.74	.92	10.60	6.44	41.9

*Food and Clothing Expenditure in Rs. per unit.

It will be noted that amongst the occupations, the dispersions in the levels of living are not as wide as amongst villages. The modal level coincides with the general average in all cases. Only the Agriculture-Subsidiary group are a little worse off than others, in as much as there is a higher percentage in the Below-Average-Level. Non-agriculturists are better off than others, although there is wider dispersion in the levels of living. As between cultivating owners and tenants, the former is distinctly better off than the latter.

Taking cereal consumption, the amount is 9.4 for the Ag.-Main group, declines to 8.39 for the Ag.-Subsidiary group and further to 7.71 in the non-agriculture group. In the case of the non-agriculture group this is balanced by better quality and increased expenditure on miscellaneous items. Although the details vary, the total expenses on food consumption vary only slightly in the different groups. As between tenants and cultivators, the cultivator consumes less cereals, but of better quality and the consumption expenditure per unit is distinctly higher.

Size of the Family and Levels of Living.

Table No. VII gives the average size of the family in the various levels of living for all families, agricultural and non-agricultural families. Ignoring the much-below-average level, for reasons already stated, it is found that in all cases as the level of living rises, the size of the family diminishes, the variations being made up of diminutions in each age-sex group. One is led to conclude that on an average the lower size of the family conduces to a higher level of living.

Table No. VII.

Average size and its composition in different economic levels.

All Families.

	Levels				
	Much Below	Below	Average	Above	Much Above
Adult Males	1.67	1.64	1.57	1.39	1.28
Females	.88	1.55	1.49	1.39	1.16
Children	1.45	2.10	1.75	1.51	1.26
Total	4.00	5.29	4.81	4.29	3.70

Table No.VII. (contd.)

Agriculturists.

	Much Below	Below Average		Above	Much Above
Adult Males	1.78	1.72	1.67	1.44	1.32
" Females	1.21	1.59	1.58	1.42	1.25
Children	2.15	2.19	1.83	1.68	1.46
Total	5.14	5.50	5.08	4.54	4.03

Non-Agriculturists.

Adult Males	1.50	1.27	1.19	1.25	1.19
" Females	.40	1.36	1.12	1.29	.97
Children	.50	1.69	1.46	1.00	.89
Total	2.40	4.32	3.77	3.54	3.05

Level of Living and Land Cultivated.

The following table exhibits the correlation between the level of living of cultivating families and land cultivated, expressed in equivalent Chahi. As the level of living rises the average area cultivated per family steadily increases. This is partly due to increasing percentage of cultivators with large holdings. In each level the highest percentage cultivate less than 5 bighas, but still the percentage of these owning (1) 5 bighas and above, (2) 10 bighas and above and (3) 20 bighas and above generally rises up with increasing level.

Table No. VIII.

Correlation between level of living and land in equivalent Chahi.

Level	Average cultivated holding in equivalent chahi	Percentage distribution of families in each level according to the area of land cultivated						
		1-4 Bighas	5-9	10-14	15-19	20-24	25-29	30 & above
Much below	5.7	56	32	..	6	..	6	..
Below	6.7	46	28	15	4	2	2	3
Average	9.0	36	29	17	9	5	1	3
Above	9.5	36	32	15	8	4	..	5
Much above	13.6	31	30	15	8	6	1	9

Level of Living and Income.

In general, the most important factor determining expenditure is income and we shall in the next Chapter examine how far the amount of income influences the level of living.

X.

Income and Level of Living.

In the last chapter, we studied the levels of living as determined by the expenditure on primary necessities of life, viz. food and clothing. Let us now take up income, which is the main source from which the cost of living is defrayed, and examine how far it is sufficient.

Difficulties of Farm Family Income Survey.

Unlike the case of industrial families, the measurement of the income of rural families presents great difficulties. In industrial families, the earning strength is well defined and so also their income. But for the farmer's families it is difficult to separate out the earning members from others. Almost all the adults, men and women, and the grown up children do some work or other. The earnings in mose cases are in kind and have to be evaluated in terms of money. In the case of cultivators and tenants, the net income from the farm has to be worked out. Thus a good number of items have to be estimated. Hence in order to facilitate a grasp of the true picture, and comparison with other studies, the specific procedure and the methods of calculation are explained.

The Specific Procedure in our Survey.

Our data give only the pooled income of all the members of the family, and not the income of each member, as it is difficult to separate it out. In calculating the money value of articles consumed and sold the average annual price in the village is taken. In the family budget rubric in the schedule, on the receipt side against agriculture is entered the gross income from the land, and on the expenditure side is entered the expenses of production. In calculating the net income we have taken the net income from each source (i.e.) the excess of gross income over expenses of production. In case the latter exceeds the former, the net income is shown as a loss. This is the correct procedure, since otherwise when we add the receiptsside and the expenditure side separately, it will by exaggerating both sides give an incorrect picture of both.

Total Income and Income per Family.

The total net income of the 1701 families surveyed turns out to be Rs. 202541 and works out to Rs. 119 per family per year. The net income per consumption unit (i.e.) per adult male is Rs. 33.6, whereas the expenses for food and clothing amount to Rs. 44.1 per year. For the Agriculturist families, the income per year is 108.9 per family. This works out to Rs. 29.1 per adult male, whereas the food clothing expendi-

ture is Rs. 43.4 For the non-agriculturists it is Rs. 157 per family i.e. 57.3 per adult male, whereas the food and clothing expenditure is Rs. 45/- per annum. In interpreting the figures for the non-agriculturist group it should be borne in mind, that it represents diverse economic conditions from the rich moneylenders and traders, the teachers and those in service down to the poor beggar.

Sources of Income.

Before analysing the variation in income from family to family, we shall analyse the income from the various sources, and estimate their relative importance. The results are embodied in Table I. Table II provides comparative figures for agriculturist families and non-agriculturist families. It will be noticed the total of the number of families in each source adds up to more than the total number of families in all. This is due to the fact, observed already, that a majority of families had taken to more than one source and hence they are counted once under each source. The income in col.4 in each block represents the income per family from this source and not the total net income of the family.

Table No. I.

Relative Importance of Different Sources of Income.

Source of Income	A	B	C	D	E
Agriculture	39494	1340	29.4	19.5	78.7
Dairy	523	716	.7	.3	42.1
Famine & other unskilled labour	81720	965	84.6	40.4	56.7
Skilled labour	18676	260	71.8	9.2	15.2
Service	25656	117	219.3	12.7	6.9
Trading	15469	76	203.5	7.6	4.4
Moneylending	9958	11	905.3	4.9	.6
Begging	2925	57	51.3	1.4	3.3
Miscellaneous	8120	134	60.5	4.0	7.8
All sources	202541	1701	119.0	100	100

A=Annual income from source in rupees.

B=Number of families.

C=Income per family from the source.

D=Percentage of income from each source to total income.

E=Percentage of number of families in each source in terms of total.

Table No. II.

Relative importance of different sources of income

Comparative Table for Agriculturists and Non-agriculturists.

	Agriculture Total Income R.145863 Number of families 1340		Non-Agriculture Total Income R.46353 Number of families 361			
Source of income	Percentage of source Income to total income.		Percentage of families in each source to total number.		Income per family from source.	
	Ag.	Non-ag	Ag.	Non-ag.	Ag.	Non-ag.
Agriculture	27.3	..	100	..	28.4	..
Dairy	Loss -.3	1.8	48.6	18.0	-.3	15.8
Famine & other unskilled labour	47.2	22.6	61.0	41.0	[illegible]	[illegible]
Skilled Labour	6.6	15.9	12.5	25.5	[illegible]	97.7
Service	5.2	31.9	3.8	18.2	[illegible]	273.4
Trading	2.6	20.6	2.6	11.1	[illegible]	276.2
Money Lending	6.1	1.8	.6	.8	[illegible]	343.3
Begging	1.6	1.3	3.3	3.6	[illegible]	49.3
Miscellaneous	3.9	4.1	7.7	8.3	[illegible]	73.3
All	100.0	100.0	100.0	100.0	102.9	157.9

Although nearly four-fifths of the families are agriculturist families, the income from agriculture forms only 1/5th. of the total income of all families, or 3/10th. of the total income of agriculture families. Column 2 of table II shows how they had made up by subsidiary occupation the remaining three-fourths of their income. One half of the agriculturist families had taken to dairying and cattle-breeding as a subsidiary occupation. The income from this source is almost nil, since the famine conditions had hit the livestock most. The income from famine and other unskilled labour forms the highest percentage, a little above 40, and, barring service, trading and moneylending, it has yielded the highest income per family. A detailed analysis of this source is made in this chapter.

The remaining occupations are those which relate to the day-to-day economy of the ancient village of the self-sufficient type, the most important of these being that of the village artisans. Next come service, trading and the moneylending. Most of these occupations are mainly carried on upon a caste basis, and hence the families in each occupation form a distinct group demanding separate study.

Taking the agriculturist families in these groups, by no means can these occupations be regarded as subsidiary, chosen by them to supplement their income. Rather agriculture is the subsidiary occupation. Hence the families represent a flow from the non-agriculturist ranks to the agriculturist ranks. The trader (who is also generally a moneylender) and the moneylender grab the lands of their poor clients, who are unable to pay their debts. The village artisan somehow manages to get a piece of land and cultivates it with a view to supplement his meagre income. A comparative study of the figures for the agriculturists and non-agriculturists in each economic group of artisans serves to point out how far the part-time worker in the agriculture-group compares with his kinsman in the non-agriculture group.

AGRICULTURAL INCOME.

Agricultural Income abnormally Poor.

Production in the year under survey was abnormal. The Rabi season was affected by an acute famine, and the harvest poor. Similarly the Khariff was spoilt by ill-distributed rainfall. Hence the income from agriculture will not reflect normal conditions.

Method of Collection of Data.

In the family budget rubric, under gross agricultural income, is entered the total value of the produce including the value of grass and hay calculated at the average annual local rates. Under expenditure is entered the expenses of seeds, manure purchased, cost of extra labour employed

during the busy season, the rent and tax. The cost of the labour of the members of the family, and that of draught animals have not been taken into account. Thus the net income represents the return for (1) the capital invested in the land, if owned, (2) the labour of the members of the family working on the land, and that of the draught animals.

Agricultural Income per Family.

The net income derived from agriculture forms 19.5 p.c., of the total net income from all sources. If we take into account only the agriculturist families, it forms 27.3 p.c., of the total net income and works out to Rs.29.4 per family. Excepting one village Sahren, where the agricultural net income forms about two-thirds of the total net income, in all other villages it is less than one-third and in two of the villages agriculture has resulted in a loss. Even in the best village Jalia, where production was exceptionally good, the income from land forms only 24 p.c., of the total income and works out to Rs.42.5 per agriculturist family. This was mainly due to high expenses of production.

Expenses of Production.

We have no materials for constructing the balance sheet for each crop. The expenses of agricultural production, which we have collected for each family from the head of the family, may not be very precise. Still they may give a rough idea of the situation. The gross yield is Rs.108405 and the expenses amount to Rs.6911. Hence the expenses of production amount to 63.6 p.c., of the gross yield. This cannot be taken to be a normal figure. The actual expenses of production depend upon the nature and extent of each type of land and upon the crop cultivated. Its total yield depends on the vagaries of rainfall from place to place. Of the 15 villages surveyed the percentage of expenses in terms of the gross yield was between 25 to 50 p.c., in 8 villages, between 50 to 75 p.c., in four, between 75 to 100 in one, and in the remaining two, it was over 100 thus entailing a loss.

Income from Land in each Occupational Group.

The following table gives the gross agricultural income, the expenses of production, and the net income per cultivating family in the occupational groups:

	Gross Income	Expenditure.	Net Income.
Ag. only	129.8	77.8	52.0
Ag. main	81.4	52.5	28.9
Ag. subsidiary	48.6	36.8	11.8
Cultivating owner	45.9	25.0	20.9
Tenant	90.8	59.8	31.0

The variation in Agricultural Income in the various occupational groups reflects quite well the variation in the average size, and the quality of the holdings in these groups (See Chapter VI). There we noted that the holding of the Agriculture Subsidiary Group is deplorably poor in quality and quantity. Hence, as the above figures show, the expenses of production, in relation to the yield, are the highest and the net income lowest. The holding of the tenant, although of the same size as that of the cultivating owner is of better quality and hence the yield is also higher. The expenses of production in relation to the gross yield seem to be higher for the tenant than for the cultivator.

Agricultural Income of Cotton Cultivating Family.

As we have examined elsewhere how the cotton-cultivating families fare as regards production of food grains when compared with non-cultivating families, we shall now compare them from the point of view of income from agriculture. The following table gives the gross yield, expenses, net yield per family in the two groups :

	Gross-yield per family in rupees.	Expenses of Production. In Rupees.	Expenses of Production. Percentage.	Net agricultural income in rupees.
Cotton-cultivating family.	102.4	68.7	67	33.7
Non-cotton-cultivating family.	51.0	25.2	49	25.8

It follows that the gross agricultural income of cotton-cultivating families is almost double that of the non-cotton-cultivating families. However, their expenses of production are also higher, so that the net income is only Rs.33.7 per family, and is only 30 p.c., higher than that of those who do not grow cotton. Of course we do not know how far this will be true in a normal year.

SUBSIDIARY AND OTHER OCCUPATIONS.

"The only way in which a small farmer can keep himself out of debt is by being frugal, industrious and by having a second string to his bow." (M.L. Darling.)

Importance of Subsidiary Occupations.

We have already seen that the holdings are uneconomically small. Nature too is not generous. The income from land is meagre and uncertain and hence the two major problems facing the agri-

culturist are (1) How to improve his meagre income and (2) how to insure himself against the risk due to, and combat, the uncertainties of nature. Consolidation of holdings, conservation of manure, introduction of commercial crops and their marketting, are steps towards solving the first problem, while proper conservation of moisture, proper mixture and rotation of crops, have a direct bearing on the second. In Ajmer-Merwara, the second problem is as important as the first one. But even in the best year agricultural income hardly amounts to more than a fourth of the total income.

We must bear in mind, too, that agricultural operations are seasonal in character. If the farmer grows two crops, it takes him about 8 months*, otherwise only four months. Even during this period it entails very hard work only during certain times, like sowing time, occasional watering and harvesting. Thus there is plenty of spare time at his disposal. Again, agriculture yields income only once in 6 months, if the area cultivated is double cropped, otherwise only once a year. The cultivator needs cash now and then, for his expenses and has to resort to credit with the trader or indent on the money-lender.

In these circumstances, naturally he tries to add a second string to his bow. That is why, about 80 p.c., of the cultivating families try their hand at some other occupation. The problems which arise are (1) From what channels does he derive his subsidiary income ? (2) How far they supplement his meagre income ? (3) How far they keep him employed in the off-season? (4) To what extent do they constitute a main source when the other fails ? (5) How far can existing sources be improved and new ones explored ?

We shall take up (1) to (4) and briefly touch upon (5) leaving it to be taken up by more competent authorities.

We have seen already that the choice in subsidiary occupations is very limited, and that almost all of them relate to occupations which belong to the day-to-day life of the village of the self-sufficient type, and which are shared alike by agriculturists and non-agriculturists. Hence in taking up for study the subsidiary occupations, we exhaust the various occupations of the non-agriculturists also.

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* Our data are not sufficiently accurate to measure exactly the period of under employment. Even if they are so, due to abnormal conditions, it will not represent the situation in a normal year.

DAIRY FARMING AND CATTLE BREEDING.

Keating points out "that the subsidiary par excellence of the cultivator should be the breeding and rearing of livestock which would provide an occupation and an income at all seasons and return to the soil the manure which is necessary to maintain its productivity."

In Ajmer-Merwara, as pointed out already in the chapter on livestock, dairy-farming and cattle-breeding form a very important subsidiary occupation. In normal years there is plenty of grazing, and the cost of rearing cattle is small. Usually the grown-up children look to grazing and the housewife looks to the cattleshed. Hence the rearing of cattle does not interfere with the work of the cultivator.

But one great disadvantage in this important subsidiary occupation is that this second string to the bow snaps even earlier than the first, and, in fact, is indicative of the main string snapping also. In Chapter VII we have seen how fodder scarcity had preceded actual famine and had been more difficult to manage the latter. Consequently, while in good years the income from this source adds up substantially to the good yield from land, in years of scarcity both fail, and thus accentuate the misery of villager. This is what happened in the year under survey. Due to fodder scarcity and famine condition there was considerable loss of cattle by death (see Chapter VII) and even the cattle kept were in an emaciated condition, just keeping body and soul together. The yield was very poor and the cost of fodder prohibitive; so that on an average the net income from this source was practically nil. Against an income of Rs.36384, the expenses were Rs.35861, so that the net income (amounting to Rs.523) may be considered to be practically nil. However, there is one point to be taken into account. The bullock wealth forms a third of the total cattle wealth and on account of the importance of bullocks, they are given the major portion of the fodder purchased. The expenditure under bullocks, the labour of which was utilized for the land, should really come under the head of agriculture. But for almost all the villages, this was included under dairy expenditure. The corresponding return was not included under dairy income. Further the cost of the manure supplied had not been evaluated, and so also the cost of milk-products consumed. Due to all these factors the expenditure is exaggerated and the income diminished. The above observations will partly explain why, while amongst the cultivating families, the income for this source is practically nil, amongst the non-cultivating families it is about Rs. 16 per family.

Out of 15 villages 7 recorded losses and the remaining 8 gained. Of the latter Hansiawas derived the highest percentage of income from this source - viz. 37 p.c., of the total income. The income from this source forms 20 p.c., of the livestock wealth of the village. This village illustrates how profitable will sheep-breeding on a

large scale be in villages with plenty of hill-sides and fallow lands. The villagers own amongst themselves 1700 goats and sheep. Little is spent on their maintenance. They live on the poorest grazing lands and are least affected by famine. Nayanagar is an example of the opportunities for dairy-farming for milk supplies in villages close to cities. With a livestock worth Rs. 3115, the gross yield was Rs. 3219. But on account of the high cost of fodder the villager has suffered a loss under this head. The income should have been mostly from the sale of milk, as the She-buffaloes seem to be of high quality, as judged from their price.

FAMINE LABOUR AND OTHER UNSKILLED LABOUR.

Income under this head.

The income under this head forms the highest percentage of the total income viz. 40.4 p.c. 56.4 p.c., of the families have earned from this source. During the year under survey, in famine stricken areas, famine labour has more than taken the place of the usual channels of unskilled labour available and hence, in total, it has eclipsed all other forms of labour.

In normal years, agricultural labour, grass-cutting and grazing of cattle are also important subsidiary sources of income. We have already noted in chapter IV that the landless agricultural labourers form a negligible percentage, viz. 3.8 p.c., and that the cultivators themselves especially of small holdings hire out their labour to others during the busy season. Most of them possess some livestock or other. The cultivator goes about grass-cutting for the use of his cattle or for sale whenever he is free. The grown-up children look to grazing. But in a year of poor rainfall, along with agricultural operations all these activities are crippled and a succeeding lean year worsens the situation which finally culminates in famine. This is what happened during the year under survey.

Culmination into Famine of Deteriorating Agricultural Conditions from 1937.

In the year 1937-38, the average rainfall was about 19 inches and was well distributed over the months. The area that failed in the Khariff crop was only 19 p.c., and the Rabi crop was good. The total produce was about 11 lakhs of maunds. In 1938-39 the rainfall was only 14 inches, out of which a disproportionately high amount of 10" fell in June and July and hardly an inch in September and October. The Khariff crop failed by 47 p.c., and the Rabi yield too was very poor, and the total yield declined to 6.6 lakhs. There was considerable fodder scarcity. In 1939-40 the conditions grew worse. The total rainfall was only 10.8 of which only 3

inches fell in June. July rainfall was as low as 1.2" and the September rainfall was less than an inch. Hence the percentage of Khariff area failed was 78.2 being the highest for the last 10 years. Agricultural operations were at a standstill, and the scope for subsidiary employment in agricultural labour was practically nil. Fodder scarcity had already become acute and cattle mortality had been raging high.*

When nature had been so unkind, and had almost frozen the main source of income viz., agriculture and cattle breeding, the State came forward to shoulder the responsibility of combating the devastations of famine. The danger signals of famine, like rise in prices, migration and increasing crime, were watched, and finally famine was declared in August 1939. With generous funds which mounted to 61 lakhs, the famine relief-machinery which had been more and more perfected with experience, set to work with clock-like precision.

Famine Relief.

Thanks to modern improved communications, there is no longer food famine, scarcity of food and consequent death of starvation. Plenty of food-materials can be imported at short notice from places where nature has not been so unkind. What was required was to provide a source of income for those against whom nature had declared a temporary lock-out. Tests works were opened, which later grew into full-fledged famine camps. By November 1939, 27 camps had been opened, providing labour for 120,000 persons. The famine relief actually was at its height in February 1940, when over 2 lakhs of people (i.e.) nearly 3/5th of the rural population were on relief. With the advent of rains in June 1940, the works were being closed and by November 1940, all were disbanded. There was a considerable medical staff at work, ready to deal with diseases, such as Cholera and Malaria, incident to famine conditions. 920,000 maunds of fodder were imported for which the Government paid 2/3rd., of the cost of importing. Seed and cattle loans given amounted to 477953, and the remission granted amounted to 2,30,310.

Influence of Famine Relief on Family Living.

The year under survey is roughly from November 1939 to October 1940 and hence comes well within the period of famine relief. It is our purpose here to examine how far famine relief has influenced the content and levels of living of the rural families. The main results are summarised in Tables III to VI where the families are classified according to levels of living and occupations respectively.

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* The figures in this article refer to the average rainfall and the yield in the Khalsa area.

Volume of Relief.

In interpreting the results, the following points have to be borne in mind (1) In spite of instructions, the investigators in many cases were content with noting 'Mazduri' which means labour, without mentioning whether it was agriculture or, famine or any other labour. We have been able to trace 683 families on relief. Still there are a large number of cases of income under wages coming under the general description of Mazduri. Probably many or most of these were on famine relief. (2) The biggest village in our survey, Jalia, had not been, as chance would have it, affected much by famine conditions. The lands were mostly irrigated from wells. The yield had been fairly good and only 29.3 p.c., of the families sought relief, whereas for all the villages this percentage is 40.2 (3) The famine camps were also thrown open for a considerable number of families from the neighbouring states outside Ajmer-Merwara who sought relief. These factors tend to diminish the estimate of the volume of relief. This much can be said that the relief was not less than our estimate.

Intensity of Relief.

Although we cannot fully measure the volume of relief, still we have a sufficiently large number of families on relief, to enable us to measure the intensity of relief - i.e., to measure how far it has contributed to the content of family living. For convenience let us call a family, which had worked in a famine camp, a famine family. Of the 1701 families, 683 were traced to be famine families, earning in all Rs.50453 from this source. Thus 40.2 p.c., were famine families and the income per family from famine was Rs.73.8. The net income per family was 110.5 whereas the net income per family for all families was 119. This shows that the famine families had almost come to the general level. But for the famine income which formed 9 p.c., of the total net income, these families could not have maintained their present levels.

Although, on an average, famine income forms 66.9 p.c., of the net income of famine families, it shows wide variations from family to family. This is exhibited in the last row of Table IV. Roughly two-thirds of the families received more than 50 p.c., of their income from famine works. Of these 27.8 p.c., derived cent per cent and more from famine. The last statement requires explanation. In the principal occupations, agriculture and dairying, many families suffered losses, and of the famine families 20.5 p.c., come under this category. But for the famine labour, instead of earning any income, they would have suffered losses.

Famine Income - Economic Levels of Living.

We shall now examine the intensity of relief in each economic level, and study its variations.

Table No. III.

Famine Income, and levels of living of Famine Families.

No. of families on Relief 683. Total Famine Income 50453. Income per family 73.8.

Level	A	B	C	D	E
Much below Average Less than Rs. 15.	33.0	30.0	26.0	86.6	11.5
Below. Rs. 15-34	82.7	94.7	57.8	61.0	35.9
Average. Rs. 35-64	101.5	102.1	70.5	69.0	43.9
Above. Rs. 65-84	143.6	129.7	88.1	67.9	42.4
Much above Rs. 85 and above.	258.6	170.8	103.0	60.3	27.0
All	119	110.5	73.8	66.8	40.2

A=Net income per family in rupees.
B=Net income per famine family.
C=Net income from famine works.
D=Percentage of Famine Income to net income.
E=Percentage of Famine Families to total in each level.

Table No. IV.

Percentage Distribution of Famine Families according to percentage of Famine Income to total net income.

Levels	No. of families.	Percentage of Famine Income to total income.					
		Less than 20	20-39	40-59	60-79	80-99	100 and above
Below	117	9.4	15.4	24.8	11.1	17.9	21.4
Average	373	8.8	12.6	19.6	14.2	14.2	30.6
Above	152	9.9	10.5	15.8	19.1	17.1	27.6
Much above	38	10.5	15.8	18.4	13.1	21.1	21.1
All	683	9.2	12.8	19.5	14.9	15.8	27.8

Table No. III exhibits in a striking manner the part played by the famine income in determining the standard of living. Two important features immediately arrest our attentions.

The first is the high correlation between the levels of living, the income per famine family

and the income from famine. As the level of living rises the net income and the income from famine also steadily rise. Further, the income from famine is the major source of income, forming roughly about two-thirds of the income. Hence it follows that amongst the famine families, the higher levels of living are mostly due to the higher income from famine.

If we take the percentage of families on relief in each level, the percentage of famine income to total income, and the percentage of famine families who have suffered losses in other sources, all these are low at the lower levels, rise up in the average level and fall down in the higher levels.

The famine wage for an adult male digger was 9 pice per day so that the income per year would lead to the upper half of the average level. When that was so, and when famine camps had been opened within a radius of 7 miles from each village and would welcome any worker, provided he was fit, it is interesting to find why the only few families of the Much-Below-Average level had sought relief and even they had not taken full advantage of it. An examination of 16 families in this level shows that 10 of them are beggars or priests in temples, 1 is sweeper, 1 a village drummer and the others families with a large number of dependents, suffering from malaria for months. The first class, being used to a life of laziness, would rather be content with their poor level of living than do hard manual work in famine camps and thereby increase their standard of living. The latter, unable to take up hard famine work, due to ill-health, had to share their meagre resources amongst a large number of members. In the next higher level the percentage is only less by about 5 p.c. This is due to a greater concentration of beggar families, and a high percentage of families in this level in the village Hansiawas, which was probably rather too far away from famine operations.

In the Much-above-average-level, where the expenditure per adult male is more than Rs.75 per adult male, the percentage of families on relief falls down to 27 p.c. This is because, the famine wages can by themselves at the most raise one up to the Average Level and hence cannot replace the usual amount of income needed for higher levels. Hence only those families with no alternative have sought famine relief, and in spite of the highest income from famine, its p.c., of total income is smaller.

Lastly if we compare the net income of famine family in Col.(3) with the net income of all families in each level in Col.(2) in lower level B, the famine families are better off, in spite of their not having taken full advantage of famine relief, in the average level they are almost on a par and in higher levels, naturally

they are much below, and in the highest level the disparity is as under as Rs.88 per family.

Famine Income and Occupations.

Table V similar to Table III exhibits the influence of famine relief in the various occupational groups.

Table No. V.

Famine Income of Famine Families.

Occupational.

	A	B	C	D	E
Ag. only	60.8	66.0	32.2	48.7	13.0
Ag. Main	119.0	114.4	79.9	69.8	55.0
Ag. Subsidiary	107.0	92.0	61.6	66.9	30.1
Non-Agriculture	156.9	118.2	70.9	59.9	26.3
Cultivating owner	152.3	132.0	81.2	61.5	54.6
Tenant	98.0	103.5	73.6	71.1	40.0

A=Net Income per family in rupees
B=Net Income per famine family
C=Income from famine
D=Percentage of Famine income to net income
E=Percentage of Famine Families to total.

Table No.VI.

Percentage Distribution of Famine Families.

According to percentage of Famine Income to total net income.

	No. of family.	Percentage of Famine Income to total income. Less than 20	20 to 39	40 to 59	60 to 79	80 to 99	100 and over
Ag. only	27	22.2	11.1	11.1	14.9	11.1	29.6
Ag. Main	484	7.2	12.4	19.6	15.9	16.7	27.9
Ag. Subsidiary	77	39.1	14.3	20.8	11.7	16.9	27.2
Non-Agriculture	95	13.7	14.7	19.0	12.6	10.5	29.5
Cultivating owner	236	5.4	9.3	23.3	23.3	20.9	17.8
Tenant	1028	9.2	13.4	17.2	13.6	14.8	31.8

Of the four groups in part I of Table II, the agriculture-Main group supplied the highest percentage viz. 55 p.c., of its families for famine labour. The famine income in this group is highest being 79.9. The percentage of famine income to total income is highest being 69.8 p.c. Further 60 p.c., of the families had derived more than

60 p.c., of the income from this source. See Table No. VI.

Next comes the agriculture subsidiary group. Only 30 p.c., of the families have sought relief. Compared to the above group, the income is less, and so also the income from famine and its percentage to total income, and so also the percentage who have received more than 60 p.c., of the net income from famine.

Amongst the non-agriculturists, only 30 p.c., took to famine labour. This is because famine conditions had affected least the avenues of employment of this group. The only sources of income which had been affected were general mazdoori, grazing, ~~xxxxxxx~~ grass-cutting, and of firewood. That is why, of the 97 famine families in this group, 67 come under the above sources of income. The rest are drawn from the skilled-workman class, particularly those whose economic conditions were poor, such as cobblers, potters and barbers. Amongst famine families, the famine income forms only 60 p.c., of the net income. The fact that the income per famine family is considerably less than the income per family may be due to the fact that the non-famine families include the richer classes like traders and money-lenders and the famine families are drawn from the lower strata.

The agriculture-only group had contributed the lowest percentage of families viz. 13. The famine income is the lowest, its percentage to total income lowest being 48.7. The net income per famine family is Rs.66, while for all families in this group it is as low as 60.8. When that is so, the interesting question arises, why they did not avail themselves of famine relief and enhance their income.

The main reason seems to be that this group, either on account of irrigational facilities or harder work, they managed to earn a net income for land of Rs.48.1 per family, whereas for all the agriculturist families it was only Rs.29.5 per family. In the biggest village which includes 106 families in this group, the income from land was Rs.65 per family. That is why only 6 out of 106 families sought relief. This shows that at best, when they had stuck to the land, the income from land during the year would have been about Rs.65 per family whereas the income from famine alone works out to Rs.73.8 per family. These figures show conclusively a desire to stick to the land as far as possible and a reluctance to turn to other sources, even if they are remunerative.

As between the cultivators and the tenants, the former had contributed a greater percentage of families and earned more income from famine. The percentage to total income is however less. This is because the net income is comparatively higher. Even at that the famine family had not come to the general standard.

On the other hand the percentage of the families on relief from the tenant class is lower, the income from famine lower. But still the percentage of famine income to total income is higher, and the percentage of families who earned cent per cent and more from famine is considerably higher. The famine families in this class were better off than the rest. The reason why then more families had not taken advantage may be that the tenant not being the master of himself, could not have left his land even if he wanted to, since his master would lose completely if he forsook the land.

SKILLED LABOUR.

The Importance of the Village Economy.

The families engaged in skilled labour are 260 in number and form 15.3 p.c., of the total number of families. They comprise the usual ones, needed in the day to day economy of the old Indian village of the self-sufficing type - weavers, shoemakers, carpenters, blacksmiths, potters, barbers, etc. These occupations are mostly run on a caste-basis. Formerly they received only annual payments, which often took the form of a prescriptive share of the harvest. They work on the old traditional lines, with practically no attempt at innovation or improvement. With improved means of communication and transport and the advent into the countryside of cheap machine-made products, cheap metallic vessels, kerosene, etc., the skilled worker has been hit hard in varying degree. We shall now study the economic conditions of each type of skilled labour. This is of much importance for, although excepting perhaps spinning, the others are not capable of affording a scope for secondary occupation for all the agriculturists, still they have an important place in village economy. Without them, the villagers even now, will be put to much inconvenience, and perhaps in their absence, the agriculturists will have to face scarcity of labour during the busy season.

Table No. V.

Income from Skilled Labour.

	A	B	C	D	E
Shoe-makers	5647	81	Rs.69.7	114.4	60.9
Spinners and Weavers	2656	42	63.0	111.6	56.6
Carpenters	1383	25	55.3	67.7	81.6
Blacksmiths	1084	11	98.5	120.1	81.9
Potters	2316	32	72.3	113.8	63.5
Barbers	1058	21	50.3	82.7	60.8
Miscellaneous	4532	48	94.4	128.7	73.3
All	18676	260	71.8	109.7	65.5

A=Total income from source
B=Number of families
C=Annual income per family from source
D=Net income per family from all source
E=Percentage of income per family from source to total income.

Table V furnishes the income per family from each type of skilled labour and its proportion to the total income of the family. It is seen that, excepting carpenters and barbers, the average level of income is very near the general average of Rs.119 per

family. In all cases, as in agriculture, the income from each source is not self-sufficient and each family resorts to a secondary source of income, which in general is 'Mazduri' of some sort or other.

A majority of the families, forming 64.4.p.c., have taken to agriculture as a main or subsidiary occupation. Table VI gives comparative figures for these with land and those without it. The holdings are uneconomically small, and the interest evinced is naturally poor. The yield is practically nil.

Table No. VI.

Income from Skilled Labour.

Comparative Table for Agriculturist and Non-agriculturist families.

	A		B		C		D	
	1	2	3	4	5	6	7	8
Shoe-makers	53.3	102.3	106.2	157.2	57.3	65.2	67	33
Spinners & Weavers	58.6	67.4	119.7	104.4	48.9	64.6	48	52
Carpenter	52.7	85.0	66.4	82.5	79.3	103.6	92	8
Blacksmith	73.3	128.8	103.5	140.2	70.8	91.8	54	46
Potters	77.6	64.6	117.1	109.0	66.2	59.3	59	41
Barbers	51.3	41.0	85.5	56.0	60.0	73.2	90	10
Miscellaneous	56.3	142.8	99.3	166.3	57.1	73.3	56	44

A=Income per family from source
B=Net income per family
C=Percentage of source - income to total income
D=Percentage of families

1, 3, 5 and 7 = Agriculturist
2, 4, 6 and 8 = Non-Agriculturist.

From Table VI we can conclude that, on the whole, the agriculturist families are, at any rate this year, distinctly worse off as regards income from source and net income, than their kinsmen free from land.

Table No. VII.

Levels of living of skilled labour families.

Percentage distribution of families in various levels.

			LEVELS				
	A	B	C	D	E	F	G
Shoe-makers	81	3.94	4.9	20.9	44.4	23.4	6.2
Spinners & Weavers	42	2.55	..	28.5	47.6	19.0	4.7
Carpenters	25	3.46	..	20.0	60.0	16.0	4.0
Blacksmith	11	3.18	..	18.1	54.5	27.2	..
Potters	32	3.74	..	18.7	50.0	28.1	3.1
Barbers	21	3.77	4.7	28.5	47.6	19.0	..
Miscellaneous	48	3.50	2.0	20.8	39.5	20.8	16.6
All families	1701	3.54	1.5	19.2	49.9	21.1	8.0

A= Number of families
B= Size of family
C= Much below average level
D= Below average
E= Average
F= Above average
G= Much above average

Table VII gives the levels of living of each type of skilled labour. The modal living is the same in all. But the miscellaneous group leans towards the higher levels, while weavers and barbers lean towards the lower levels.

In the schedule there was a special rubric, for information regarding cost of production, and the price fetched by the finished products in each subsidiary industry. Unfortunately, the entries were imperfect and do not seem to have been made with care. Hence it is not possible to draw any conclusions.

Shoemakers.

Amongst skilled labour families, the shoemakers form the largest percentage viz. 31.1. There are 81 shoemaking families, all of them being either Charmars or Regars. Shoes

are indispensable for every villager. Fortunately the shoemaking industry has suffered least by impact from outside. Under shoemaking we have included all those engaged in the successive process of this industry, the skinning of the cattle, tanning, manufacture of shoes, and the mending of shoes. They usually get the skin from the dead cattle of the villager either on payment or on condition of supply of finished products in exchange, and manufacture mainly shoes and charas for drawing water from wells.

The average size of the shoemaker's family is 3.94 units, whereas the general average is 3.54. The income per family is fairly close to the average level, and the income from shoemaking forms 60.9 p.c., of the net income. About two-thirds of the families own lands and the income from them is practically nil. The income from this source and the total income are considerably less than the corresponding ones for non-agriculturists. The supplementary income is mostly from 'Mazduri' of some sort or other.

On comparing the levels of living with the levels for all families, the percentage of families is about 5.4 p.c., less in the average level, and this is made up by higher percentages in the lower and higher levels. The lower levels comprise those who merely mend shoes, and those weighed down with a large number of dependents.

Spinning and Weaving.

Next to food, clothing is the most important necessity of life. Spinning in the past was the most important cottage industry run on a large scale. Men, women and grown-up children all used to ply the wheel at all times of the day and the year when they were free. The coarse yarn spun was handed to the local weaver who used to weave it into coarse cloth known as Rezis used by the villagers for their garments. But in the face of fierce competition from cheap mill-made cloths, the demand for the country-made material has become very poor and the spinning industry is now almost dead. The few surviving weaver families use mostly mill-made yarn.

There are 42 families under this head. The average size of the family is 2.55. This is due to the fact that there are 11 families consisting each of a single woman engaged in spinning. The average income is very near the general level, and the income from this source forms only 56.6 p.c., of the net income. About half of them cultivate land and there is not a striking difference between those who cultivate land and those who do not. Their level of living is lower than the general average.

Carpenter.

The carpenters, 25 in numbers, are drawn from the Khati caste. They have not suffered much

from competition. There is practically no improvement in agricultural implements. They either purchase wood or get it from the jungles, and manufacture carts, ploughs, doors. They also do repairing. The size of their family is normal. The income from carpentry and the total income per family are lowest compared to others, and they have not any substantial subsidiary source of income. Almost all of them cultivate small pieces of land and the income from it is practically nil.

Blacksmith.

There were only 11 families. The iron implements of agriculture are mostly imported from outside, and their work in consequently limited to miscellaneous repairs. Their income from this source is highest, being Rs. 98.5 per family. The non-agriculturist is distinctly better off than the agriculturist. The standard of living is higher.

Potter.

The potter was holding an important place in the village economy, and was supplying all the utensils needed. He has been losing ground, with the increasing import into the countryside of cheaper metal vessels. Fortunately the custom of not using an earthen vessel sipped once has gone a long way to preserve the potter's wheel. The income from pottery is Rs. 72.3 and the total income fairly approximates to the general level. Family size is a little higher and those that cultivate land seem to be slightly better off than others. The level of living is slightly hgigher.

Miscellaneous.

In the miscellaneous group, 9 are engaged in oil-pressing. The Teli's business has shrunk much with the advent of Kerosene. Six are goldsmiths, 5 washermen and 7 tailors. It is refreshing to find a few families outside the usual rut. Four are engaged in bangle-making, 8 in priting, and border-cutting. In general all these families, with the exception of the washermen are distinctly better off than others.

Traders, Moneylenders.

The trader who is generally a Bania by caste, holds an important place in rural economy. He usually combines many functions. He sells groceries, cloth, supplies seeds, perhaps owns a piece of land, and is often a moneylender. As one of the sources for the supply of credit, he is the main target of attack. The survey includes only 74 trader families. If our data be correct, 7 villages do not have a grocer's shop. In the biggest village there are as many as 54 traders. Evidently a trader cannot get on, if his clients are drawn from only one village

Obviously then, they cater to the needs of a few villages, and keep as their business centre the most important of the group. This gains further support from the fact that the income per family of traders with agriculture as an additional occupation (the majority of them are in the small villages surveyed) is only Rs.139 per family, whereas, those without land, (the majority of whom are in Jalia) get an income of Rs.291 per family. Their level of living is distinctly higher than the average level.

Only 11 families have been recorded as those of moneylenders. They are probably the only professional moneylenders and, for reasons stated above, the moneylender too has a wider jurisdiction than a single village. Hence there must be moneylenders from outside catering to the villages surveyed. Of the 11 families, 8 own land. Whereas the agriculturist moneylender gets on an average of Rs.956 per family, the others have earned only Rs.329 per family. All live in the Much-Above Average Level.

Service.

The number of families coming under service form 6.8 p.c., of the total, and the income earned is 12.7 p.c., of the total income. The annual income per agriculturist family is Rs.149, whereas for the non-agriculturists it is Rs.273. Of the 117 families 41 belong to Jalia, 37 to Nayanagar. In as much as this group comprises diverse groups like school masters, clerks, havildars, patvaris, patels, etc., the average figures are not of much significance.

INCOME AND LEVELS OF LIVING.

The influence of income on consumption expenditure of rural families.

The general, income is the main factor determining the level of living. In the case of industrial families, income is earned in cash and at frequent and periodic intervals and hence expenditure is planned according to income. In the case of agricultural families, income is realised only once or twice a year. The yield, the amount of it to be retained, the prices which the remaining fetch are all uncertain. Therefore if the year too is an adverse one, like the year under survey, the level of living diverges much from what could be supported by income.

Average income and consumption expenditure.

For all the villages the average income per family is Rs.119. This works out to Rs.33.6 per adult male, whereas the food clothing expenditure per adult male is Rs.44.1. Thus income forms only 71.4 p.c., of consumption expenditure.

TABLE VIII

Income and consumption expenditure.

Name of Village		Agricul-ture Net Income	Dairy Net income	Famine & unskilled labour	Skilled Labour	Miscellaneous	Total	Food clothing consumption per family.
Baheran	A	46.0	1.0	14.7	1.0	10.7	73.5	155.3
Hansiawas	A	17.0	37.0	34.6	6.8	3.9	99.5	122.3
Lohshwa	A	29.2	10.9	30.0	13.3	2.8	83.4	110.3
Pharkia	A	16.0	10.4	64.6	7.9	6.6	104.7	151.2
Amarpura	B	4.1	-18.7	91.0	9.1	2.3	87.7	201.7
Daulatpura	B	-13.5	-0.9	32.9	17.6	6.1	41.6	130.5
Jalia	B	28.1	-1.6	32.4	14.8	48.6	118.8	157.3
Karwai	B	39.6	4.4	97.5	..	..	141.4	172.4
Mayanagar	B	10.3	-1.9	28.4	1.9	168.2	207.9	158.3
Ravatmal	B	8.6	-5.6	37.3	10.8	88.0	200.1	217.5
Surajpura	B	10.4	21.1	71.7	14.0	60.1	177.4	240.7
Barla	K	35.7	1.1	88.3	9.8	5.2	141.1	174.7
Jetpura	K	39.3	-2.2	44.2	10.5	29.9	121.8	183.2
Nimera	K	43.1	2.9	55.7	3.2	6.6	112.3	194.9
Talora	K	-11.3	-9.9	98.6	8.3	12.9	100.5	189.7
Total		23.2	0.8	48.0	11.0	35.5	118.1	166.5

Average income expenditure in the villages.

Table VIII gives the details for food-clothing consumption and income per family in each village. It displays the working of the various factors, which determine the relation of income to expenditure, the actual levels of living and the income from the principal sources which in our case are (1) Famine and unskilled labour (2) Agriculture and (3) Miscellaneous non-agricultural sources. In only one village Nayanagar, does income exceed expenditure. But Nayanagar does not reflect real village conditions in as much as it is near a town, and the majority of the families are non-agriculturists. In 6 of the villages the percentage of income to expenditure lies between 75 to 100, and in 5 between 50 to 75. In three villages, Baheran, Amarpura and Daulatpura, the percentage is less than 50. In Baheran, agriculture was almost the only source and hence the income was unsufficient. In Amarpura the income from famine works was very high, and other sources had contributed little. In Daulatpura, agriculture had entailed a loss and the income from famine-works poor.

Average income and expenditure in different occupations.

The following table gives the income per unit and the corresponding expenditure in the various occupational groups.

Table No. IX.

	Average income per unit.	Average consumption expenditure per unit.	Percentage of income to expenditure.
Ag. only	17.9	44.9	39.9
Ag. Main	30.5	43.6	69.9
Ag. Subsidiary	30.9	43.5	71.0
Non-agriculture.	57.3	45.0	127.3
Cultivator	43.3	49.2	88.0
Tenant	25.3	41.9	60.3

As observed already, amonst the first four groups, there is not much difference in the level of living. The income is very low in the ag.only-group. This is due to the fact that they have stuck to the land although more remunerative famine work was available. The non-agriculture group had earned the highest income per unit. The cultivator leads a higher level of living, and his income too is very high. This is partly due to the fact that this group includes a few moneylenders with very high income.

Income and Levels of Living.

Table X gives the size of the family, the income per family and the income per unit, in the various levels. Tables XI and XII give similar figures for Agriculturists and Non-Agriculturists and respectively.

Table No.X.

Income and size of the family in different economic levels.

All families.

Levels	Average size of family in units.	Income per family in Rs.	Income per consumption unit.
Much below	2.92	33.0	10.4
Below	3.89	82.8	21.2
Average	3.64	101.5	27.8
Above	3.26	143.6	44.4
Much above	2.88	258.6	90.9

Table No.XI.

Much below	3.41	38.1	9.7
Below	4.06	83.7	20.6
Average	3.86	98.6	25.5
Above	3.40	120.5	35.3
Much above	3.14	230.7	74.9

Table No.XII.

Much below	2.12	26.0	12.2
Below	3.04	78.1	25.7
Average	2.75	113.4	41.2
Above	2.78	219.4	78.7
Much above	2.38	314.0	131.7

It is found that in all the three cases, as the level of living rises, the income per consumption unit steadily decreases. Further, the two factors, determining the above, the size of the family and the total income per family in general, co-operate to produce the effect. As the level increases, the size of the family diminishes and the income per family increases so that the income per unit increases more rapidly. It follows that although income is not sufficient to meet consumption expenditure still there is a high correlation between the two, and hence income is a major factor determining the level of living.

As between the agriculturists and non-agriculturists, the income per unit in each level, in the case of the latter is considerably greater than the corresponding figure for agriculturists, so that the high average income of non-agriculturists is not due to the presence of a few rich people alone.

Dispersion of income in the various levels.

So far we have considered only the average income per unit in each group. The correlational table XIII given below, between the levels of living and income per unit exhibits the dispersion about the average in each level and for all families. Nearly 50 p.c., of the families derive income less than Rs.30 per family. About 75 p.c., derive less than Rs.45, which is roughly the average consumption need. At the same time, about 4 p.c., earn more than Rs.100 per unit.

Correlation Table XIII.

(Distribution of 1000 families according to annual income per consumption unit and level of living.)

Income.

Level \ Income →	A	B	C	D	E	F	G	H	I	J	K	L
Much below	8	3	..	1	1	1	1	..	..	..	..	15
Below	28	46	65	36	11	3	1	..	1	..	1	192
Average	87	79	88	110	74	32	12	8	3	..	6	499
Above	27	18	26	24	36	27	19	12	7	5	10	211
Much above	8	7	3	5	8	6	6	5	6	3	26	33
Total	158	153	182	176	130	69	39	25	17	8	43	1000

A=Income less than Rs.10/-
B=Income between Rs.10-19
C= " " Rs.20-29
D= " " Rs.30-39
E= " " Rs.40-49
F= " " Rs.50-59
G=Income between Rs.60-69
H= " " Rs.70-79
I= " " Rs.80-89
J= " " Rs.90-99
K= " 100 and above
L= Total

Taking the different levels, the maximum number of families lies in the average level, and corresponds to the income group Rs.30-40 including the average income. As the level increases the modal income group also recedes. The average income falls within the modal group in the Below level, lags behind in the average level, catches it up in the Above-Average level. The number of families with an income above Rs.100 per unit, mounts rapidly in the increasing level.

Correlation Table XIV
(Distribution of 1,000 families according to annual income per consumption Unit and level of living)

(Agriculturists)

Income—Level	Less than N.10	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100 and abpve	Total
Much below	7	4	..	1	..	..	..	..	..	..	..	12
Below	34	52	63	35	13	3	1	..	1	..	1	203
Average	105	93	98	104	64	27	10	4	3	..	4	512
Above	28	19	30	27	39	26	13	10	4	4	4	204
Much above	10	8	3	5	10	4	7	5	4	1	12	69
Total	184	176	194	172	126	60	31	19	12	5	21	1000

Table XV
(Non-Agriculturists)

Much below	14	3	..	3	3	3	2	..	..	..	..	28
Below	3	25	72	41	5	6	..	..	..	..	..	152
Average	19	27	53	133	111	53	19	19	6	..	14	454
Above	19	14	11	14	22	30	40	22	17	8	36	233
Much above	3	..	3	3	3	8	8	6	14	8	77	133
Total	58	69	139	194	144	100	69	47	37	16	127	1000

Tables XIV and XV give corresponding figures for agriculturists and non-agriculturists.

Other items in the family budget.

In the family budget rubric, we have so far concentrated on consumption expenditure, and on net income alone. The other principal items of expenditure are social ceremonies, and interest on debts. The former is occasional and is taken up elsewhere. As for the latter, in an adverse year like the one under survey, there is hardly anything left out of the earnings for payment of interest. Entries under this item cannot be considered complete and the poor villager does not very often know whether any payment he makes is for repayment of debts or for interest. The best procedure is to assess the indebtedness and the rate of interest and estimate the interest on debts. This is taken up in the chapter on indebtedness.

Balancing the budget.

Turning next to the receipt side, we have not taken receipts other than income. If the data on the expenditure side be correct than the cultivator ought to have made up for the shortage of income towards meeting the expenditure by borrowings, gifts from relatives, sale of jewels etc. The budget should balance. But as pointed out already, it is very difficult in the case of farm families to ensure the balancing of the budget, where a number of items have to be estimated.* In a majority of cases there are no entries for borrowings, and budgets do not balance. However, although it is difficult, the investigator might have, with great profit, spent a little time in filling up the schedule, and so discover why the budget does not balance. Any attempt at bridging the gap between the two sides in the budget by tactful questioning and careful calculation would have been of great value.

Income and expenditure in a normal year.

In a normal year, the major portion of the cereals consumed will be produced by the cultivator himself and they will be valued only at the price at the harvest field, which is considerably less than the market price. Then the cost of consumption will be less. At the same time the income from land and dairy show a substantial increase and hence the gap between the two sides of the budget will become closer, provided of course that the family does not spend lavishly on marriages or funeral feasts.

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* See International Labour Review No.4(1941) International survey of recent family living studies. Referring to the 18th recent international farm family studies it is remarked "But in farm family living studies, the difficulties of estimating the value of products received in kind and of determining farm income are so great that none of the studies considered here attempted to determine deficits or surpluses.

Social Ceremonies.

Social ceremonies can be broadly into two classes, major and minor. The minor ones comprise the celebrations during the principal festivals, on births and anniversaries of deaths. These recur every year. In our survey, figures for expenditure under this head were available for 137 families. The expenditure amounts to Rs.14 per annum, and is not much. After all, in the dull monotony and the normally frugal life of the villager, these are the only occasions for entertainment and merry-making.

The major ceremonies are marriages and funeral feasts (Mosars). Although they are only occasional, still the expenditure incurred is so heavy and so much out of proportion to income, that it aggravates the already precarious economic condition of the villager. The marriage ceremony involves a feast on the day of proposal, one when the Bharat party starts, and one on the marriage day. The funeral is followed by a feast on an appointed day. Almost all the families of the village and the relatives from outside are invited. Their representatives are entertained on a lavish scale, with sweets prepared in ghee, rotis smeared with ghee, dal and sometimes wine too. Beggars, barbers, sweepers of the village also attend and help themselves and will not leave unless they are satisfied. It is all gay and fun, but the tragedy is to be found in the lot of the poor host and his family. The tyranny of social custom required him to be so extravagant even though he cannot afford to be so. A foolish belief that the spirit of the dead will not be satisfied unless the funeral is followed by a grand feast, keeps him blind, for the moment, to reality. He has not got the courage to say no, and he is afraid of falling in the estimation of his kinsmen. The result is that he spends sleepless nights, approaches the moneylender, mortgages his all. The moneylenders accommodates him without even raising the question as to why he should waste so much. Once the debt is contracted, it mounts up at a terrible space, pushing him further into the depths of indebtedness and misery. The above observations are substantiated by the fact that during the year under survey, a famine year, when naturally all these activities must be at the lowest ebb, 63 families have recorded expenses on these major social ceremonies, amounting to Rs.320 per family. Of the 63 families only 20 had spent less than twice the income. About 24 had spent more than 10 times the income, and the highest expenditure was Rs.2000, about 16 times the income of that family.

XI.

INDEBTEDNESS.

Causes for Indebtedness.

In an adverse year, like the year under survey, income falls much short of what is required to defray the cost of living. Again, the agriculturist realises his income only at long intervals of six or twelve months and he is unable to set apart from his income the capital needed for the expenses of cultivation in the coming year. The tyranny of social custom enjoins him to spend money extravagantly on social ceremonies, whether he can afford it or not. For all these, he intends upon the village moneylender, who accommodates him at all times and for all purposes. Once the debts are contracted, they mount up on account of exorbitant rates of interest, and the interest on debts forms a major item of expenditure. After taxes, what the moneylender claims as his dues forms the next charge on income. The agriculturist is left with a poor margin, and the cycle repeats itself, plunging him further and further into the depths of indebtedness. Indebtedness becomes chronic, and constitutes the greatest obstacle to economic progress.

The debt figures were collected, along with the others from the head of the family. The villager hardly keeps an account, and in many cases he has no idea of the exact amount of outstanding principal or interest. There was a general reluctance to give the correct figure, particularly for the mortgaged debt, and there were no means of checking the statements. The results of the analysis may be an under-estimate of the true situation.

Indebtedness per family.

The total amount of debt of the 1701 families surveyed is found to be Rs.587939. Hence the indebtedness per family works out to Rs.346. per family. From the sample, the total indebtedness of rural families may be estimated to be 277 lakhs with a margin of error of about 50 lakhs. Only 29 p.c., of the families are free from debt. The debt per indebted family works out to Rs.487.

Indebtedness according to occupation.

Taking agriculturists alone, who form 78.8 p.c., of the total, their debts amount to 90.2 p.c., of the total debt. The debt per family is Rs. 396 and the debt per indebted family works out to Rs. 499.

The following table I gives the details for indebtedness in the various occupational groups :-

Table No. I.

Extent of Indebtedness.

Occupational.

	A	B	C	D	E	F
Ag.only	209	170	81.3	92262	441.4	542.7
Ag.Main	879	721	82.0	370229	421.2	513.5
Ag.Subsidiary	252	172	68.2	67821	269.1	394.3
Non-agriculturist	361	145	40.2	57626	159.6	397.4
Cultivator	236	215	91.1	115348	488.7	536.5
Tenant	1028	807	78.5	389284	378.7	482.4

A=Number of families
B=Number of indebted families
C=Percentage of families in debt to total
D=Total debt
E=Debt per family
F=Debt per indebted family.

The percentage of families indebted, diminishes from 82 in the Ag.Main group to 40.2 in the non-agriculture group. The debt-free families may comprise (1) those in extreme indigence with no facilities for credit and (2) those who are well off and hence are not in need of borrowing. From the levels of living of the ag-subsidiary and the non-agriculturist group given elsewhere, we may conclude that the debt-free families in the former group may contain a greater proportion of the indigent. The debt per family in the Agriculture-Subsidiary and the Non-agriculturist group is distinctly lower than in the Ag.Main group.

The percentage indebted is highest in the cultivator-group being 91.1 and the indebtedness per family is also highest being Rs.489. The reasons may be (1) they command more credit facilities on account of the ownership of the land (2) they lead a higher level of living.

In the tenant group, the percentage indebted and the debt per family, although distinctly lower when compared with corresponding figures for the cultivating-owner-group, are still fairly high. The majority of them are in the Istimrari areas, where, although they are legally tenants-at-will, they have acquired certain rifhts over the land, which carry with them greater credit facilities than in other provinces.

Table II gives the details for indebtedness in each village. In seven villages more than 80 p.c. are indebted. Between 60 to 80 p.c., are indebted in four of the villages and in the remaining four the percentage indebted is below 40. The debt per indebted family lies between 100 to 200 in 3 villages, between 300 to 500 in 8 villages and above 500 in 4 villages. The debt figure of Amarpura seems to be unreliably low. That of Talera is unreliably high, although it can be partly attri-

Table II.
Extent of Indebtedness
Villages.

Name of Village		Number of families	Number of families without debt	Percentage of families in debt	Total debt	Debt per family	Debt per indebted family
Baheran	A	54	22	59.2	12092	223.9	377.8
Hansiawas	A	57	17	70.1	7837	137.5	195.9
Lehshwa	A	115	52	54.8	42357	368.3	672.3
Pharkia	A	129	14	89.1	64953	503.5	564.8
Amarpura	B	33	12	63.6	2390	72.4	113.8
Daulatpura	B	106	10	90.5	33340	314.5	347.2
Jalia	B	608	230	62.1	178684	293.8	472.7
Karwai	B	16	4	75.0	4810	300.6	400.8
Nayanagar	B	69	35	49.2	13429	194.6	394.9
Ravatmal	B	123	14	88.6	53025	431.1	486.4
Surajpura	B	18	3	83.3	2715	150.8	181.0
Barla	K	118	15	87.2	62264	527.6	604.5
Jetpura	K	102	43	57.8	23526	230.6	398.7
Nimera	K	110	16	85.4	41603	378.2	442.5
Jalera	K	43	6	86.0	44913	1044.4	1213.8
Total	-	1701	493	71.0	587938	345.6	486.7

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The indebtedness figures for the various skilled-labour groups, traders, moneylenders and those in service given in summary table No.III.

Dispersion about the average amount debt per family.

The following table III gives the percentage distribution of families in the various groups arranged according to the amount of debt:-

Table No. III.

Percentage distribution of families in terms of total in each group.

Amount of debt per family.	All families.	Ag. families.	Non-Ag. families.
No debt	29.0	21	60
Less than 100	19.0	20	14
100 200	12.0	13	9
200 300	8.1	9	4
300 400	6.1	7	3
400 500	7.1	8	3
500 1000	11	13	4
Above.... 1000	8	9	3

The above table exhibits clearly the uneven distribution of the burden of indebtedness amongst the families. For all families the average debt is Rs.346. Only 21 p.c., have debts between 200 to 500. mxm 60 p.c., have debts below 200, including 29 p.c., who are free from debt. About 19 p.c., have debts above 500, of which 8 p.c., have above 1000. With such a wide dispersion, the average figure is not of much significance. Distinctive remedial measures are needed, on the one hand, for the large percentage with debts less than the average and on the other, the few with high debts handed over from generation to generation. The comparative figures for the agricultural and non-agricultural families show that the disparity is wider and the problem is more serious in the case of the Agriculturists.

Debt and Levels of Living.

The following table IV giving the average indebtedness per family in the various economic levels of living, serves to point out the influence of the level of living on indebtedness.

Table No.IV.

Levels of Living.	A	B	C	D	E
Much below (less than Rs.15 per adult male)	26	11	42.3	168	397
Below (Rs.15 and less than Rs.35)	326	221	67.8	252	371
Average (Rs.35 and less than Rs.55)	849	633	74.6	366	489
Above (Rs.55 and less than Rs.75)	359	264	73.6	368	499
Much above (Rs.75 and above)	141	79	56	420	748

A=Number of families
B=Number of indebtedxxxx families
C=Percentage of indebted families
D=Debt per family
E=Debt per indebted family.

The percentage indebted is almost steady in the average and above-average levels. It is lower in the below-level, reflecting probably less credit facilities. In the much-above-average-level too, it is lower and this may be due to less proportion of families in need of credit. But the indebtedness per indebted family is almost the same in the average and above-average levels, lower in the below-level and very high in the much-above-level. In the highest level, there are fewer families who borrow, but they borrow heavily. See Table VII.

Similar tables V and VI are given for agriculturists and non-agriculturists. The table for agriculturists is almost similar to the table for all families, so that the above observations apply particularly to agriculturists. The percentages of indebted families amongst non-agriculturists is uniformly low in all levels although the indebtedness per indebted family varies.

Table No.V.

Indebtedness in each level.

(Agriculturists)

Levels.	A	B	C	D	E
Much below	16	10	63	269.2	430.8
Below	271	197	72.7	268.4	414.9
Average	685	565	82.5	425.8	516.2
Above	275	227	81.8	401.4	486.2
Much above	93	64	68.8	561.2	815.5

Table No. VI.

(Non-Agriculturists)

Levels.	A	B	C	D	E
Much below	10	1	..	..	..
Below	55	24	44	168.5	386.2
Average	164	68	40	116.3	280.5
Above	84	37	44	253.9	576.5
Much above	48	15	31	143.5	459.3

A=Number of families.
B= " " indebted families.
C=Percentage of indebted families.
D=Debt per family
E= " " indebted family.

The following correlation table VII exhibits the dispersion about the average debt per family on the various levels of living.

Table No.VII.

Correlation table between levels of living & Indebtedness.

Levels	A	B	C	D	E	F	G	H	I
Much below	15	5	..	2	..	1	2	1	26
Below	105	63	41	30	19	24	32	12	326
Average	216	174	96	53	61	76	98	70	849
Above	95	63	59	36	19	16	41	30	359
Much above	62	19	9	9	7	7	14	14	141
Total	493	324	205	135	106	124	187	127	1701

A=Debt free B=Rs.1-100 C=Rs.101-200
D=Rs.201-300 E=Rs.301-400 F=Rs.401-500
G=Rs.501-1000 H=Rs.Above 1000 I= Total

It will be seen from the above table, that as between the average and the above-average levels, the proportions of the debt-free, to those with debt of less than 500, and those with debts above 500 almost agree. In the below-level, the proportion of debt-free is higher and that of those with debts above 500 less. In the much-above-average level, the proportions of the debt-free, those with debts less than Rs.500 are less, while those with debts greater than Rs.500 are higher.

Indebtedness and size of holdings of cultivating owners.

Table VIII gives the percentage indebted and the average indebtedness per family, in groups of cultivating-owner families classified according to the size of their holdings in equivalent Chahi.

Table No.VIII.

Size of holdings and indebtedness.

(Cultivating owner)

Areas in bighas in equivalent Chahi.	A	B	C	D	E
0 to less than 2½	62	52	16168	260.7	310.9
2½ " 5	53	49	25869	488.1	527.9
5 " 7½	41	38	20188	492.4	531.2
7½ " 10	23	23	14731	640.4	640.4
10 " 12½	19	18	13824	727.6	768.0
12½ " 15	14	12	6333	452.3	527.7
15 " 20	12	11	6523	543.6	593.0
20 and above	12	10	11712	976.0	1171.2

A=Number of families with this holding
B= " " indebted families
C=Total debt
D=Average debt per family
E= " " indebted family.

It will be seen that almost all are indebted in each group. The indebtedness per family mounts up violently as the size of the holding increases from less than 1 acre to less than 2 acres and then steadily increases up to 5 acres. Afterwards there seems to be no definite connection between holdings and indebtedness. Thus the Law that 'debt follows credit' seems to be true up to 5 acres of equivalent Chahi. In the case of families with bigger holdings probably there is no need to resort to the fullest extent the credit they can command. See also correlation table IX.

Indebtedness and size of holdings of tenants.

Table X for tenants is similar to table IX. It is seen that the debt per family and the debt per indebted family steadily increases as the holding increases up to 10 bighas or 4 acres. The percentage indebted is 66 p.c., in the case of families with holdings less than one acre and is afterwards steady at 80, up to holdings of 4 acres. Afterwards there does not seem to be any definite connection between size of holding and indebtedness. See also Correlation table XI.

Table No. IX.

Correlation Table between size of holding and Indebtedness
(Cultivating owner)

Size of holding	A	B	C	D	E	F	G	H	I
0 to less than 2½	10	4	15	10	5	7	5	3	3
2½ to less than 5	4	2	7	8	5	4	3	12	8
5 to less than 7½	3	1	5	4	4	4	6	10	4
7½ to less than 10	..	2	3	3	1	2	1	7	4
10 to less than 12½	1	2	4	1	2	..	..	4	5
12½ to less than 15	2	2	2	1	1	2	1	1	2
15 to less than 20	1	..	3	1	1	..	1	4	1
20 & above	2	..	..	1	1	1	1	1	5

A=Debt free B=1-50 C=51-100 D=101-200
E=201-300 F=301-400 G=401-500 H=501-1000
I=Above 1000

Table No. X.

Size of holdings and indebtedness.

(Tenant)

Area in equivalent Chahi.	A	B	C	D	E
0 to less than 2½	186	123	41459	222.9	337.0
2½ " 5	176	140	51084	290.2	364.9
5 " 7½	174	140	59730	343.2	426.6
7½ " 10	136	112	53021	389.8	473.4
10 " 12½	112	90	39029	348.4	433.6
12½ " 15	56	41	25190	449.8	614.4
15 " 20	88	76	61947	703.9	815.1
20 and above	100	88	57824	578.2	657.1

A=Number of families with this holding.
B=" " indebted families
C=Total debt
D=Average debt per family
E=" " " indebted family.

Table No.XI.

Correlation table between size of holding and indebtedness.

(Tenant)

Size of holding	A	B	C	D	E	F	G	H	I
0 to less than 2½	68	26	25	25	14	8	9	10	6
2½ to less than 5	36	22	21	33	16	13	11	16	8
5 to less than 7½	34	17	26	16	11	12	22	26	10
7½ to less than10	24	10	15	22	20	6	10	18	11
10 to less than12½	22	6	8	19	12	8	12	19	6
12½ to less than15	15	5	6	5	3	3	5	6	8
15 to less than20	12	6	8	8	13	5	10	13	13
20 and over	12	8	14	10	7	11	7	17	14

A=Debt free B=1-50 C=51-100 D=101-200
E=201-300 F=301-400 G=401-500 H=501-1000
I=Above 1000

In general, in each group, the indebtedness per tenant family is less than the cultivating owner family.

Purpose of Debt.

Due to pressure of time, we shall only briefly touch upon the other aspects. Debts were classified as productive and non-productive. Without going into the propriety or otherwise of the classification, it may be pointed out that under the first were entered debts contracted for expenses of production, manure, seeds, sinking of wells, purchase of cattle, and under the second

were entered debts for expenses of living, taxes and expenditure on social ceremonies. The following table XII gives the percentage of productive and non-productive debts in the various groups:

Table No. XII.

	Percentage of productive debt.	Percentage of non-productive debt.
Ag.only	70.3	29.7
Ag.Main	76	24
Ag.Subsidiary	77.8	22.8
Non-Agriculture	82	18
All	75.8	24.2
Cultivating Owner	77.8	22.2
Tenant	76.7	23.3

The percentage of productive debt is a little high in the case of the Agriculture only group and very low in the non-agriculture group.

Sources of Debt.

In the schedule, the debts were classified as Mortgage, Co-operative, Bond and others. Hence there was a confusion between source and nature of debt. The following table XIII gives the percentage in terms total, in each group.

	Productive	Non-productive	Total
Mortgage	2.8	5.9	8.7
Co-operative	1.9	2.2	4.1
Bond	8.3	34.5	42.8
Others	11.2	33.2	44.4
Total	24.2	75.8	100

The debt due to co-operative societies forms 4.1 p.c., of the total debt and 8.1 p.c., of the productive debt. The remaining must have been borrowed from the village moneylenders.

Rates of Interest.

Entries were incomplete regarding the purpose for which debt was contracted, and the rates of interest. From the entries made, the rates of interest vary from 9 to 12 p.c., in the case of Co-operative Societies, 20 to 50 p.c., in the case of mortgage debts, and 12 to 40 in the case of loans on bond.

Banking Committee Enquiry into rural indebtedness in 1929.

An exhaustive survey of rural indebtedness was undertaken by the Banking Enquiry Committee of centrally administered areas in 1929. An intensive survey of 20 villages and another extensive survey of 511 Khalsa villages were undertaken. But the survey was undertaken from the point of view of banking viz. to in-

crease the credit facilities of the agricultural classes. In our survey, no doubt of humbel proportions, indebtedness is studied more in correlation to family living and greater emphasis is placed on the burden and incidence of debt. The analysis of the content and level of living made in chapter IX and X will provide a valuable basis for examining how far indebtedness has been influenced by the level of living. The dispersion in the debt per family, in the various groups classified according to occupation and level of living and the correlational study between indebtedness and the size of the holding (size reduced to a common measure) will, it is hoped, throw greater light on the relationships involved in the structure of debt.

XII.

PRODUCTION.

An account of the principal crops grown has already been given in Chapter III. The main factor which determines production is the volume, and distribution of rainfall over the months of the monsoon season. The following table gives the details for production and rainfall during the last ten years. Taking these ten years, judged by the total yield, three may be consideed good, three not bad and the remaining four distinctly bad.

In general for good crops, the volume of rainfall should average about 20 inches, made up of heavy showers in July and September with intermediate light showers. From the high percentage of failures in the Khariff area sown, it follows that it is more exposed to the risk of failure of rains than the Rabi. That is because, for the Khariff crop the cultivator begins his operations at the beginning of the Monsoon and, if later it does not con inue according to expectations, there is considerable failure. For example, the high percentage of failure viz. 53.6 in 1932-33 may be due to the very poor September fall. Again in 1936-37, the area in which crops failed forms 42 p.c., and the cause was the poor rainfall of July. The percentage of area where crops failed is highest in 1939-1940 due to insufficient total rainfall and the very low rainfall in July and September.

The percentage of afflicted area is very low for the Rabi. This seems to be due to the fact that it is not exposed directly to the vagaries of rainfall. By the time the Rabi season commences the monsoon is almost over and the cultivator has a definite idea of the available water-supply and hence he is in a position to adjust his operations accordingly.

Table No. I.

Rainfall and Production for the last ten years.

(Average Rainfall)

Year	For the year	June	July	August	Sept.	October
1939-40	10.79	3.0	1.2	3.6	.8	.
1938-39	14.06	4.1	6.0	2.5	.4	.6
1937-38	18.87	2.8	11.3	.3	3.6	.6
1936-37	14.68	4.3	3.4	2.3	3.8	.
1935-36	23.24	.7	10.6	3.1	6.9	.8
1934-35	23.80	3.3	4.2	13.8	1.4	.
1933-34	26.30	7.3	3.9	10.2	2.5	.2
1932-33	17.54	.2	5.5	10.5	.7	1.0
1931-32	23.84	.3	5.3	13.7	.2	2.7
1930-31	14.97	2.5	4.1	4.4	.4	1.6

Table No. I. (contd.)

(Production)

Kharif A	Kharif B	Kharif C	Rabi D	Rabi E	Rabi F	Rabi G	Remarks	Year
109570	78.2	102081		Survey			Famine	1939-40
128199	46.8	365596	24419	2.5	292872	658468	Bad	1938-39
156901	19.0	609683	47940	3.9	489374	1099057	Not bad	1937-38
147014	42.0	391744	51940	5.6	492117	883861	Bad	1936-37
147375	14.4	677691	88392	4.2	681803	1359494	Good	1935-36
155752	14.3	620259	80336	1.6	733607	1353866	Good	1934-35
148456	16.9	549734	102258	9.0	624983	1174717	Not bad	1933-34
150328	53.6	303735	58910	2.4	560194	863929	Bad	1932-33
152300	18.9	548730	85759	6.2	661912	1210642	Good	1931-32
143583	38.9	492377	62236	11.5	532462	1024839	Not bad	1930-31

A=Area sown in Acres
B=Percentage area failed
C=Yield in maunds
D=Area sown in acres
E=Percentage area failed
F=Yields in maunds
G=Total yield for the year

Data taken from the annual administration reports of Ajmer-Merwara. Production data relate only to the Khalsa area. Figures for Istimrari area are not available. The administrative report contains data for the Khariff of that year and the Rabi of the preceding year. In this table is given the figures for the Rabi of that year taken from the next year's report. It is only this Rabi which is influenced by the rainfall of that year.

The year under survey abnormal.

From table I it is clear that the agricultural conditions had been deteriorating from 1936 onwards. Finally it culminated in famine in August 1939. (See Chapter XI). The year under survey comprises the Rabi of 1939-1940 and the Khariff of 1940. The Rabi was under the severe grip of acute famine. Fortunately the monsoon set in in time for the Khariff of June 1940, and the average rainfall was 23.2 inches. However, it was not well distributed. It was 2.4 inches in June, 6.2 in July and 13.5 in August, nothing in September and only .5 in October. This affected the Khariff crop, and hence in spite of good rains, the Khariff harvest cannot be described as a good one. Thus the production figures for the year under survey do not reflect normal conditions.

Production during the year under survey.

The following table gives the area under each principal crop sown, the yield, and the yield per bigha, for all the villages surveyed. Unfortunately, separate figures for the irrigated and dry areas were not collected.

Table No. II.

Nature of the crop.	Area Sown in Bighas.	Percentage of Total	Yield in maunds per bigha.	Yield per bigha.
Maize	3686	27.3	6473	1.8
Barley	2292	17.0	8295	3.6
Joar	2140	15.9	855	.4
Bajra	2005	14.9	2467	1.2
Wheat	172	1.3	494	2.9
Gram	148	1.1	173	1.2
Cotton	2449	18.2	4672	1.9
Til	577	4.3	144	.25

Table III gives comparative figures for the yield per bigha in each crop (1) in our sample (2) in the village Jalia surveyed and (3) the average yield given in Lupton's Settlement Report. Recent figures for the last few years are unfortunately not available for comparison:

Table No.III.

Yield per Bigha in Maunds.

	Maize	Barley	Joar	Bajra	Wheat	Gram	Cotton
Sample	1.8	3.6	.4	1.2	2.9	1.2	1.9
Jalia	2.7	4.3	.1	..	4.5	3.1	3.1
Average in Lupton's Report	3.9	5.1	1	1.3	4.2	..	2.8

On comparing with the averages given in Lupton's Report, the yield is distinctly poor in all but bajra. Production had been exceptionally good in Jalia the biggest village surveyed. In consequence, our sample will give an exaggerated idea of actual production. Keeping this in mind, the estimate yield of food crops for the whole area works out to 875000 maunds.

How far has Cotton displaced food crops.

The important commercial crop is cotton. Of the 15 villages surveyed, cotton is extensively grown in 7 of the villages, all of which are Istimrari villages. We shall take up production in the cotton-cultivating areas and compare it with production in others. In the non-cotton villages there were 412 cultivating families, each having an average holding of 9.8 bighas and producing 13.7 maunds of food crops per holding. In the cotton producing villages, there were 852 cultivating families, cultivating at the rate of 10 bighas per family. In 7.3 of them they grew 15.2 maunds of food crops and in the remaining 2.7 bighas, they grew 5.5 maunds of cotton. This shows that these cotton cultivating families had produced more food crops per family than those who did not cultivate cotton. In addition they had produced 5.5 maunds of cotton. That was de-

cause, their holdings were better in quality, and hence the rate of production was higher. In Chapter ~~IX & X~~, the income from agriculture of these groups is examined. We do not know how far these Observations are true in a normal year.

In normal years, when the cultivator has a sufficiently large quantity of the produce to be disposed of, he takes it to the nearest Mandi, sells it direct to the retail dealer or a wholesale dealer through the agency of a commission agent.

When the produce to be disposed of is small, it is sold to the village dealer or to the agents of big grain-dealers who happen to visit the village. In any case, due to pressure of demands, the villager has to dispose of them immediately after harvest and cannot afford to store them and wait for a good price.

The average prices of food crops are given in elsewhere . The price of cotton varies from Rs.5 to Rs.6 per maund and that of til is Rs.4/- per maund. In the year under survey 81.2 p.c., of the food grains had been kept for consumption and hence there would have been little left for disposal.

XIII.

SUMMARY OF IMPORTANT CONCLUSIONS.

The results have been based on a random sample survey of 15 villages covering 1701 families, conducted in January 1941, on lines laid down by Bowley and Robertson in their scheme for an Economic Census of India. Government of India Publication (1934).

The sample chosen has been tested and found fairly reliable. Hence the conclusions derived from a study of the sample apply, subject to errors of record and errors of chance, to the entire rural population of Ajmer-Merwara.

OCCUPATION.

The family is the unit of economic life. 78.8 p.c., of the total number of families are agriculturists and 21.2 p.c., are non-agriculturists. Agriculture is (a) the only occupation for 12.3 p.c. (b) the main occupation for 51.7 p.c., (c) a subsidiary occupation for 14.8 p.c. The cultivating-owner families form 13.9 p.c. and the tenant families form 60.4 p.c. The landless labourers and the non-cultivating owners form insignificant percentages of 3.6 and 0.9 respectively. An idea of the economic conditions of these groups can be gathered from Summary Table II.

SIZE OF THE FAMILY.

(a) The average size of the family is 4.74. On an average for every 100 families there are 474 persons of whom 155 are adult males, 145 adult females, 48 grown up children between 10 and 13 and 126 children below 10.

The size of the agriculturist family is 4.98 and is distinctly larger than that of the non-agriculturist family, which is 3.54, and is made up of greater size in each age group.

It is not correct to assume that the average size corresponds to 1 adult male, 1 adult female and the rest children. A family consisting of three adults and two children is a close approximation to the average size of the agriculturist family.

The following cross-table gives the distribution of 1000 agriculturist families in various composition types :

Adults \ Children	0	1	2	3	More than 3	Total
1	60	19	7	8	3	97
2	72	64	78	62	46	322
3	67	60	54	51	36	268
4	29	26	38	30	24	147
More than 4	19	32	41	31	43	166
Total	247	201	218	182	152	1000

LAND.

On an average the cultivated holding per cultivating family comprises 4.9 bighas of Chahi, 3 bighas of Talabi and Abi, and 6.8 bighas of Barani lands. (2½ Bighas=1 acre).

For those for whom agriculture is subsidiary, the cultivated holding per family is very meagre in size and quality, and comprises 3.2 bighas of Chahi, 2 bighas of Talabi and Abi and 4.5 bighas of Barani.

The average holding of a tenant family is almost of the same size as that of a cultivator family, but of a slightly better quality.

Taking one bigha of Talabi, Abi and Barani to be respectively equal to ½, 2/4, and ¼ bigha of Chahi, the size of the average holding is 8.9 bighas (i.e.) 3.6 acres. More than two-thirds of the families have less than 4 acres and only 5 p.c., have more than 10 acres.

78 p.c., of the families have less than three plots of which 29 p.c., have single blocks. Only 3 p.c., have more than 6 plots.

Of the Chahi plots, 12 p.c., are plots of size equal to or less than a bigha. 73 p.c., are of size less than 5 bighas.

LIVESTOCK.

Mortality during famine : The percentage dead during famine of the bovine species (cows, bullocks, buffaloes) is 54. It is highest for cows (63 p.c.) and lowest for bullocks (35 p.c.). The percentage dead amongst the ovine species (sheep and goats) is comparatively low, being 17 p.c. At the time of survey the bovine strength of Ajmer-Merwara may be estimated to be 230 thousands with a margin of error of 30 thousands with a margin of error of 80 thousands. The total live-stock wealth is estimated to be 77 lakhs of rupees with a margin of 9 lakhs. The livestock wealth per family is Rs.95.

For every 10 cultivating families there are 13 bullocks. Nearly one-half of the families have no bullock and only one-third have a pair of bullocks. The area under cultivation per yoke is 13.6 bighas in equivalent Chahi.

PRODUCTION.

The Rabi of 1939 harvested in 1940 was poor on account of famine conditions, and the Khariff of 1940 was also not good on account of ill-distributed rainfall. The total produce of the two harvests may be estimated to be at the most 875 thousands of maunds. The Agriculture-Main group derived a net income of Rs.28.9 per family from land while for the Agriculture-subsidiary group, the income from land was only Rs.11.8 per family. The net income from land for the cultivating owner was Rs.20.9 per family whereas for the tenant it was Rs.31.

CONSUMPTION.

The total amount of cereals consumed by the rural population can be estimated to be ~~xxxx~~ 2733000 maunds with a margin of error of 54000 maunds. Of this 24 p.c., was grown and 74 p.c., purchased. The following table gives the amount of each cereal consumed in terms of the total amount, and the average price of each cereal :

	Percentage of amount consumed in terms of total	Average price per maund in rupee.
Wheat	13.4	4.78
Barley	41.2	3.25
Maize	25.5	3.15
Joar	8.0	3.27
Bajra	11.9	2.44

The above figures are valuable in determining the cost of living index.

Consumption scale by Economic Research : The following consumption scale which was one of the principal objectives of the analysis, gives the proportions of the cost of food consumption in different age-sex groups, and has been obtained from the data collected by making use of the statistical method of fitting Regression Equations :

Food Consumption Scale : Comparative statement showing (1) Scale worked out from our data (2) Aykroyd's scale based on nutritional requirements (Govt. of India Health Bulletin No.23).

Age-sex	Consumption scales obtained here.	Aykroyd's scale
Adult Male 14 years & above	1	1
Adult Female 14 years & above	0.79	0.80
Child 10 to 13	0.68	0.74
" 4 " 9	0.47	0.50
Infant 0 " 3	0.33	0.26

(Aykroyd has given the scale for each age. Here we take the weighted average in each group, the weights being the percentage of the population in each group in our sample)

The fairly close resemblance between the two scales obtained from different considerations is striking. It is hoped that the above result will be of permanent value for farm-family studies in Ajmer-Merwara and elsewhere in India.

Making use of the above scale, the total rural population may be estimated to be equivalent to 283000 adult males. The average size of the family is equivalent to 3.54 adult males. The following table gives the cost and details of food consumption and clothing per adult male, worked out from the data, by making use of the above scale.

FOOD-CLOTHING EXPENDITURE PER ADULT MALE PER ANNUM.

A. Total expenditure on food and clothing per adult male Rs. 44-2-0 R.44-

B. Expenditure on clothing 7-11-0
C. " " food 36- 7-0
D. " " cereals 29-12-0
(see price list)

D. Amount of Cereals consumed is 8.93 maunds per annum.
Amount consumed per day is 15⅓ chattaks=33⅓ oz=890 grams.

E. Composition of cereals consumed per day.

Cereals.	Quantity in grams	Calorific value.
Wheat	120	412
Barley	366	1226
Maize	288	776
Bajra	105	378
Joar	71	252
All	890	3044

F. The diet is however deplorably poor in quality and lacking in protective foods.

ECONOMIC LEVELS OF LIVING.

The classification of families into various economic levels is based on the consumption expenditure per adult male. This is the method advocated as the best by the International Labour Office in their publication entitled, "The method of family living" studies, Bulletin No.23 (1940). The following table gives the percentage distribution of families in each level, and the average content of living in each level :

ECONOMIC LEVELS & CONTENT OF LIVING.

Levels of Living.	Percentage of families in each level.	Consumption in maunds per annum A	B	C	D	E	Masala oil,etc. in Rs.	Clothing in Rs.	F
Much Below Food-clothing Expenditure per adult per annum Less than Rs.15	1.5	0.52	1.40	0.36	0.43	0.11	2.92	3.31	3.23
Below Rs.15 & under Rs.35	19.2	0.29	3.13	2.27	1.52	0.52	7.73	2.39	4.98
Average Rs.35 & under Rs.55	49.9	0.78	4.41	0.94	2.82	0.95	9.90	5.39	7.09
Above Average Rs.55 & under Rs.75	21.1	2.87	3.75	0.76	2.77	0.84	10.99	10.43	9.83
Much above Average Rs.75 & above	8.3	4.68	4.03	0.75	2.97	0.65	13.08	27.62	19.69

A=Wheat
B=Barley
C=Bajra
D=Joar
E=Maize
F=Total

It is found that, as the level of living rises, the amount of cereals consumed, the quantity of wheat consumed, the cost of masala etc., and clothing increases. The cost of food and clothing per adult male, although it varies much from village to village, does not vary much amongst the occupation groups. Taking the occupation groups, as regards the distribution of families in the various levels, there are no wide differences. As regards the quantity of cereals consumed, while the agriculturist consumes 9.4 maunds per annum, the non-agriculturist consumes only 7.7 mds. per annum.

The level of living is influenced by the family size, and the size of the holding in the case of the cultivating family. As the level of living increases, the family size decreases, and the area of the holding in equivalent Chahi increases. (For an idea of the economic conditions of families in each level, see Summary Table IV.)

INCOME.

The net annual income per family is Rs.119 or Rs.33.6 per adult male. For the agriculturist it is Rs.108.9 whereas for the non-agriculturist it is Rs.157 per family.

The highest percentage of income is from labour and other unskilled labour, being 40.4. The income from agriculture forms only 19.5 p.c., while the income from dairy is practically nil. The percentage of income from the remaining sources are Service 12.7, Trading 7.6, Moneylending 4.9 and Miscellaneous 5.4.

FAMINE INCOME & LEVEL OF LIVING.

40.2 p.c., of the families were traced to have worked in famine camps. Let us call them famine families. The income from famine was Rs.73.8 famine family and the total net income per famine family was Rs.110.5, whereas the net income for all families was Rs.119. Thus famine families had almost come up to the general level and the famine income forms 66.9 p.c., of the net income. Nearly two-thirds of the famine families had received more than 50 p.c., of their net income from famine; 27.8 p.c., of the famine families had suffered losses under other sources like Agriculture and Dairy. But for income from famine relief, they would have instead of earning any income suffered losses.

Amongst the famine families, as the level of living rises, the average income per family and the income from famine, which forms the major percentage of the net income, also rises. It follows that the famine income has been mainly responsible for higher level of living.

The agriculture-main group had contributed the highest percentage of families for famine works, and the income per family from famine was also highest being Rs.79.9. The agriculture-only group had contributed the least percentage and earned the least income from famine. As between cultivators and tenants, the former had contributed a greater percentage of families and earned more income from famine.

The income and economic conditions of those engaged in various forms of skilled labour, those in service, traders and moneylenders are summarised in Summary Table III.

INCOME & LEVELS OF LIVING.

The average income is only Rs.33.6 per adult male, whereas the average food-clothing consumption per adult-male is 44.1. Thus income could not even defray the cost of food and clothing. This is so in all occupational groups excepting the non-agriculture-only group and the tenant group.

As the level of living rises, income also increases. Although it is not enough for consumption expenditure, it seems to be the major factor determining the level of living.

SOCIAL CEREMONIES.

The annual expenditure on minor ceremonies like festivals, anniversaries etc., works out to Rs.14 per family. The expenditure on marriages and funeral feasts work out to Rs.320 per family. Out of 63 families for whom there were entries under this head, 24 had spent more than 10 times their income on major ceremonies.

INDEBTEDNESS.

The average debt per family is Rs.346. The estimated amount of indebtedness for the whole province is 277 lakhs with a margin of error of about 50 lakhs. 29 p.c., of the families are free from debt. The debt per indebted family is Rs.487. The debt per agriculturist family is Rs.396 and the debt per indebted family is Rs.499. Amongst non-agriculturists the debt per family is very low, being Rs.160. This is mainly because the percentage indebted is as low as 40.2 p.c. Hence the debt per indebted family is Rs.397. In the agriculture groups, the percentage indebted, and the debt per family are highest in the case of the cultivating owner, being 91.9 and Rs.489 respectively.

Although the average debt is Rs.346, there is wide dispersion about it. Excluding the 29 p.c., free from debt, 31 p.c., have debts below 200. Only 21 p.c., have debts between Rs.300 and Rs.500, and 19 p.c., debts above 500, of which 8 p.c., have above Rs.1000. It follows that there is an uneven distribution of the burden of indebtedness and the average is misleading. Distinctive remedial measures are needed on the one hand for the large percentage with debts below the average, and the few with high debts.

As the level of living rises, the average debt per family increases, remains steady at the Average and Above-Average level and increases, while the percentage of the indebted rises and falls.

Amongst cultivating-owners classified according to size of holdings, almost all are indebted in each group, the average debt per family increases, as the size rises upto 5 acres of equivalent Chahi. Afterwards there is no

In the case of tenants, the above observations are true up to 4 acres. The average debt per family in each group is less than the corresponding figure for the cultivating owner group.

Productive debts form 24.2 p.c. In the agriculture-only group it is highest (29.7 p.c.) and naturally the percentage is lowest for the non-agriculture group, being 18. The debts due to Co-operative societies form 4.1 p.c., of the total debt, and 8.1 p.c., of the productive debt.

An idea of the economic conditions of families in the various villages can be gathered from Summary Table I.

The statistical analysis of the data and the report-writing had to be done in great hurry. In many cases the full implications of facts and figures could not be brought out due to pressure of time. There was hardly time for improvement of presentation and proof reading. It is hoped however that with all these imperfections, the results presented will be sufficiently comprehensive to enable one to piece together a picture of an economic life in the rural areas of Ajmer-Merwara.

ACKNOWLEDGEMENTS.

It is now my duty to give expression to my debt of gratitude to the Superintendent of Education, Ajmer-Merwara and the Principal, Government College, Ajmer for their kind permission to take up this work.

Let me express my grateful thanks to the Superintendent of Census, Rajputana and Ajmer-Merwara for his uniform kindness, great encouragement and valuable help in my report writing. I am indebted to the Commissioner, Ajmer-Merwara for giving me an opportunity to place before him the main results of the survey, and for granting me permission to have access to the library and to relevant data available in his office. Mr. Goyal the Superintendent of the Commissioner's office had always been obliging. I am also thankful to the Registrar Co-operative Societies for granting me access to the library of his office, to the Director International Labour Office, New Delhi, for sending me their publications, to Mr. A.K. Sharma, Settlement Officer, Ajmer-Merwara and Mr. K.K. Joshi, Headmaster, Government Normal School for giving me the benefit of their intimate knowledge of rural life.

Lastly I shall be failing in my duty if I do not express my sincere gratitude to my friends Mr. S. Subramanam, Statistical Assistant to the Economic Adviser, Government of India, Dr. Junaid, Economic Assistant to the Economic Adviser, and Mr. V.G. Pendharkhar of the Imperial Council of Agricultural Research for their expert guidance and advice. Amongst others for whom my thanks are due should be mentioned Mr. Sastri, Statistician, Madras University, Mr. Kishen, Statistician, Agricultural Department U.P., Mr. B. Sitaraman, and my pupil Mr. Choga Lal.

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SUMMARY TABLE No. I.

Economic Conditions of the Villages.

Name of Village.		Number of Families	Population.	Size of the Family	Annual Food-clothing expenditure per family in rupees.	Net Annual Income per family in Rs.	Indebtedness per family in rupees.
Baheran	A	54	244	4.51	155.3	73.5	223.9
Hansiawas	A	57	305	5.35	122.3	99.5	137.5
Lehshwa	A	115	524	4.55	110.0	83.4	368.3
Pharkia	A	129	571	4.42	151.2	104.7	503.5
Amarpura	B	33	140	4.24	201.7	87.7	72.4
Daulatpura	B	106	620	5.84	186.5	41.6	314.5
Jalia	B	608	2780	4.59	157.3	118.8	293.8
Karwai	B	16	74	4.63	172.4	141.4	300.6
Nayanagar	B	69	256	3.71	158.2	207.9	194.6
Ravatmal	B	123	514	4.18	217.5	200.1	431.1
Surajpura	B	18	96	5.33	240.7	177.4	150.8
Barla	K	118	617	5.23	174.7	141.1	527.6
Jetpura	K	102	532	5.22	183.2	121.8	230.6
Nimera	K	110	572	5.20	194.9	112.9	378.2
Talera	K	43	225	5.23	189.7	100.5	1044.4
Total	-	1701	8079	4.74	166.5	119.1	345.6

SUMMARY TABLE No. II.

Economic Conditions of the various occupational groups.

	Number of Families.	Population	Size of the Family.	Annual Food-clothing expenditure per family in rupees.	Net Annual Income per family in Rs.	Indebtedness per family in rupees.
Agriculture Only	207	970	4.66	166.5	61.5	441.4
" Main	879	4646	5.28	181.8	119.1	421.2
" Subsidiary	252	1176	4.66	161.0	107.0	269.1
Non-Agriculture	361	1278	3.54	133.8	156.9	159.6
Cultivating Owner	236	1115	4.72	187.5	152.3	488.7
Tenant	1028	5409	5.26	174.4	98.1	378.7

SUMMARY TABLE No. III.

Economic Conditions of Skilled Labour and other groups.

	Number of Families.	Size of the family in units.	Food-clothing per family.	Net Income per per family.	Indebtedness per family.
Shoe-making	81	3.94	166.5	114.4	254.5
Weaving	42	2.55	113.7	111.6	180.0
Carpenter	25	3.46	148.5	67.7	385.2
Potter	32	3.74	191.3	113.8	312.5
Blacksmith	11	3.18	145.4	120.1	154.5
Barber	21	3.77	146.2	82.7	309.7
Moneylender	11	3.48	401.2	956.2	790.9
Trader	76	3.44	217.0	218.2	325.2
Service	117	3.45	196.0	246.1	245.5

SUMMARY TABLE No. IV.

Economic Conditions in various Levels of Living.

Levels.	No.of Families.	Size of the family in consumption unit.	Annual food-clothing per family in Rs.	Net Income per family in Rs.	Indebtedness per family in Rs.
Much below average	26	2.92	53.3	33.0	168
Below average	326	3.89	121.2	82.8	252
Average	849	3.64	176.1	101.5	366
Above average	359	3.26	211.2	143.6	369
Much above average	141	2.88	304.6	258.6	420

SUMMARY TABLE No. V.

Percentage Distribution of Families according to Economic Levels of Living.

	Much below	Below	Average	Above	Much above
All families	1.5	19.2	49.9	21.1	8.3
Agriculture Only	1.9	20.1	54.1	17.2	6.7
" Main	0.7	18.5	52.3	21.7	6.8
" Subsidiary	2.4	26.2	44.4	19.1	8.0
Non-Agriculture	2.8	15.2	45.4	23.3	13.3
Cultivating Owner	0.8	17.0	39.8	28.4	13.9
Tenant	1.4	19.7	54.4	19.2	5.2
Families in Famine Camps.	0.4	17.1	54.6	22.3	5.6
Skilled labour	1.5	19.2	49.9	21.1	8.3
Money lender	-	20.0	-	-	80.0
Trader	-	10.5	22.4	36.8	30.3
Service	0.8	10.3	41.9	29.9	17.1

APPENDIX A.

Instructions for filling up the Questionnaire for the Economic Survey.

HEADING.

With the help of the Census record, enter at the top of the form the code numbers of the Tehsil, Charge, Circle, House and Family.

(A) NAME OF THE HEAD OF FAMILY.

Enter the exact occupation and avoid vague terms such as 'service' or 'writing' or 'labour'. In the case of agriculture, distinguish between persons who do not cultivate personally, who cultivate their own land, who cultivate rented land and who are hired labourers. Distinguish also persons who work on Batai (share croppers). If a person makes the articles he sells, he should be shown as 'maker and seller' of such articles.

(B) SIZE OF FAMILY.

For the purpose of this section, a family includes all residents who are living under one roof. 'Resident' excludes person living and working most of the year outside the village, but includes person working outside (on road, etc.) and living in the village.

Child means any person of less than 14 years of age.

(C) FOOD CONSUMPTION.

Write down the various quantities of food consumed. Then calculate carefully the money value of these quantities. The group leaders, to satisfy themselves, should compare their rates.

As there is no index number for the various commodities consumed by the villagers, fixing of the rates requires great care on the part of the investigators.

We are making money the standard unit: we must, therefore, try to convert other units into terms of money. Much of the value of the survey, indeed, depends on the skill which an investigator shows in converting all other units into the standard unit - money.

(D) LAND.

There are various kinds of land tenures in Ajmer-Merwara, i.e., Jagir, Khalsa, Bhom, Udak, etc.

Where rent is paid in cash or a share of the crop is taken, show clearly which Crop-sharing (batai) must be converted, of course, to cash.

In the case of an owner of land, show clearly the total area, but differentiate between the land which the owner cultivates himself (or by paid servants) and the land which he leases out to others. In the case of land cultivated by himself

(or servants) no rent is to be shown in column 3 of (D), but should be entered in column 2 of (E) against 3. Any other means of livelihood. Similarly, rent received by leasing lands to others should be shown in a note and repeated against heading 3 of (E) under column 2. In making entries under this heading, it should be clearly shown whether the land is Barani, or Chahi, Talabi, etc. Where more than one plot of land is held by the family, separate entries for each plot showing the area and rent should be made, and in addition a note given as to the approximate distance from one plot to another.

(E) FAMILY RECEIPTS AND EXPENDITURE.

(a) Agriculture:- Includes all agricultural products, but excludes dairy produce. Enter the money value of all agricultural products, whether consumed or sold or stored. In the column of expenditure enter the amount spent on seed, hired labour, rent, depreciation, etc.

(b) Dairy:- Enter the money value of all products, whether sold or not. Under expenditure, for instance, enter the money value of chara, phus, etc., whether grown by the cultivator or purchased.

(c) Any other means of livelihood:- This includes income from sources other than Agriculture, Dairy, Wages, Gifts and Interest on investment.

(d) Wages:- Enter the income from their head, under receipt, but if the person is getting in kind, then enter the money value. If the family keeps a servant for domestic purpose enter the amount of the servant's wages in the expenditure column.

(e) Lent, Borrowed:- Enter the amount under different heads. If the transaction is in kind, convert it into money value.

(f) Given to relations:- Enter the money value of all such gifts against their item under Expenditure. In the same way gifts received from others should be entered under the heading 'Receipt.'

(g) Food:- From (c) Food Consumption, enter the total money value under the heading 'Expenditure' against this item.

(h) Clothing:- Enter the money value against this item under heading 'Expenditure'. If the family is producing the cloth or yarn for their own clothing, or using a portion of their own products, in that case, enter the amount of cloth so used under the heading 'Expenditure'.

(i) Social Ceremonies:- Enter the amount expended by the family. Great care should be taken to differentiate this item from (f). In all cases, care must be taken that duplicate entries

are not made.

(j) Interest, etc:- Enter the receipt and expenditure under different heads. If it is in kind convert it into cash.

Note.- For the purpose of B, C, D, E, G, H, K and L take an account of last 12 months only.

(F) CATTLE

Enter the various numbers of cattle under the different heads given and write down also the prices of various groups. Thus, cows 10 (Rs.200/-) means that this family possesses 10 cows, the market value of which is Rs.200/-.

(G) PRODUCE.

Under the heading 'purchased' enter the quantity of seed purchased.

(H) OCCUPATIONS OTHER THAN AGRICULTURE.

The Remarks Columns (5 & 6) should be used to their fullest extent.

Under Remarks Column 6 for 'commodity produced' give, if possible, a short note as to how and when the commodity is marketed.

(I) INDEBTEDNESS.

If the loan was taken in kind, convert it into cash.

N.B.- Do Not enter the debits contracted in the current year under these heads: such debts have already been entered against (E) 5.

(J) FAMILY RECORD.

In Column No.2 enter at the top, the head of the family, then write down relations of this head of the family, showing their relationship to this head of the family e.g. wife, son, brother, first brother's wife, second brother's son or daughter, etc. In Column No.1 write down serial numbers, but in the case of members who have died and those members who are not 'residents' put a cross against them in Col.1 e.g., son who is serving in military at Bombay, daughter given in marriage, a son who has died, etc.

Col. 3. Write down the interval of successive issues.
" 4. Age at the time of first marriage.
" 5. Present age.
" 6. If dead - age at death.
" 7. In the case of well-educated people, write down standard which he (or she) has passed in other cases, write simply 'literate' or 'illiterate'. If 'literate' add in brackets the script in which he (or she) can read and write.
" 8 to 11. Enter the months spent in various occupations.
" 12. Put total of items from cols.8 to 11.

(K) OTHER PROPERTY.

Write down the money value under various heads.

(L) MISCELLANEOUS.

Write down the various answers at the distation of the head of the family.

NOTE ON ECONOMIC SURVEY FOR GROUP LEADERS ONLY.

Write an essay on the village under investigation, touching upon the following points:-

1 Physical feature of the village.

2 Land Tenure system.

3 If there is a School, mention the number of boys and girls attending the school.

4 Important fairs and assemblages.

5 Total area.

Khalsa	Banjar Kadim	Banjar Jadid	Cultivated area with classes of soils.
Jagir			
Udak			

6 Give the number of wells (a) in use (for agricultural purposes) (b) capable of use now, and 20 years ago.

7 Are wells' irrigation assisted by tanks or canals ? If so, when and to what extent and for what crops ?

8 What taccavi has been taken for (a) Sinking of wells, (b) other improvement, (c) purchase of cattle, fodder, seed, during the last ten years ?

9 Were the instalments repaid with ease ? If not, how were they paid ? Were any coercion processes necessary ? Was there any attachment and sale of property ?

10 Is taccavi popular ? Are loans taken from money-lenders when taccavi might be taken ? If taccavi is not popular what are the reasons, as given by the Zamindars ?

11 What (a) remission (b) suspension of land revenues have been granted during the last ten years ? Why were they granted in each case ?

12 Have any new or improved implements been introduced in the village within the last ten years ? If so, whence have they been obtained ?

13 Have any selected varieties of seeds, as recommended by the Agricultural Department, been adopted in the village ? If so, what kind ? Give, if possible, the increase in yields or other advantages obtained from the use of selected seeds.

14 Distance of Demonstration Farm. How many demonstrations have been made during the last

ten years ? Give also the number of cultivators who have witnessed such demonstrations. Is there any arrangement for such demonstration at important fairs ? If so, name such fairs.

15 The distance of veterinary hospital. Does the Veterinary Assistant visit the village regularly or only when called ?

16 Are outbreaks reported promptly to the V.A., and are they promptly attended to ? How much confidence have the people in the efficacy of inoculation against epidemics ?

17 Is it the prevailing opinion that epidemics are commonest in times of fodder scaricity ?

18 Is it true that Chamars and others interested in the purchase of hides are sometimes held to be responsible for spreading disease maliciously ?

19 Number of Bulls, Bullocks, Cows, Young stock (Calves) Male Buffaloea, Female Buffaloea, Young stock, Goats, Sheep, Horses, Hares, Young stock (Colts and fillies), Mules, Donkey, Camels, Elephants, Ploughs and Carts.

20 Is there any rain-gauge ? If not, what is the distance of nearest rainguage ? Give, if possible, the monthly figures of rainfall for the last ten years.

21 Are there grounds for supposing that the rainfall has decreased annually ? If so, to what extent and at what rate is it decreasing ?

22 What is the condition of water-level ? Is it going down ?

23 Can you say that the area under forest is decreasing or increasing ?

24 Write a short note on cottage industry found in the village with your suggestions for further improvement.

25 Give the average quantity (last 10 years) of six important crops with average prices.

26 Write a short note on marketting.

27 A brief note on the outbreak of epidemics during the decade (1931-41) and the preventive measures taken.

28 Have any members of any Criminal Tribes settled there during the decade ?

29 What kind of offences were committed during the last ten years in the village ?

-------:-:-------

(J) FAMILY RECORD.

No.	Description.	† Interval.	*Age.			Education.	Time spent annually in various occupations.				Total.
			M.	P.	D.		Agri.	Weav.	Cash Earner.	Others.	
1	2	3	4	5	6	7	8	9	10	11	12

ECONOMIC SURVEY.

Tehsil. Jalia **Charge No.** **Circle.** **Village.** Jalia **House No.**

(A) NAME OF THE HEAD OF FAMILY. **Serial No.**

Principal Means of Livelihood. **Religion.** **Family No.** 25th January 1941

Other Means of Livelihood. **Caste.** **D**

(B) SIZE OF FAMILY.

1	2
Adult M.	
„ F.	
Child M.	
„ F.	
Total.	

(C) FOOD CNSUMPTION.

Food.	Quantity. Grown.	Quantity. Purchased.	Rate. Rs.	Rate. As.	Rate. Ps.	Value. Rs.	Value. As.	Value. Ps.
1	2	3		4			5	
Barley								
Wheat								
Bajara								

(D) LAND.

Land.	Area.	Rent.
1	2	3

Head.	Receipt.	Expenditure.	Remarks.
1	2	3	4
1. Agriculture			
2. Dairy			
3. Any other livelihood			
4. Wages.			
5. Lent			
Borrowed			
6 Interest on or received			
7. Given to rel			
8. Food			
9. Clothing			
10. Social ceren			
Total			

FAMILY RECEIPTS AND EXPENDITUHE.

(F) CATTLE.

	Bullocks,	Cows	Calves,	Goats.	Horses.	Male Buffaloes.	She Buffaloes.		
	1	2	3	4	5	6	7	8	9
At present owned:—									
Died during period of famine 1939-1940:—									

(G) AGRICULTURAL PRODUCE.

Crops.	Area.	Quantity. Grown.	Quantity. Sold.	Quantity. Purchased.	Rate. Sold.	Rate. Purchased.	Value. Income.	Value. Expenditure.
1	2	3	4	5	6	7	8	9

(H) OCCUPATIONS

Means of livelihood other than agricul

Does the family work in some cottage

Name such industry.....

If Spinning or Weaving state number

Description of Raw Materials.	Grown	Quantity. Purchased.	Rate.	Value.	Remarks.
1	2	3	4	5	6
Total ...					

Description of commodity produced.	Cons	Quantity produced. Sold.	Rate.	Value.	Remarks.
1	2	3	4	5	6
Total ...					

(I) INDEBTEDNESS.

	For productive purposes A.	For non-productive purposes B.	Total.	Rate of Interest. on A,	Rate of Interest. on B.
1	2	3	4	5	6
Mortgage					
Co-op					
Bond					
Others					
Total					

'HER THAN AGRICULTURE.

re.....

ıdustry ?.....

Charkhas or Looms.....

APPENDIX E.

Physical Features and Rural Life.*

In order that the results of the analysis of the Survey may be understood in their proper perspective, it is necessary to view them against a background depicting the physical features of, and rural life in the area under survey. Such a background can be drawn from the Gazetteer of Ajmer-Merwara (1904), the Settlement Report (1910) and a recent book on Ajmer by Harbilas Sarda. (Fine Art Printing Press Ajmer 1941). Let us briefly summarise the main features, retouched where necessary in the light of recent data. The details are taken up in the respective chapters.

Ajmer-Merwara is a tract under British Administration. It lies in the heart of Rajputana surrounded on all sides by Indian States. Excluding the 115 villages, retroceded in April 1938 to the neighbouring states of Mewar and Marwar, it has an extent of about 2440 square miles and comprises 708 inhabited villages and 5 towns. For purposes of administration, it is divided into 3 units, the Tehsils of Ajmer, Beawar and the Kekri subdivision, comprising respectively of 213334 and 161 inhabited villages.

The province lies across the Aravalli Hills, which, starting from the ridge at Delhi, reach their greatest height at Ajmer, disappear 10 miles from Ajmer, then re-appear as a double range meeting at Todgarh. The country slopes on every side from Ajmer.

The province is the debatable land of the North East and South West Monsoon and beyond the full influence of either. The rainfall exhibits wild fluctuations from year to year place to place and in intensity. The average rainfall for the last 20 years is 19.9 inches. For details of rainfall, and its effect on production see Chapter XII.

There are few rivers, and even they are torrents during the rainy season, drying up later. The ground being rocky, even the scant rainfall would run down and be lost but for a few natural and many artificial tanks formed by embarkments across the gorges in hills, and depressions in the plains. The tanks, numbering 870, are of vital importance to the agriculturists. They prevent soil erosion, accummulate the silt from the hills, deepen and improve the soil. Above all they are the main underground feeders for the 30921 wells, each one of them forming the most valuable possession of the cultivator, the very heart of his small holding supplying the life blood of water to his crops. (See also Chapter VI on Land.)

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* The figures relating to villages are mostly taken from the Village Directory (1941) prepared by the Superintendent of Census Operations, Rajputana and Ajmer-Merwara.

The water supply from the wells ultimately depends on the rainfall since there is no permanent underground source. If the rains fail in two consecutive years, the tanks go dry, and, in consequence, the wells. Agricultural operations are paralysed, and then follow the ravages of famine, which is not uncommon in Ajmer-Merwara. (See Chapter X on famines.)

Of the total area of 1381608 acres 354403 acres forming 25.7 p.c., are under cultivation. Of the cultivated area 23.8 form Chahi lands, irrigated from wells. 6.5 p.c., form Talabi lands irrigated from tanks, 6 p.c., Abi lands formed by beds of dried-up tanks and the remaining 63.7 p.c., are Barani lands, without irrigation facilities. The soil is in general of poor quality and needs heavy manuring. Of the various types of land, the Chahi is the most precious on account of the irrigation facilities from the wells.

The principal food crops are maize, joar, barley, bajra, wheat and gram. During the year there are two crops. The Khariff, or summer crop, is usually sown in June or July and harvested about the end of October. The Rabi or winter crop is sown about the end of October and harvested in April of the next year. Barley and wheat are Rabi crops and are sown mostly over irrigated areas. Maize is a Khariff crop. Joar and Bajra are Khariff crops grown over dry areas. Besides, the two important commercial crops grown are Til and Cotton. Sugar cane is cultivated on a small scale round about Pushkar. Of the two crops, the Khariff crop is the main-stay of the agriculturist on account of the valuable return from cotton. For details of production during the year see Chapter .

Now we turn to the most important subject of study, the villager. Of the total population of 580619, 373447 persons (i.e.) 64.3 p.c., live in villages. Of the 708 villages, 474 have a population of less than 500, 145 between 500 to 1000, 61 between 1000 to 2000, and 28 above 2000. There are, in all, 80961 rural families, so that the average size of the family is 4.61. For further details on the size of the family, see Chapter .

Land Tenure.

Of the total area of 2440 square miles, 1281 square miles are held by Istimrardars, 235 by Jagirdars, 148 are Forest areas and the balance of 776 square miles form the Khalsa area administered by Government. In the Khalsa area, the State is the formal proprietor. But then, by improvements made, the cultivators have acquired rights against ejectment and a right to mortgage. Practically they are now the owners of the land. The Istimrari areas were once given to the Istimrardars under obligation of military service. Now they are the proprietors of the land and are allowed to manage their estates and are not interfered with provided they pay the fixed cess to Government. The cultivators are, according to law, tenants-at-will although, as remarked by Watson

in the Gazetteer (1904), there are good grounds to hesitate to adopt this opinion, since the tenants, by virtue of the permanent improvements they have made in their lands, have practically acquired certain rights over that land.

The holdings, whether owned or cultivated, are small and uneconomical as seen elsewhere. Most of the holders have some subsidiary occupation or other, although the choice is much restricted. The important subsidiary occupations are dairy farming and cattle-breeding, agricultural labour, grass-cutting, grazing, and collecting of wood from jungles. Most of the village artisans have small pieces of land. The joys and sorrows of the villager arise or disappear according as the rains come seasonally in required quantities or not. In the course of ten years only two or three years are good. Thus the income from land is meagre and uncertain and the cultivator finds it a difficult job to make both ends meet. For their habits of food, clothing, sources of income, and state of indebtedness, see the respective chapters.

In normal years cattle thrive, since about a third of the total area is cultivable but not cultivated and hence available for grazing. The animals are of poor quality. In times of scanty rainfall there is considerable fodder scarcity and hence high mortality.

The agricultural implements used are still those as used by their ancestors. The benefits of modern implements, selection of seeds, and preservation of manure do not seem to have touched the villager.

There are 106 miles of railway running through the district, 248 miles of metalled road and 274 miles of unmetalled roads. The latter have been constructed in many cases as famine works.

Villages selected for survey.

Of the 15 villages selected, four are from Ajmer Tehsil, 7 from Beawar, and 4 from Kekri. Seven have a population of less than 500, 7 between 500-1000 and one a population greater than 2000. Eight are Khalsa villages and 7 are Istimrari villages.

As will be seen from the details given in the various chapters and the summary tables, the villages reflect quite well the heterogeneous nature of the tract. The population, family size, nature of the holdings, production, the content and levels of living, vary from village to village. However, it should be borne in mind that we are not interested in these villages in particular. They have come in by chance. It is the average based on them which is more important, and which forms the basis for the estimate for the whole province. The variations from village to village indicate the degree of dispersion about the average.

We are more interested in the variations amongst the different economic groups obtained by classification according to occupation, level of living etc. With this in view, we will not place much emphasis on the details for each village and the distribution village-wise.

APPENDIX C.

Mathematical Appendix.

CALCULATION OF THE CONSUMPTION SCALE.

*****

Age-Sex-Groups.

The members of the family differ from one anotner in age and sex and hence in their food consumption. It is practically impossible to work out the consumption need of every type. We have for convenience divided them into the following five groups based on natural differences. (a) Adult Male, being one of age equal to or greater than 14 (2) Adult Female (3) Children between the ages 10 to 13 (4) Children between the years 4 to 9 and (5) Infants of three years and under. As observed already the grown up children between 10 to 13 assist the father in the farm work and thus add to the economic strength of the family. The children below 10 may be regarded as complete dependants.

Formation of Normal Equations.

Let Y be the food consumption expenditure of any family and x_1 x_2 x_5 the respective numbers of members in each of the five groups in the family. Taking the Kth. family, let y^k be the expenditure of the family and let the number of members in that family in each group be x_1^k x_2^k x_5^k. The food consumption depends linearly upon the number of members in each group, in as much as, to any addition in the number of members of any group leads to a proportionate increase of food consumption.

Let $y = c_1 x_1 + c_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + c_6$ denote the linear relation which best fits with our observation.

The problem is to find the constants $c_1, c_2, \ldots c_6$. From the principle of least squares, $E(y^k - y)^2$, the summation extending over all the 1701 families, should be a minimum(i.e.)

(i.e.) $E(y^k - c_6 - c_1 x_1^k \ldots c_5 x_5^k)^2$ should be a minimum.

Hence $E_k(y^k - c_6 - \ldots c_5 x_5^k) = 0$.

$$E_k (y^k - c_6 \quad c_5 x_5^k) x^k = 0.$$

$$r = 1, \ , 3, 4, 5.$$

These lead to the normal equations :

$$Y = nc_6 + c_1 x_1 + c_2 x_2 + c_3 x_3 + c_4 x_4 + c_5 x_5$$

$$Y_1 = x_1 c_6 + c_1 x_{11} + c_2 x_{12} + c_3 x_{13} + c_4 x_{14} + c_5 x_{15}$$

$$Y_2 = x_2 c_6 + c_1 x_{21} + c_2 x_{22} + c_3 x_{23} + c_4 x_{24} + c_5 x_{25}$$

$$Y_3 = x_3 c_6 + c_1 x_{31} + c_2 x_{32} + c_3 x_{33} + c_4 x_{34} + c_5 x_{35}$$

$$Y_4 = x_4 c_6 + c_1 x_{41} + c_2 x_{42} + c_3 x_{43} + c_4 x_{44} + c_5 x_{45}$$

$$Y_5 = x_5 c_6 + c_1 x_{51} + c_2 x_{52} + c_3 x_{53} + c_4 x_{54} + c_5 x_{55}$$

Where $Y = y^k$

$Y_n = y^k x_n^k$

$X_n = \sum x_n^k$

$X_{ns} = \sum_k x_n^k x_s^k$ the summation extending from k = 1 to k = 1701 (total number of families).

Computation of the above Coefficients.

From the data of y_1 x_1, $x_2 \cdots x_5$ of each family the above quantities Y, Y_1, X_1 X_{15} are computed. In order to have a check along with the calculation of Y_1 $Y_1 \cdots Y_5$ the quantity $Y_s = y^k(1 + x_1^k \cdots + \cdots x_5^k)$ was also calculated and it was verified whether $Y_s = Y + Y_1 + \cdots + \cdots Y_5$ for every sheet containing data for about 30 families.

The following were the actual normal equations:

$233970 = 1701\ c_6 + 2614\ c_1 + 2451\ c_2 + 839\ c_3 + 1393\ c_4 + 729\ c_5$.

$450474 = 2614\ c_6 + 5581\ c_1 + 441\ c_2 + 1437\ c_3 + 2429\ c_4 + 1306\ c_5$.

$423708 = 2451\ c_6 + 4412\ c_1 + 5044\ c_2 + 1333\ c_3 + 2532\ c_4 + 1315\ c_5$.

$150391 = 839\ c_6 + 1437\ c_1 + 1333\ c_2 + 1231\ c_3 + 923\ c_4 + 390\ c_5$.

$255592 = 1393\ c_6 + 2429\ c_1 + 2532\ c_2 + 923\ c_3 + 2696\ c_4 + 875\ c_5$.

$129822 = 729\ c_6 + 1300\ c_1 + 1315\ c_2 + 390\ c_3 + 875\ c_4 + 1016\ c_5$.

It is not easy to solve the above equation in six unknowns by the usual algebraic methods. Hence the method of Doolittle is employed with the help of a calculating division Machine, keeping figures correct to three places of decimals.* Here also a check was employed at every step. The introduction of checks involves a lot of extra labour. But it is more than recompensed by the fact that the computations are assued to be cent-per-cent correct.

We thus got finally after a month's labour the following values of $c_1 c_2 c_3 c_4 c_5 c_6$.

C	10.47
C_1	36.44
C_2	28.71
C_3	24.64
C_4	17.20
C_5	12.21
C_6	10.47

---

* For details about this method see Mills Statistical methods applied to economics and business Page 655.

With the above values of the constants, the equation:

$$y = c_6 + c_1 x_1 + c_2 x_2 + c_3 x_3 + c_4 x_4 + c_5 x_5$$

best represents y linearly in terms of x.

Interpretation of the constant C.

If we increase the number of members in any group (say the r th group) by one, y increases by C_r. Hence C_r is the consumption expenditure in rupees per annum of one member of that group. The constant term C_n denotes the constant expenditure of the family which is independent of the size of the family.

Fitness of Regression Equation.

We shall now examine how far the equation fitted is significant, by an analysis of variance. The sums of squares due to deviations from the regression function is given by $(y^k - y)^2 = Y_{11} - c_1 y_1 - c_2 y_2 - c_3 y_3 - c_4 y_4 - c_5 y_5 - c_6 y_s$ where Y_{11} denotes the sum of the square $(y^k)^2$. Y_{11} was found to be 45971396 whence the sum of squares due to deviations from the regression function is 5,222859.

The total sum of squares due to deviations from the means is $\sum(y^k - \bar{y})^2$ where $\bar{y}$ is the mean value, was 12964359. Hence the analysis of variance takes the following form:

ANALYSIS OF VARIANCE.

Source of variation	Sum of squares	Degree of freedom	Mean Square.
Regression function $\sum(y-\bar{y})^2$	7,741,500	6	1,290,250
Residuals $\sum(y^k-y)^2$	5,222,859	1695	3081
Total $\sum(y^k-\bar{y})^2$	12,964,359	1701*	

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* We have taken the degrees of freedom to be 1701 since the deviations are measured not from the mean determined from the data, but from the origin. -See Tipett. Methods of Statistics - Page 212.

$$Z = \tfrac{1}{2} \operatorname{Log}_n \frac{\sigma_1^2}{\sigma_2^2} = 3.0164$$

For n = 6, n = 1695 1 per cent point of Z is .5152.

The value of Z is thus much above the 1 p.c. point value.

Hence the multiple correlation is clearly significant. In fact the multiple correlation is:

$$R = \frac{\Sigma(y - \bar{y})^2}{\Sigma(y^x - \bar{y})^2} = .77$$

Standard errors of the Regression Coefficients.

We shall now examine to what extent the regression coefficients $C_1 \cdots C_5$ are affected by sampling errors. If s^2 stands for the mean variance due to the residuals viz. $\frac{(y_x - y)^2}{1695}$, the standard error of the regression coefficent C is $s\sqrt{\frac{A_{pp}}{D}}$ *

where D is the determinant.

$$\begin{vmatrix} X_{11} & X_{12} & X_{13} & X_{14} & X_{15} & X_1 \\ X_{21} & X_{22} & X_{23} & X_{24} & X_{25} & X_2 \\ X_{31} & X_{32} & X_{33} & X_{34} & X_{35} & X_3 \\ X_{41} & X_{42} & X_{43} & X_{44} & X_{45} & X_4 \\ X_{51} & X_{52} & X_{53} & X_{54} & X_{55} & X_5 \\ X_1 & X_2 & X_3 & X_4 & X_5 & X \end{vmatrix}$$

and A_{pp} is the determinant forming the Cofactor of X_{pp} in the above determinant. These determinants were evaluated by following the method of simplification given in Whittaker and Robinson's Calculus of observations Chap. V and the standard error of each regression coefficient was worked out. The results are given below :

S. (Root mean square) = 55.51.

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* See Fisher Statistical Methods for Research Workers Chap V. 29.

Regression Coefficients and their standard Errors.

Multiplier	Standard Error.	Regression Coefficient.
·053	2·92	10·47
·028	1·56	36·44
·030	1·66	28·71
·036	2·00	24·64
·029	1·62	17·20
·040	2·21	12·21

It will be easily tested and found that all the coefficients are significantly different from zero.

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APPENDIX D.

"The Lessons I Learnt."

(By Dr. N. K. Joshi.)

One feels diffident in writing a note based only on observations in connection with an inquiry that will draw up conclusions on the basis of data collected by an extensive inquiry in different villages. One cannot however help to arrive at certain tentative conclusions when faced with sare situations and conditions in villages hundreds of miles away from one another. Supervision of the work of survey groups makes one realize the problems of village life and the immensity of the work to be done to ameliorate the conditions of the villagers. It is for this reason that I have given this note the heading, "The Lessons I Learnt."

1. Education.- Every person in the family of a peasant is an economic asset. Even a child has its duty and its quota of labour towards the hard struggle for existence of a village peasant. This breeds in him an apathy towards school education that keeps his children shut up in a class-room for the best part of the day. This aspect of the question is understandable. But the reasons advanced by the villagers for their indifference towards education were quite different. In many villages they asked me point blank, "What good has education done to any villager ? As soon as a boy passes some examination, he is lost to his parental occupation. He becomes an economic liability to his parents. Do you want us to increase the drones in the village or send our young men adrift into the towns in search of employment ?" It cannot be denied that there is much truth in what the villagers say. While the question of educated unemployment is forcing us to cry, "Back to Villages", the annual expenditure of lakhs of rupees over the rural education in the province is leading to the growth of an urban outlook among village lads which is to be deplored. If the poor peasants are to be induced to send their children to the schools, the present system of education will have to be overhauled and reconstructed to meet the rural needs. Let the rural schools teach what an agricultural population ought to know in order to get the greatest good out of life. Let the schools prepare the youths to earn remunerative living out of land. Let the schools provide the kind of instruction required to keep the people in the enjoyment of good health and become responsible members of the village group. If the schools were organized to accomplish these things, they would approach the correct conception of education as held by the wise and old villagers. A prophet is not needed to predict that the villagers apathy towards the present education will then turn into enthusiastic support for this-"New Education."

2. Rural Indebtedness.- There is hardly a peasant in Ajmer-Merwara who is not overburdened with debts. During the survey, the villagers were somehow unwilling to give true facts regarding their debts. In the majority of cases the expenditure of the family has been shown to be higher than the income. The villagers could not explain how it happened. From personal inquiries I found that villagers generally were loathe to give out those debts incurred by mortgaging the silver and other trinkets of their womenfolk. It is also a fact that a villager becomes desperately fearless of the mounting debts as long as there is a sahukar willing to give him a few rupees to tide over his difficulties. He does not know and does not care to know how much he has to pay. A hungry man cannot be overcautious as to

what he puts his name to. The Sahukar finds an what he puts his name to. The Sahukar finds an opportunity in the necessity of the villager to make him sign or put his thumb impression in his 'Bahi' as to the amount he tells the poor villagers is due towards him, without trying to understand how much and what it is. In spite of all that is said against the village 'Bania' and paradoxical as it may seem, the village sahukar is a necessity in a village and without him the villagers would be worse off.

The causes of rural indebtedness can be summarised thus: 1. Small and unremunerative holdings; 2. Insecurity of crops; 3. Heavy assessment and the rigid mode of collections, (mostly in Istamarardari areas). 4. Usurious rates of interest; 5. Expenditure in marriages and other ceremonies and 6. Litigation.

Rural indebtedness is an all India question and in recent years the Provincial Governments have become alive to their responsibility for improving the economic status of the villager. They have adopted various measures to relieve the rural indebtedness. Of these the following may be cited. 1. Land alienation acts, 2. Debt conciliation acts, 3. Money Lenders Regulations, 4. Establishment of co-operative credit Societies. The first and the last of the above list are in the statute books of Ajmer-Merwara and it would go a long way to relieve the pressure of old debts as well as give a better control over new debts, if the other two regulations were introduced, with modifications in Ajmer-Merwara.

Co-operative Credit Department has been working in Ajmer-Merwara for the last 40 years. I believe it is working well in urban and semi-urban areas. It has, however, failed to reach the villager for whose benefit the department is primarily meant. The villager considers the department a bad one - a severe exacter, the department probably considers the villagers to be dishonest. A pithy Marwari couplet which I learnt in the villages, if taken as a guide by all those who have to realize money from the poor peasants, would bring about happier relations between the government departments and the villagers. The couplet runs thus:

पहले पेट रो, पाछे सेठ रो,
पछे राजरो, पाछे ब्याज रो,

'From the peasant's earnings, his living is first to be provided for, then the claims of the Seth (Money lender) but in doing so, the Raj (Govt.) demand is to be met first and then the interest'.

3. Rainfall.- Rainfall in Ajmer-Merwara is precarious and partial. This is mainly due to its physical environment and to the fact that the province lies on the border of an arid zone. Dr. Mukherjee of the Lucknow University has been of the opinion that the arid zone is slowly and gradually extending towards the east and may one day cover the whole of Rajputana unless something is done to stop its course. There is a

wide-spread belief in the villages that rainfall has been decreasing in Ajmer-Merwara. This is also corroborated by the figures of the annual average rainfall for the last 70 years.

1869-79	1879-89	1889-99	1899-09	1909-19
24	22	20	19	18½ inches.

It seems that there are certain years of peak rainfall and others of minimum rainfall in Ajmer-Merwara. These variations seem to take a definite line and lead us to conclude that the rainfall in Ajmer-Merwara comes in cycles of 5 to 7 years. Two or three years of bad rainfall, followed by a year or two of average rainfall, ending in a peak year. As this has continued during the course of about half a century of which we have records, it may be safely relied upon for our future planned course. The question that faces the administrator and the agriculturist in Ajmer-Merwara is how to conserve the water of peak and average rainfall years to be utilized during the lean years.

4. Production.- The survey this year is not likely to give a true picture of the productive capacity of the land, whether Chahi or Barani. Half of the year was a time of famine and there was total failure of crops. The figures will give the produce of the Khariff crop and the partial produce of the rabi crop of the villages where well-water was available during the winter. The average produce is very low and I don't think that it will come more than the figures given below.

Cotton	10 to 12 mds. per acre
Wheat	16 to 18 "
Barley	18 to 20 "

5. Livestock.- While the expenditure of several lakhs of rupees by the Government on the famine relief benefitted the villagers to a very great extent, so much so, that many of the villagers were better off, in many respects, during the famine than they are at present. On the other hand, the failure of the rainfall has hit the livestock very hard. In one of the villages there was hardly a milch cow and in almost every village the loss to the livestock has been very great. Ajmer-Merwara is well-suited to the breeding of cattle and sheep. Before the present disaster, the livestock population of Ajmer-Merwara was fairly good. The reduction in the livestock population owing to famine is likely to be 40%.

The loss of the milch cows has effected the health of the villagers and their children. There was hardly a family in the rural areas that was not affected by the Malarial fever (famine fever as some people would like to call it!). The loss of working days and consequent reduction in the produce of the Khariff crop has been immense. The diminution of livestock is likely to reduce the productivity of soil for some years to come owing to the shortage of manure. It is imperative that something be done to check the reverse of the wise saying of Sir Hohn Russel, "More cattle, more manure; more manure, bigger crops; bigger crops, more cattle.

6. Cottage Industries.- How the cottage industries have almost been rooted out of the villages of Ajmer

Merwara can only be realized when one goes into the villages. It can hardly be doubted that a large number of villages in Ajmer-Merwara used to turn out cloths known as Rezi, Khas, Charkhana for local use. All kinds of cloth is now purchased from the market. It is time that something is done to introduce at least spinning and weaving in the villages as a spare time industry. Those who argue that the competition of the mills will not allow the revival of the cottage industry forgot a salient point. The introduction of spinning and weaving in the villages will lead to a double choice to the villager; employment with a little costly cloth and unemployment with cheaper cloth. The villager will inevitably prefer the first as he has hardly any means to purchase goods however cheap they may be.

7. Some Difficulties of the Villager.- More than a hundred years ago, Mr. Edmonstone described the people of Ajmer-Merwara as reckless, improvident, poverty-stricken and much in debt. That was in 1835. In the year 1941 one would not be far wrong in describing the plight of the villagers of this small province in the words of Mr. Edmonstone above. During the last one hundred years, the government has done much in the way of opening up of communication, spreading education, providing cheap credit, remission of land revenue, and digging of tanks and wells. Inspite of all these, the villager has remained the same, 'improvident, poverty-stricken and much in debt'. Col. Heale once summed up the difficulties of the villagers in Ajmer-Merwara in three words --- Ignorance, Poverty and Lack of Water. Everyone would agree with Col. Heale that the greatest difficulties of a villager are poverty and lack of water, but I do not consider that Col. Heale was right in saying that the villagers are ignorant. My experience of village life has convinced me that though the villager is more than often illiterate, he is certainly not deficient in shrewdness and practical wisdom. He understands what is good for him. He would take up to anything if it was within his means and he was sure that it would bring him better crops. He is averse to experiments. He simply cannot afford to make them. He would not and cannot learn things from those who may best be termed as laboratory experts. Citing only one example out of many, if instead of opening expensive agricultural farms, the government were to make its agricultural officers to grow better crops in the land of the villagers, guiding and helping the villager and experiencing the difficulties of the farmer, it would do much more to convince the villagers for miles round of the advantages of new methods than flourishing crops grown in the farms at an expenditure beyond the reach of any villager.

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PART II

DEMOGRAPHIC SURVEY

By:- D.M. Jain and H.C. Kothari

FERTILITY AND NET REPRODUCTION IN RURAL AREAS OF AJMER-MERWARA.

By D.N. Jain and H. C. Kothari.

"The Success of an organism in leaving a numerous posterity is not measured only by the number of its surviving offspring, but also by the quality or probable success of these offspring." (R.A. Fisher).

The oldest method of measuring fertility known to English knowing people is probably given by John Graunt (1662). It is based on relating the number of births occurring in a certain period to the number of marriages contracted in that period.* To apply this method to India is out of the question, since there is no registration of marriages in ~~that~~ this country.

Later on it was conceived that increase or decrease of the population depends on three factors:-

(1) Number of Births
(2) Number of Deaths
(3) Balance of immigration and emigration.

In Rajputana there is not a single State which maintains the record of birth and death+, it is only the British District of Ajmer-Merwara where one can find such records. The following tables based on these records will be useful in studying this interesting subject.

Table No. 1

Year	Population
1901	476912
1911	501395
1921	495271
1931	560292
1941	643504

Table No. 2

Decade	Births	Deaths	Difference of (1) & (2)
1	2	3	4
1901-10	160053	171436	-11383
1911-20	193490	238319	-44829
1921-30	160312	131964	+23348
1931-40	210830	170504	+40326

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* The Measurement of population growth by Dr. Kuczynski.

\+ Recently information has been received that Alwar Darbar has passed an Act by which registration of birth and death is secured.

Table No. 3

Year	Immigrants	Emigrants
1901	93113	25293
1911	95112	84110
1921	109890	42437
1931	106444	60903
1941	Not available	

From Table 1 we see that the population of Ajmer-Merwara in 1901 was 476912 and in 1911 it was 501395. This shows that its population increased by 24483 from 1901 to 1911. But if we look at Tables 2 and 3, this increase cannot be accounted for, because there is actually an excess of deaths over births and also more people left Ajmer-Merwara than those who entered Ajmer-Merwara during the decade 1901-10. Applying this test to the figures for the other decades, we come to the same conclusion, namely that our birth and death records as well as immigration and emigration cannot satisfactorily explain our population growth and our vital records are much below the actual facts.

We have seen in the last paragraph that the actual number of births in Ajmer-Merwara is much higher than the recorded number of births shown in Table 2. The application of the ingenious method devised by Thompson and Welpton of U.S.A., shows that the omissions to report births in Ajmer-Merwara is about

$$100 - \frac{193490}{221029} \times 100 \text{ or } 15\%$$

Table No. 4

Showing the number of persons enumerated according to age group up to 10 in the Census of 1921.

Age		Number enumerated
0-1		14344
1-2		7385
2-3		10951
3-4		12270
4-5		11142
5-10		68491
0-10	Total	124583

Table No. 5

Actual number of deaths at different ages in the decade 1911-20.

Year	0-1	1-5	5-10
1911	6396	5056	869
1912	7127	4659	768
1913	4736	2273	388
1914	5554	3537	411
1915	4745	2496	328
1916	5698	5960	1036
1917	8794	12387	4255
1918	4887	5802	3564
1919	3647	2604	737
1920	3514	1816	568

Assuming this to be the case with mortality also, the deaths during the decade out of those born in the decade comes to $96446 \times \frac{115}{100} = 110013$.

A small allowance may now be made for the number of children of these years among the immigrant population. The total balance of migration in favour of the province is 67453. The proportion of children under 10 years in the population of the province is about 25%. The proportion in the immigrant population will be much less. It will not be far wrong to take it as 10%. The accession to the population of ages 0-10 by balance of migration would therefore be 6745. The number of births during the decade 1911-20 would therefore be at least 124583+110013-6745=227851.

This number of births for the total population (average of 1911 and 1921 i.e., 501395+495271 divided by 2) gives a proportion of 45.9 per thousand population, while the recorded number of births for the decade calculated on the same population gives a ratio of 38.9 per thousand population. Applying the same method to the figures of the decade 1921-30 we come to a better approximation of the number of births than that assumed number of 2 lacs on page 3 of the Census report for 1931 for the province of Ajmer-Merwara.

Table No. 6

Showing the number of persons enumerated according to age group in the Census of 1931.

Age	Persons enumerated
0-1	18658
1-2	16777
2-3	17360
3-4	16647
4-5	15613
5-10	68572
Total below 10	153627

Table No. 7

Actual recorded number of deaths at different ages in the decade 21-30.

Year	0-1	1-5	5-10
1921	3953	2537	628
1922	3100	1702	365
1923	3818	2959	417
1924	3754	2486	530
1925	3408	2672	577
1926	4108	3479	611
1927	3401	3105	516
1928	3625	3382	491
1929	4056	3399	435
1930	3660	3166	656

By calculation we arrive at this result: that the total number of deaths during the decade out of

those born in the decade is 61492. Here the omissions to report approximates 30% instead of 15% in the last decade. Making the necessary corrections for the omissions to report deaths and the balance of migration in the age group 0-10, we come to the conclusion that the total number of births approximates 153627+61492+26353+2191=243663 and the birth rate to 46.1 per thousand population, as against 30.4 for the decade calculated from the recorded number of births to the mean population of the decade. This also compares favourably well with the corrected* death rate calculated from the mean expectation of life at birth.

$$\text{Corrected death rate} = \frac{1000}{\text{mean expectation of life at birth}}$$

$$= \frac{1000}{25.96}$$

$$= 38.5.$$

If we had relied on the crude birth rate of 30.4 calculated from the recorded births, it would not have been possible for us to account for the corrected death rate of 38.5 and still to show an increase of the population in the decade 1921-30. But our approximate birth rate of 46.1 explains well the corrected death rate of 38.5 and also accounts for the real increase of population in the decade to a sufficient degree of accuracy. The assumed number of births of 2 lacs by the Census Superintendent for 1931 meets the problem only half-way.

Table No. 8

Number of persons enumerated according to age group up to 10 in the Census of 1941.

Age	Persons enumerated
0	8686
1	16501
2	18372
3	19972
4	18415
5-9	90668
Total below 10	172614

Table No. 9

Recorded number of deaths at different ages

* It eliminates all the misleading effects of the actual age composition of the population. (Dr. Kuczynski.)

in the decade 1931-40.

Year	0-1	1-5	5-10	
1931	3477	3935	737	
1932	4073	2844	401	
1933	4526	4091	644	
1934	4562	3850	618	
1935	4463	4109	667	
1936	4090	2965	437	
1937	4970	4715	592	
1938	4367	3776	554	* Figures of New Ajmer-Merwara only.
1939	3793	3150	482	
1940	5201	8434	1374	
1938	4825	4172	612	* Adjusted figures for the original Ajmer-Merwara up to 1937.
1939	4191	3481	533	
1940	5747	9319	1518	

We have seen how the deducted birth and death rates explain the increase of population. No doubt they do so but only for the past and present population growth. The excess of births over deaths shows an increase of population. "The birth rate shows the percentage by which our population increases through the birth of the children, but since it is calculated without regard to the age and sex composition of the population, it does not afford an adequate gauge for the measurement of fertility." Most members of the population are incapable of giving birth to children. "A community entirely masculine in sex would inevitably die out. Nor would the importation of unlimited numbers of women over 45 years of age rescue that community from its doom. A community depends on the survival upon its women of child bearing age. For other essential services, substitutes may be found. Shortage of workers in one service, in one department of industry may be relieved by the transfer of workers from another; and in industry this process has been facilitated by the enormous development of machinery. But for the women of the child bearing age, there are no substitutes. They have a monopoly for ever secure against all competitors."+ Hence in the more recent literature on population, stress has been rightly laid upon the fallacy of predicting the future trends of population from the registered birth and death rates, calculated on the total population.

Now the question arises: if our birth and death rates do not possibly lead us to any result regarding the future trend of population - what are those methods by which it may become possible to glance at the future of population growth. For these more refined methods of reducing into the future population, the students of population are indebted to Dr. Kuczynski. The application of these methods requires a knowledge of the age of the mother which each child is born, or, in other words, the number of children born to the women at different ages in a year. This information though available in many of the European countries and in England as well from 1938 after the passing of the Population Act, is still out of question in India including Ajmer-Merwara. In the absence of

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+ Population: Today's Question by G.F. McCleary.

Table No. 10.

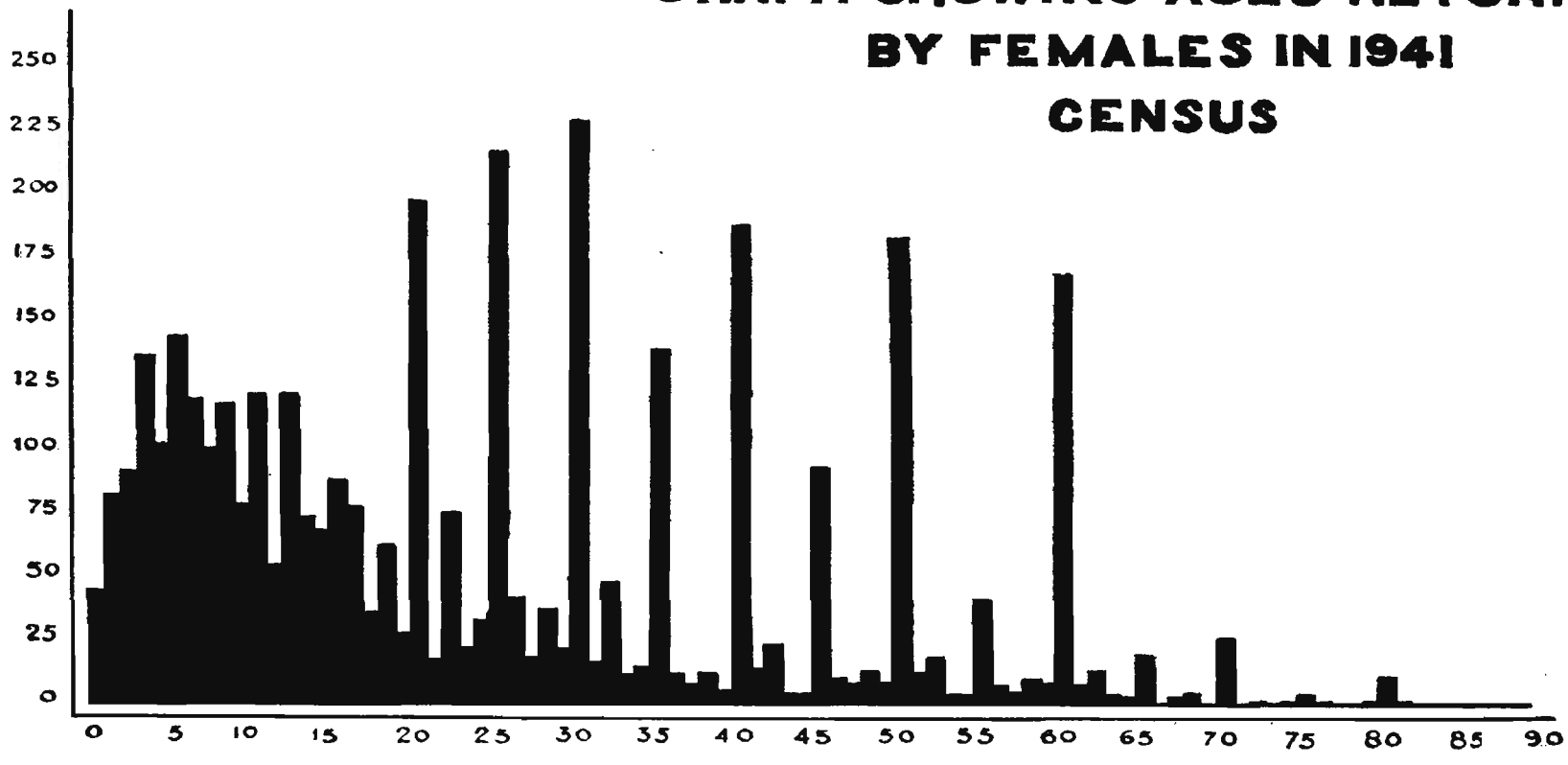
Actual Numbers of Women Returned at Different Ages and Children Born to them in the 15 Villages Selected by Random Sampling in Ajmer-Merwara.

Age.	Unmarried.	Married.	Widows.	Total Females.	Children born to married women.	Children born of widows.	Total Children.	Age.	Unmarried.	Married.	Widows.	Total. Female.	Children born to married women	Children born of widows.	Total Children
0	45	0	0	45	0	0	0								
1	75	2	0	77	0	0	0	46	0	8	1	9	47	0	47
2	91	0	0	91	0	0	0	47	0	6	1	7	40	4	44
3	137	1	0	138	0	0	0	48	0	7	6	13	43	18	61
4	95	7	0	102	0	0		49	0	3	4	7	23	25	48
5	137	7	1	145	0	0	0	50	0	82	100	182	446	342	788
6	108	12	0	120	0	0	0	51	0	7	4	11	52	20	72
7	89	11	0	100	0	0	0	52	0	8	10	18	38	54	92
8	103	14	0	117	0	0	0	53	0	2	2	4	11	12	23
9	59	20	0	79	0	0	0	54	0	2	2	4	17	4	21
10	86	35	0	121	0	0	0	55	0	21	21	42	106	99	205
11	37	18	0	55	0	0	0	56	0	4	3	7	14	25	39
12	62	58	1	121	0	0	0	57	0	2	3	5	16	11	27
13	36	36	2	74	0	0	0	58	0	3	7	10	15	36	51
14	13	53	2	68	0	0	0	59	0	4	4	8	25	11	36
15	21	66	1	88	1	0	1	60	1	28	140	169	159	518	677
16	7	70	0	77	8	0	8	61	0	1	5	6	7	12	19
17	3	31	1	35	5	0	5	62	0	0	13	13	0	61	61
18	0	61	2	63	27	3	30	63	0	1	1	2	7	0	7
19	0	27	0	27	11	0	11	64	0	0	1	1	0	5	5
20	7	187	3	197	177	2	179	65	0	2	17	19	13	84	97
21	0	16	0	16	21	0	21	66	0	0	0	0	0	0	0
22	1	72	2	75	102	2	104	67	0	0	1	1	0	6	6
23	1	21	1	23	35	1	36	68	0	0	4	4	0	31	31
24	0	34	0	34	77	0	77	69	0	0	0	0	0	0	0
25	0	210	9	219	518	17	535	70	0	4	23	27	13	100	113
26	0	40	1	41	123	4	127	71	0	0	0	0	0	0	0
27	0	19	0	19	57	0	57	72	0	0	1	1	0	0	0
28	0	35	2	37	129	1	130	73	0	0	0	0	0	0	0
29	0	20	1	21	68	3	71	74	0	0	1	1	0	0	0
30	0	209	21	230	829	50	879	75	0	0	3	3	0	13	13
31	0	14	2	16	56	5	61	76	0	0	1	1	0	6	6
32	0	42	6	48	222	13	235	77	0	0	0	0	0	0	0
33	1	8	2	11	46	5	51	78	0	0	0	0	0	0	0
34	0	12	1	13	66	4	70	79	0	0	1	1	0	5	5
35	0	120	20	140	597	71	668	80	0	1	10	11	7	48	55
36	0	11	2	13	65	13	78	81	0	0	0	0	0	0	0
37	0	9	0	9	38	0	38	82	0	0	0	0	0	0	0
38	0	8	4	12	49	6	55	83	0	0	0	0	0	0	0
39	0	5	0	5	32	0	32	84	0	0	0	0	0	0	0
40	2	128	58	188	691	226	917	85	0	0	2	2	0	16	16
41	1	9	4	14	68	13	81	86	0	0	0	0	0	0	0
42	0	18	4	22	106	6	112	87	0	0	0	0	0	0	0
43	0	4	0	4	19	0	19	88	0	0	0	0	0	0	0
44	0	3	1	4	24	0	24	89	0	0	0	0	0	0	0
45	1	60	31	92	355	119	474	90	0	0	0	0	0	0	0
								Total	**1219**	**2039**	**577**	**3835**	**5721**	**2130**	**7851**

such data it was no wonder that Prof. Gyan Chand of Patna thought it impossible to calculate the Net rate of reproduction in India as late as 1939, which would have provided a much better method of estimating the rate of growth of our population than the ordinary method of deducting death rate from the birth rate. But thanks to our present Census Commissioner for India, Mr. M.W.W.M. Yeatts, recent reform in the census questionnaire has made possible the application of more refined methods to the population growth of Ajmer-Merwara and to India as well, though indirectly for the present.

In the absence of data available to us for the whole of the province of Ajmer-Merwara, we consider it more appropriate to apply these methods to the data collected for the 15 different villages selected by means of random sampling during the course of the Economic Survey conducted along with the Census operations of 1941. The sample when tested in different ways was found to be very satisfactory and to represent fairly the rural population of Ajmer-Merwara. The total number of slips examined was 8167 out of which 79 were rejected on account of the non-entry of the ages of the person concerned. Out of the remaining 8088 slips, 4253 were Males and 3865 Females. Out of 3835 Females 1219 were unmarried, 2039 married and 577 widows. The number at different ages and children borne by them are given in tabular form in Table 10.

A cursory glance at Table 10 shows the reader that the figures of age returns are far more accurate. Errors are quite common in the age returns of all countries. Inspite of the great improvements made in the method of recording the age from census to census, it has not yet been found possible to eliminate the errors altogether from the returns, even in countries like Great Britain and the United States. The inaccuracies of the age returns of India are well-known and have been discussed fully in almost all the previous Census reports of the various provinces as well as of India. The diagram below clearly shows the preference for stating the age in round numbers such as 20, 30, 40, 50, 60, 70 and next in preference to 35, 45, 55, 65 and so on. Hence before the Census figures can be subjected to a mathematical analysis, it is necessary to correct the errors in the statement of age which are inherent in the population statistics of all countries. These errors are more in degree in an uneducated population which is unfortunately the case in India.



The Smoothing of the Error.

The theory of graduation is based on the principle that, if correct ages were returned, the numbers at different ages would form a smooth and continuous progression. Graduations would, therefore, enable us to eliminate the inaccuracies in the age returns and would at the same time show the correct distribution of the population by individual ages. But considering the nature and the amount of the error in the age returns it seems doubtful whether even accurate mathematical formula of correction would be able to iron out the roughness in the data near the quinary and decennial ages. Hence whatever the methods adopted, the final results cannot be anything more than a rough approximation to the actual state of affairs.

Grouping should be adopted to minimize the effects of the accidental errors that affect age returns. There are several methods for grouping and these were discussed at length by Mr.L.S. Vaidyanathan on page 126-135 Census of India, 1931 Vol.1 part 1. Following his recommendation, we have employed what is technically known as "4th place method" for our present data.

Number of females and children to women according to age.

Age Group.	Unmarried.	Married.	Widows.	Total Females.	Children born to Married.	Children of Widows.	Total of Children.
1	2	3	4	5	6	7	8
0	45	..	..	45	..	..	..
1	75	2	..	77	..	..	..
2	91	..	..	91	..	..	..
3	137	1	..	138	..	..	..
4	95	7	..	102	..	..	..
5-9	469	78	1	548	..	..	..
10-14	333	209	4	546	5	..	5
15-19	62	306	6	374	149	3	152
20-24	5	355	10	370	609	16	625
25-29	1	322	21	351	1025	45	1070
30-34	1	352	29	382	1054	88	1142
35-39	2	172	52	227	992	189	1114
40-44	..	120	48	170	682	173	855
45-49	..	100	84	184	588	295	877
50-54	..	64	69	133	354	280	634
55-59	1	38	110	149	207	431	638
60-64	..	17	83	100	101	325	426
65-69	..	3	30	33	16	142	158
70 and over	..	3	30	33	12	143	155
Total	1219	2039	577	3835	5721	2130	7851

Earlier in the course of this discussion it was pointed out that birth rate, calculated without regard to the sex and age composition of the population, does not afford an adequate gauge for the measurement of fertility. If in a given population the percentage of women of child-bearing is large, the birth rate is likely to be high even although fertility is weak, while, if the percentage of women of child-bearing age is small, the birth rate is likely to be low, even if fertility is strong. It has therefore become customary to measure fertility by relating the number of births to the number of women of child-bearing age. It is called the general fertility rate and it represents the number of births per 1000 women of the child-bearing years. Expressed mathematically the General Fertility rate is

$$\frac{\text{Births in a year}}{\text{Number of women of the child-bearing years in that year.}} \times 1000.$$

By the statisticians of most countries the child-bearing age is taken to be from 15 to 50 years. But in India the conditions are different, both socially and climatically. The lower limit of 15 years suits India well in comparison to many of the European countries, as reproduction starts here early. But the upper limit of 50 years is well above the period when women have passed their reproductive period as

will be seen from the tables to follow. Women in the period 45-49 do not seem to add to the population, while even in the period 39-44 the addition is very small in proportion of the total births. But the number, though small, is not negligible and it seems preferable to adopt 15-44 years as the limits of the child-bearing period. The actual reproductive period seems to stop at 42 in the interval 40-44.

If, then, the child-bearing age is assumed to cover the period from 15-44 years, the general fertility rate is the number of births per 1000 women between 15 and 44 years. This rate indicates how much the women of child-bearing age add to the population through births. It is evident that if the percentage of women of child-bearing age among the total population were always and everywhere the same, say 25%, the general fertility rate would always and everywhere be 4 times as large as the birth rate, the proportion of the general fertility rate would be exactly the same as that of the birth rate, and there would be no point in computing the general fertility rate. But the proportion of women of child-bearing age to the total population varies considerably in different countries. In 1930 the proportion per cent was 26.99 in Denmark, 28.01 in England & Wales, 26.98 in Scotland, 26.67 in France, 29.02 in Germany.

The percentages for Ajmer-Merwara for 1921, 1931 and 1941 are 21.6, 22.1 and 21.78 respectively.

For our sample it is 21.7 for 1941. Since the variation of the sample to the population is not significant the results derived from the sample may be accepted in confidence.

Table No. 13

Showing the number of women in the child-bearing period with children born to them.

Age Group.	No. of Women.	No. of total children.	Yearly No. of ~~Deaths~~ births
1	2	3	4
15-19	374	152	60.8
20-24	370	625	83.3
25-29	351	1070	85.6
30-34	264	1142	65.3
35-39	227	1114	49.5
40-44	170	855	31.1
Total	1756	4958	375.6

General fertility rate = $\frac{375.6}{1756} \times 1000$

Birth rate calculated from this method = $\frac{375.6}{8088} \times 1000$

= 46.4

which figure compares favourably with the figure calculated by Thompson and Welpton's method in an earlier section. In the course of the above calculation for yearly births, it has been assumed that 152 births in 15-19 groups have taken place in the course of 2½ years, since some women have entered this group, others have passed one year, others 2-4.9 years. In the case of 20-24, groups there have been taken as the cumulative effect of 7½ years and so on for other groups. It has also been assumed that fertility has remained the same throughout the period, which is not the case, though this has been somewhat balanced by reason of the decrease in the younger groups and the increase in the fertility among the older groups.

Specific Fertility Rates.

The general fertility rate indicates how much the women of child-bearing age add to the population through births. It would have been an excellent provision of Providence had fertility remained at a constant level throughout the child-bearing period. But there are wide variations. Fertility is much higher in the earlier than in the latter years of the period. After the 30th year it falls slowly at first and then with increasing rapidity; women over 40 make but a small contribution to the total fertility of a community.

For assessing the proportion of births to the women of child-bearing age, the general fertility rate is a better measure of fertility than the crude birth rate. But it is not an entirely satisfactory measure, since it takes no account of the very important fact that fertility varies greatly during the 30 years 15-44 in which women are capable of bearing children. It is necessary to divide the thirty years into shorter periods, either 5 yearly periods - 15 to 20, 20-25 and so on, or, better still, single years. Rates for such periods are called specific fertility rates, and they were first computed by the Swedish Astronomer Wargentin.

Specific Fertility Rate

$$= \frac{\text{Number of births in 1 year to the women of any particular age (say x)}}{\text{Number of women at age x}} \times 1000$$

It is clear from the above definition of specific fertility, that before it can be calculated we must know the number of women at each age or in each quinquennial age groups when quinquennial fertility rates are required, and the number of children born to them in a year. The former number can be estimated from the census return, and till we get the numbers at individual age periods we shall use the figures obtained for quinquennial age groups for finding out the quinquennial fertility rates. But it is not possible to know the number of children born at each individual age or in each quinquennial age group, since the age of the mother at the birth of a child is not recorded in Ajmer-Merwara. However, this number can roughly be estimated in

the following way.

Table No. 14

Number of children born to 1000 women at different ages.

Age Group.	No. of women.	Children born.	Total Children per 1000 women.	Children born 1000 women in age group.
1	2	3	4	5
15-19	374	152	406.4	406.4
20-24	370	625	1689.2	1282.8
25-29	351	1070	3048.4	1359.2
30-34	264	1142	4325.7	1277.3
35-39	227	1114	4907.5	581.8
40-44	170	855	5029.4	121.9
Total				5029.4

Column No.4 of Table 14 shows that 1000 women in the age group 15-19 give birth to 406.4 children, 1000 women in the age group 20-24 give birth to 1689.2 children, of whom 1282.8 are born in the group specified i.e., in the group 20-24, 1000 women in the age group 24-29 give birth to a total of 3048.4 of whom 1359.2 are born in this very group, 1000 women in the age group 30-34 give birth to a total number of children 4325.4 of whom 1277.3 are born in the age group 30-34, 1000 women in the age group 34-39 give birth to a total number of 4907.5 of whom 581.8 are born in the age group 34-39, 1000 women in the age group 39-44 give birth to a total of 5029.4 of whom only 121.9 are born in the age group 40-44. This last figure suggests that women in the age group add very little (a mere 121.9) to the total fertility, since the total fertility upto the age group 34-39 is 4907.5 and it reaches to a figure 5029.4 in the age group 40-44.

If we examine the figure of the total children born to the women in the age group 44-49 from Table No.12, we see that 184 women gave birth to a total of 877 children, giving the total fertility rate of 4766.3 per 1000 women. This also suggests that the maximum fertility is reached in the age group 39-44. Hence our justification in fixing the upper limit of 44 for the child-bearing period in India. It might be argued that the decrease in the total fertility in the age group 44-49 might be due to a greater number of widows* in

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* Question No.7:- Number of children born to a married woman and number of children surviving.

Question No.8:- Her age at birth of first child.

It was suggested that the fertility table should be compiled only for the married women excluding widowed and divorced. On the authority of

the age group 44-49 than in comparison to the age group 39-44. This is in fact the case to some extent, but the error involved does not exceed 2.4% of the total fertility even if we concentrate ourselves on the total fertility of the married women in these age periods who only add to the fertility. The total fertility of 1000 married women up to the age group 40-44 is 5683.3 while up to the age group 44-49 it is 5820. But as widows form a normal part of our social life and as we do not know definitely the period at which women turn widows and stop reproduction and as also no separate life table is available for married women which is necessary in the calculation of the net reproduction rate, this small error is negligible and we shall do well to confine our attention to the total number of women instead of married women only. It also no doubt represents a truer state of affairs than the total fertility calculated on the number of married women. However, to satisfy the curiosity of the reader, we shall calculate separately the fertility of married women in a later section of this article.

With reference to the last figure in Col. 4 of Table No.14 i.e., the total number of children born to 1000 women in the age group 40-44, it has already been pointed out that women reach maximum fertility in this age group, and do not add much thereafter. What then does this number 5029.4 indicate? This number shows that 1000 women, who have reached the end of their child-producing period, have given birth to 5029.4 children in all. This is not the number of children in any one particular year or any quinquennial period but it is the ideal number which will be reached if 1000 women, starting at the age of 15, all reach the age of 44 and during this whole period they give birth to 5029.4 children. This then means that the total fertility of 1000 women i.e. the fertility at ages 15, 16, etc., up to 44 is 5029.4. This number is the same as would have been obtained had the number of births at each individual age from 15 to 44 been recorded and then their sum found out. Hence on an average each woman in Ajmer-Merwara gives birth to about 5.0294 children. Similarly 4907.5 indicate the sum of the specific fertility from the start of the age of the child-bearing period to the age 39 i.e., from 15 to 39, 4325.7 the sum from 15-34, 3048.4 the sum from 15 to 29, 1689.2 from 20-24 and 406.4 the sum from 15 to 19.

As observed earlier, the vital statistics are very defective and they are much below the probable figures. But though they give an erroneous impression of the absolute rates by understat--

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Mr. Hooker supported by Mr. Yule it can be said that in the absence of a nuptial table, the suggested table is of no great value. Dr. Stevenson himself appreciated the point raised but could not correct it, because the Census Act would probably contain no authorization of the questions in respect to the widowed.

See Census of England 1911 Vol.XIII part 1 PP 368-369.

ing the true figures, they give a fair picture of the trend of rates. The birth rate and the death rate both show considerable fluctuations but no definite trend either up or down. There is no sign whatever of a decline in the rates during the last many years. Hence, agreeing with Mr. L. S. Vaidyanathan in his remark in the 1931 census report "that the constant figure of the mean age at that census as compared with the previous ones and in conjunction with the consistency of the decennial age groups" we may say that the mean expectation of life has not much altered since 1891. Extending the same idea to our sample survey figures, we may assume that fertility and mortality have not much altered since 1911. If this assumption is correct, then the figure 5029.4 in the last column of table 14 clearly represents Dr. Kuczynski's sum of the annual specific fertility rates, or more so the total fertility rate. The sum of the annual specific fertility rates in different quinquennial age groups may also be obtained from the same table and can be set out in tabular form, as below:-

Table No. 15

Sum of the annual fertility rates in the different quinquennial age groups.

Age Groups.	Sum of the annual specific fertility rates in the different age groups.
15-19	406.4
20-24	1288.8
25-29	1359.2
30-34	1277.3
35-39	581.8
40-44	121.9
15-44	5029.4

N.B.- Here we must not forget the fact that the total fertility found out in the above way is only true if fertility and mortality have not changed during the course of last 30 years - the period of the child-bearing age for these 1000 representative women. We are not aware of any other method which could have been applied to the figures available from the census returns in the absence of the age of the mother at the birth of a child for the calculation of specific fertility and total fertility rates.

Gross Reproduction Rate.

The total fertility rate includes births of both boys and girls. For studies of the trend of fertility it is advisable to concentrate on the births of females, the future mothers. The best method is to compute the number of girls born by 1000 women at each year of the child-bearing period

and add the results. The total so obtained divided by 1000 is called by Dr. Kuczynski the gross reproduction rate.

The gross reproduction rate states the number of girls born on the average by each woman who lives all through the child-bearing period. We have seen above that 1000 women who all live through the child-bearing period give birth to 5029.4 children both boys and girls, the births are not classified according to sex but total births only are stated. This is not a serious difficulty, for the proportion of male and female births does not vary materially with the age of the mother. If the total births only are stated in the census returns, the specific and total fertility rates are computed on the total births male and female, and it is then necessary to multiply these rates by the fraction of female births to total births as separate records for girl babies are not available. The total number of births recorded in Ajmer-Merwara during the decade 1931-40 was 204758, out of which 109943 were male births and 94815 female births. The required fraction of female births to total births is roughly equal to 95/205 and, multiplying the figures in Col.2 of Table 15, we get the gross reproduction rates for the different age groups. Multiplying the total fertility rate by the proportion of female births to total births, we obtain this result:

$$5029.4 \times \frac{95}{205} = 2330.5,$$

which divided by 1000 gives the gross reproduction rate, 2.3305. This means that fertility in 1911-40 was such that, if it remained constant, 1000 women living all through the child-bearing ages would on the average give birth to 2330.5 girls and each woman living through the child-bearing ages would give birth to 2.3305 girls.

Table No.16

Gross reproduction rate for 1911-40 - (Girl babies born to 1000 women in different age groups.)

Age Groups.	No. of babies born to 1000 women.	Gross reproduction rate = girl babies born to 1000 women
15-19	406.4	188.3
20-24	1282.8	594.4
24-29	1359.2	629.8
30-34	1277.3	591.9
34-39	581.8	269.6
40-44	121.9	56.5
15-44	5029.4	2330.5

The gross reproduction rate is the best single figure to convey a measure of fertility. It has also the great advantage of being easy to calculate and easy to understand. In many cases

it may, by itself, tell us whether fertility has fallen below the level necessary to keep the population from diminishing. If the gross reproduction rate is below 1.0, it means that the women who live all through the child-bearing ages do not give birth to an equal number of girls to take their places, and therefore if the rate remains below 1.0, the population must eventually diminish. So it must if the rate is kept at 1.0; for although that means that on an average every woman living through the child-bearing period gives birth to one girl, we know that those girls will not all grow up and live through that period. The gross reproduction rate for our sample survey is 2.3305.

Net Reproduction Rate.

The gross reproduction rate for the sample survey is 2.3305. This means that provided every woman lives through the child-bearing period, our population will more than double during the course of 30 years. But this has not happened, and to explain the population growth something more has to be done with the gross reproduction rate, i.e., we have to find out how many of these 2330.5 girls reach the end of the child-bearing period. This means that we must take into consideration the effects of mortality as well. To find out whether the present generation is producing enough children to keep the population at its present level, we want to know whether the newly born girls of this generation will be replaced by an equal number of newly born girls in the next, and for that purpose we must measure mortality as well as fertility; we must strike the balance of births and deaths. This new result is known as the net reproduction rate. It states the average number of girls who will, if present fertility and mortality continue, be borne by every born girl before she dies. The data required are the specific fertility rates for each age group and a life table giving the proportion of female survivors at each of these age groups - thus for the number of female survivors in the age group 15-19, we take the number of female survivors at the age 17 and so for other groups. We have seen in table 16 that the gross reproduction rate for 1000 or the specific fertility rate based on female births only was 188.3 in the age group 15-19. But what we now want to know, since we are taking account of mortality as well as fertility, is not how many girl babies will be borne by 1000 girls in the age group 15-19, but how many will be borne by the survivors of 1000 newly born girls who live to be aged 15-19. In our example they number 543. Then, since 1000 girls aged 15-19 bore 188.3 girl babies, 543 would bear $188.3 \times \frac{543}{1000} = 102.2$. The specific fertility rates for each of the other periods are similarly multiplied by the respective numbers of female survivors in the life table population and the results are shown in table No.17. The total divided by 1000 gives the net reproduction rate.

Table No. 17

Age Group.	Female births per 1000 women.	Survivors of 1000 newly born girls.	Girl babies borne by survivors of 1000 newly born girls.
15-19	188.3	543	102.2
19-24	594.4	502	322.8
24-29	629.8	453	285.3
30-34	591.9	401	237.3
35-39	269.6	347	93.6
40-44	56.5	293	16.6

The net reproduction rate expresses the ratio of female births in the successive generations. It tells us how many girls in the next generation will on the average be born, at current fertility and mortality, by a newly born girl of to-day before she dies. If on the average every newly born girl of to-day gives birth some time during her life to one girl, the net reproduction rate is 1.0; fertility balances mortality, and the population if the fertility and mortality do not change, will become stationary. If the rate is higher than 1.0, the balance has moved in favour of fertility and the population will increase. If the rate is lower than 1.0, the contrary is true - the population will diminish. In our sample survey the net reproduction rate is 1.0578. The net reproduction rate, of course, must always be sraller than the gross reproduction rate. Both rates could only be equal if all newly born girls reached child-bearing age and survived through child-bearing age.

The following figures* will show that the difference in gross and net reproduction rate in Ajmer-Merwara is greater than in many other countries.

	Gross	Net
Union of South Africa	1.475	1.295
United States	1.062	0.961
Japan	2.372	1.571
France	1.010	0.88
England and Wales	0.883	0.782
New Zealand	1.108	1.022

This difference, as already suggested, is due to high mortality rate among Indians. The figures given below show the expectation of life at birth in different countries.

* Statistical year-book of the League of Nations. Thirteenth Edition.

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	M	F
ɔn of South Africa	60.01	64.00
ɔed States	57.70	59.74
ın	44.82	46.54
ıce	54.30	59.02
ɹand and Wales	60.18	64.40
Zealand	65.64	67.88
ɔutana and Ajmer-Merwara	23.60	25.96

Assuming our results to be credible we come to the feasible conclusion that, other things being equal, then within 30 years our population increase will be in the neighbourhood of 6 per cent This is slightly less than the increase over the last half-century, which was 7.1 per cent. Incidentally, it may be added that on studying the population figures of the last 60 years in connection with the fitting of a Logistic Curve, we have found that the population has already reached almost to its maximum point, and there is very little scope for its future expansion, unless far-reaching schemes to expand the life-sustaining power of the land, such as the Gang Canal in Bikaner State, are introduced.

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Namaste!