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STUDIES IN INDIAN ECONOMICS

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UNIVERSITY PROFESSOR OF ECONOMICS, BOMBAY

STUDIES IN INDIAN ECONOMICS

A series of volumes dealing with the Economic history and problems of Modern India

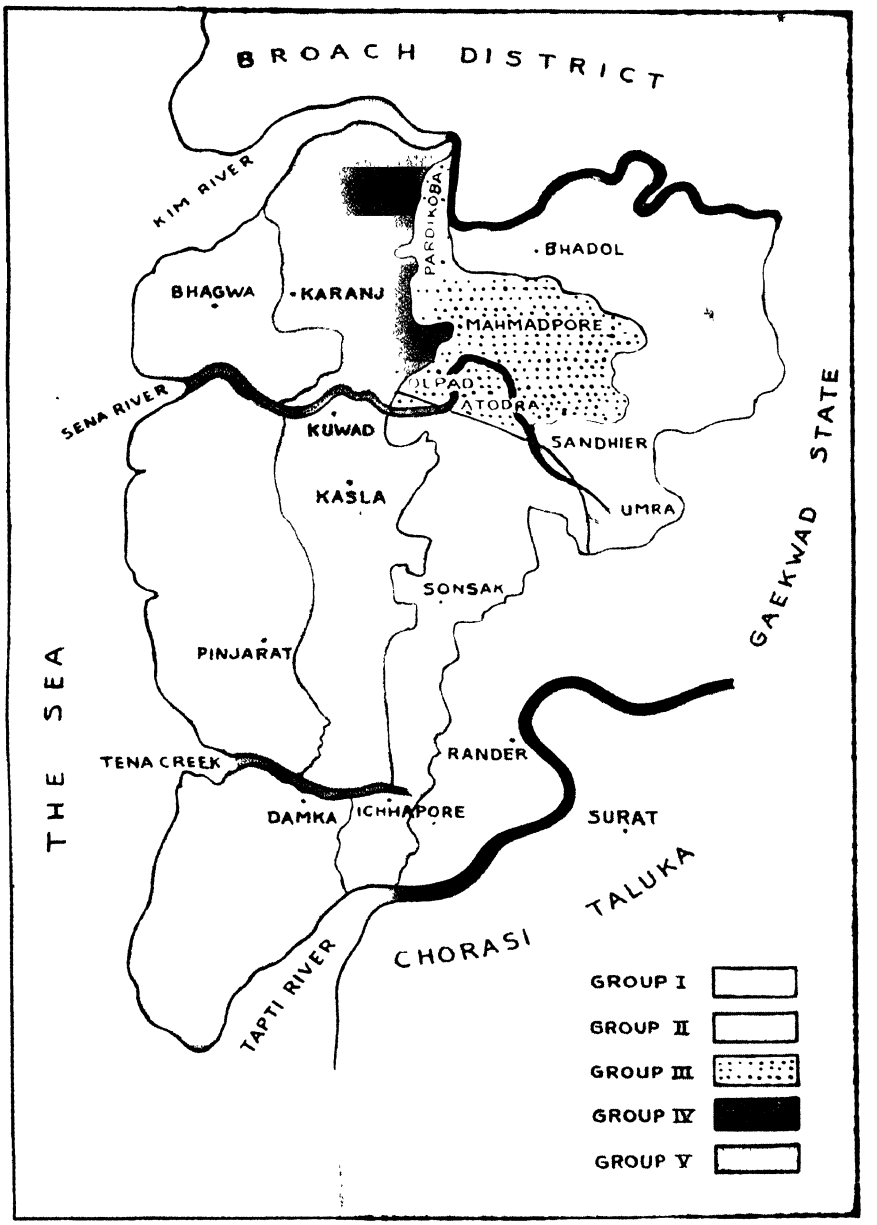
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MAP OF OLPAD TALUKA

showing the groups into which the Taluka was divided for the purposes of this study

LIFE AND LABOUR
IN A
GUJARAT TALUKA

BY

J. B. SHUKLA, M.A.

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C. N. VAKIL

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J. B. SHUKLA

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EDITOR'S PREFACE

The Royal Commission on Indian Agriculture emphasised the need for systematic studies of the life of people living in rural areas. A rural survey was suggested in the report of Messrs. Bowley and Robertson. Though such a survey has not been undertaken, organised efforts to study rural problems are being made in some provinces where Committees of Economic Enquiry have been appointed by the Local Governments. No such organised effort has been made in this Presidency. The work of such investigations is therefore left to private effort with the limitations that such effort involves. Some work in this connection has been attempted in the University School of Economics and Sociology. Two village studies, one relating to the Konkan[1], and another relating to South Gujarat[2], made in the School have been published.

The physical features of the country, the systems of land tenure, and even the habits and manners of the people, vary so much from province to province, and even in different parts of the same province that generalisations for the country as a whole, regarding rural problems are but of little use. In consequence, two methods have been devised for the study of rural economic problems each suited to the size of the unit adopted for study. The first method consists in selecting a village more or less typical of a particular large area and studying it intensively in all its aspects. The limitations of this method are obvious. The country is so large, and the villages so numerous that the intensive study of these villages, or even representative villages is not a practical proposition. The second method consists in the selection of a large area which is often a province or a sub-province, and in studying it in a general manner. Without minimising the importance of such regional surveys, we may point out their limitations.

---

1. A Social and Economic Survey of a Konkan Village, by V. G. Ranade. (published by the Provincial Cooperative Institute, Bombay, 1927.)
2. Life and Labour in a South Gujarat Village, by G. C. Mukhtyar. (Longmans Green and Co., Ltd.)

Such a large unit cannot be studied as intensively as a village. The information has to be obtained from Government reports and other publications. An effort to correct or supplement this information is often out of question. It is therefore not possible to have a realistic picture of the life of the area, and generalisations made in this way will not necessarily be equally true of all parts of the area.

The object of the present work is to evolve a method of studying rural problems, which will combine the advantages of the existing methods referred to above, and minimise or eliminate the disadvantages. With this object, a different unit of study is selected, namely, a taluka. As a rule, a taluka is more compact and homogeneous than a district, and if the taluka is accepted as the most convenient unit for such studies, it will be practicable to undertake the rural survey of India on the same basis. The method of study adopted may be briefly described. The taluka in question was divided into a number of groups based on certain economic factors. For each group, we selected a standard or typical village. Besides, we selected one or two other villages from each group, which had special peculiarities, So far as the actual investigation was concerned, we selected about 40 to 50 per cent. of families in each standard village for detailed study. In making this selection, care was taken to see that the different castes and classes were adequately represented. So far as the other villages selected from each group were concerned, we selected families from those castes or classes, which presented peculiar features, in addition to other families selected in the manner explained above. A schedule was used for the family inquiry. This was supplemented by a general questionnaire, answers to which were obtained from leading agriculturists of the villages studied. At the same time, the information regarding the taluka, available in the village records, and in the offices of the different Government Departments, located at the headquarters of the taluka and also of the district, was obtained. It was in this way possible to combine the methods of the intensive village inquiry involving first hand personal investigation, and those of the large regional survey involving a study of records and general observation. This effort made it possible for us to arrive at the truth, in many cases by comparing the results of both methods. It is hoped that the present work will suggest to future investigators a method of studying our rural areas which, while

taking away from such works the exclusiveness of the village studies, would yet impart to them some of their exactness and realistic touch, and also set forth with precision the general problems that confront the area.

Mr. Shukla carried out his investigations in the Olpad Taluka, on the lines mentioned above, as a research student working under my guidance during the years 1929–32. While in the midst of his work, difficulties arose due to the civil disobedience movement, which introduced abnormal conditions in the life of the people. The work of detailed investigation was postponed for a time, and therefore the entire work was spread over three years. During the interval, Mr. Shukla continued his general studies of the area, and had opportunities to do so, in his capacity as Propaganda Officer of the Surat District Cooperative Institute. As the period during which the work was done coincided with the work of the Census of 1931, it was possible to obtain the cooperation of the Census office for details regarding the population of the taluka, which are ordinarily not available except for larger areas.

In a work of this nature, the willing cooperation of many parties is necessary. The officers of the various Government Departments and of the Local Boards, as well as persons connected with the Cooperative Institute in Surat, and other bodies and individuals rendered considerable assistance, without which Mr. Shukla could not have achieved success. To all these persons we gratefully acknowledge our debt.

Besides the financial help given to the author by the University of Bombay towards the publication of this book, he received substantial assistance from his present employers, the Grain Merchants' Association, Bombay. He is grateful to the Association, in thus making it easy for him to publish the work.

School of Economics and Sociology,
University of Bombay,
15th January, 1937.

C. N. VAKIL.

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CHAPTER I

GEOGRAPHICAL FEATURES

INTRODUCTORY REMARKS

In this chapter we propose to explain the method of dividing the taluka into groups referred to in the Introduction and incidentally familiarise the reader with the broad geographical features of the taluka as a whole. We shall also try to give some idea of the villages selected for study and explain the reasons which weighed with us in selecting the same.

Before entering into a discussion of the groups we have made, it would be in the fitness of things to consider and discuss similar work done by the Settlement officers. We shall, therefore, first consider the scheme of grouping adopted at the time of the introduction of the Original Survey Settlement of this taluka in 1869-70, and then pass on to a discussion of the principles which were adopted in regrouping the taluka when the Revision Survey Settlement was introduced in 1900-01. It may be noted in discussing the scheme of grouping adopted in the Settlement Reports that the groups were formed primarily with a view to fixing the revenue demand of the Government. We must, however, in all fairness to these officers, admit that they have not overlooked the local economic factors in devising the groups.

ORIGINAL SURVEY SETTLEMENT GROUPS OF THE TALUKA

Olpad, like most talukas bordering on the sea, can be divided into two well-marked zones, each having distinctive characteristics of soil, climate, and the kinds of crops grown. The belt of villages, having light soil and bordering on the coast, which used to grow only bajri and wheat but which of late also grows cotton, may be characterised as the outer or western zone; the belt of inland villages, having black soil which used to grow, and still grows, wheat as well as cotton and juwar, may be called the inner or the eastern zone. At the time of the Original Survey the taluka was divided into five groups, and the boundary line

between the outer and the inner zone was very correctly fixed between the third and fourth groups. The black soil villages of the inner or eastern zone were divided into three groups with reference mainly to the facilities for carrying the produce of the agriculturists to the marketing centres. The outer or western zone of the light soil villages on the coast was divided into two groups taking into account their individual circumstances[1]. To turn to a consideration of the details, the boundary line which divided the outer from the inner zone was correctly drawn with Olpad in the centre, Thothab in the north, and Malgauma in the south. Villages near the market towns of Surat and Rander and villages within about two miles of the railway stations were placed in class I, villages further from a market town but comparatively near the two railway stations of Sayan and Kim were placed in class II, and those more distant in class III. The villages on the coast were grouped in class IV and V according to their circumstances.

The groups as finally sanctioned by Government at the time of the Revision Settlement were as follows. The original groups I and II were amalgamated. If the rate of assessment were reduced from Rs. 7 to Rs. 6½ for the combined new group, the four villages of Sayan, Delad, Gothan and Umra showed an actual decrease[2] of revenue. These four villages, therefore, constituted revised group I. The remaining villages of the old two groups were changed into revised group II. The old third group remained on the whole unchanged with the exception that the villages of Icchapur, Asarma and Kundal of the old group II were transferred to this group. The old groups IV and V remained unchanged.

The above completes our discussion of the division of the taluka into groups as adopted at the time of the Original and the Revision Survey Settlement. An important fact, however, was clearly brought out at the time of the Revision Survey, and that was the presence of areas damaged by floods and water-logging in

---

1. Papers relating to Revision Survey Settlement of Olpad Taluka, Surat District, p. 4.

2. Vide Papers relating to Revision Survey Settlement of Olpad Taluka, pp. 74-75.

a number of villages. The list in the footnote[1] gives the names of villages, whose areas were, to a greater or smaller extent, affected by floods and water-logging, in consideration of which corresponding remissions of revenue were granted to them at the time of the Revision Settlement.

OUR SCHEME OF GROUPING

The above discussion leads us to a consideration of the factors we have employed in the constitution of groups of the taluka for the purposes of our study. It is clear that the first group of the Revision Survey is the result of revenue considerations. Moreover, a study of the detailed discussion of groups as revealed in the correspondence that passed between various officials convinces one that there is throughout the obsession of a decrease or fall in the revenue demand of the Government. We can, therefore, neither accept the grouping of the Revision Survey in toto nor reject it entirely, for it contains a great deal of truth. We, therefore, propose our own groups devised to meet our needs.

As already explained, the division of this taluka into two zones, the outer and the inner, or the one of villages bordering on the coast and the other of inland villages is clear enough. The boundary line between these two zones was very correctly fixed between their third and fourth groups by the Settlement officers. We have, therefore, divided the taluka, in the first instance, into these two main zones. In the matter of further detailed grouping, however, we believe that the groups of the inner as well as the outer zone as adopted by the Revision Survey need a slight modification. We propose for our first group those 26 villages whose names have been given already, their lands being partly or wholly liable to submersion and consequently to floods and waterlogging several times in the rainy season. We may note that we have enlarged our first group by the addition of four villages of Urma, Safetpur, Kherwa, and Kanyasi, which, though not given in the list of villages liable to waterlogging,

---

1. The villages are :—1. Anita, 2. Bolav, 3. Kimamli, 4. Simalthu, 5. Gyaspur, 6. Mulad, 7. Kathodra, 8. Saliabad, 9. Kudasad, 10. Kareli, 11. Sandhier, 12. Paria, 13. Segva, 14. Vaswari, 15. Sayan, 16. Delad, 17. Gothan, 18. Kadrama, 19. Umrachhi, 20. Vadoli, 21. Sarfudinpur, 22. Kachab, 23. Pardi Bhadol, 24. Atodra, 25. Karmala, and 26. Bhadol.

formed a loose portion on the eastern side, and could not be conveniently dealt with in some other manner. The remaining villages of the inner zone have been divided into two groups. Of these, villages to the south of Olpad, which are nearer to Rander and Surat, the principal markets for the agricultural produce of the taluka, have been formed into group II, villages to the north of Olpad constitute our group III. Group IV will be the same as that of the Revision Survey but for the exclusion of the two villages of Pinjarat and Bhadut which break the continuation of the Revision Survey group V north and south. The fifth group will, in like manner, remain the same as that of the Rivision Survey with the addition of the above mentioned two villages which we have excluded from our group IV.

It is useful to remember at this stage that although we have divided the taluka into five groups for the convenience of study, the taluka, in fact, divides itself into two broad natural groups, each one differing from the other in point of the nature of the soil and the nature of population inhabiting it. These natural groups are, what we have called, the eastern zone, which includes our study groups I, II and III, and the western zone, which consists of our study groups IV and V. It will be noticed that in order to bring out differences in economic conditions, if any, due to these social and natural differences, we have tried to present figures of various kinds for each of these two natural divisions, in addition to those for each of the study groups.

VILLAGES SELECTED

We give below the list of villages studied in detail against the group from which they have been selected.

Group	I—(1)	Bhadol	(2)	Umra	(3)	Sandhier
„	II—(4)	Sonsak	(5)	Ichhapore		
„	III—(6)	Pardikoba	(7)	Mahmadpore	(8)	Atodra
„	IV—(9)	Kuwad	(10)	Karanj	(11)	Kasla
„	V—(12)	Pinjarat	(13)	Damka	(14)	Bhagwa

We decided upon the above selection after consulting a number of people well acquainted with the taluka. A brief account of the above mentioned villages is given below :—

(1) *Bhadol*—The village of Bhadol is on the metalled road from Surat to Hansot of the Broach district. This road passes

through Olpad town. The present village is situated in the north of the taluka on this Provincial Road and is at a distance of about 7 miles from Olpad. Not far off from this village lies the river Kim which forms the northern boundary of the taluka. The population is mainly of Kolis, who are regarded as poor. A part of its area is liable to waterlogging. It has a co-operative credit society. The crops grown are common to this zone.

(2) *Umra*—Umra is the second village of this group. It is selected because of its proximity to the railway station of Sayan. The population consists mostly of Kanbis. There is a co-operative credit society and also a co-operative groundnut sale society. The latter was started recently. The village, though included in group I, is not included in the list of villages liable to floods and waterlogging.

(3) *Sandhier*—This is one of the comparatively big villages of the taluka and is situated mid-way on the Sayan-Olpad Road. The village is selected as it is considered to be one of the good villages of the taluka and as its population is of a composite nature. One more reason for its selection is the absence of a co-operative credit society in the village.

(4) *Sonsak*—Sonsak is a Kanbi village to the south of Olpad. It is about half a mile in the interior to the west of the Olpad-Surat Road at a distance of about 5 miles from Olpad. It has a co-operative credit society which is regarded as one of the best societies in the district. It has also a cotton sale society, being one of the foremost among such societies in Gujarat. The village may be said to be the principal seat of Co-operation in the taluka, and a place of Co-operative pilgrimage, which no co-operator coming to the district fails to visit.

(5) *Ichhapore*—This is a comparatively big village in the south-east of the taluka, at a distance of about four miles from Surat, on the Surat-Suwali Road, and is now accessible by a motor service. The population chiefly consists of Kanbis, Kolis and Parsis. The presence of the Parsi population is one reason for selecting the village. A part of its land is of the "Gorat" type which is considered as the best kind of soil in the taluka. It has primary schools for boys as well as girls and a co-operative credit society.

(6) *Pardikoba* is a small village in the north of the taluka and is a little in the interior, being cut off from good roads. The population is mainly of Kolis. It has a co-operative credit society. It has, however, no school and has to depend on a neighbouring village for this.

(7) *Mahmadpore* is a small village principally inhabited by Rajputs and Dublas; the latter serve as agricultural labourers to the former. It is at a distance of three miles from Olpad on the Olpad-Hansot road. The village has been selected with a view to seeing if the localisation of castes in a village in any way affects the economic position of the village. It has a primary school and a co-operative credit society.

(8) *Atodra*—The village of Atodra is about two miles from Olpad on the Olpad-Sayan road. It is principally inhabited by Mahomedans and so has been selected for a study of their conditions.

(9) *Kuwad* is a village in the fourth group and is wholly populated by Kolis. It is about three miles to the west of Olpad. It has a primary school but no co-operative society. The villages of the outer zone are mainly populated by Kolis; the present village was selected because it is wholly populated by that caste. Our idea in the selection of this village is also to see if the salt marshes near by affect the economy of this and similar other villages.

(10) *Karanj*, a village to the north-west of the taluka, is chiefly inhabited by Kolis and Parsis. This element of Parsi population tempted us to select this village. It has a Local Board dispensary and a primary school. Some of its inhabitants are members of the Pardi Jhankhari Group Co-operative Credit Society.

(11) *Kasla* (*Mota*) is a very small village in the centre of the group and is chiefly populated by Kolis. As regards communications, it is badly situated. It is about 5 to 6 miles from Olpad. It has no school. A few of its inhabitants are members of the Kasla Group Co-operative Credit Society. The general backwardness of the village has led us to select it.

(12) *Pinjarat* is a village on the sea coast with its population of Kolis scattered over four or five 'falias' situated at a

distance of a mile or more from the principal village site in which the population is of a composite nature. An experiment in reclamation of salt marshes was undertaken in this village. Its co-oprative credit society has been abolished. It has a primary school. It is at a distance of about 9 miles from Surat. The presence of some Dhed 'Vankars' (weavers) is one of the considerations which led us to select this village.

(13) *Damka* is a village to the south of the Tena creek. Its population is similar to that of Pinjarat. The Kolis of this place, however, grow chillies and vegetables in small quantities and go on foot with their head-loads to Surat to sell them. It is this peculiarity which induced us to select this village. It has a primary school, but no co-operative society.

(14) *Bhagwa* is a small port in the north-west of the taluka and is mainly populated by Kharwas and Parsis. It was with a view to study the economic condition of the sea-faring caste of Kharwas that we have selected this village.

A table giving the number of families belonging to each particular caste in the villages mentioned, is given overleaf.

Analysis of Families Studied by Religion and Caste

Name of the Village and Group.	Anavil Brahmin.	Other Brahmins.	Kanbi.	Rajput.	Koli.	Soni.	Darji.	Hajam.	Dhobi.	Mochi.	Luhar.	Suthar.	Kumbhar.	Ghanchi.	Bharvad.	Veragi, Sadhu, and Gausai Bawa.	Kharwa.	Musalman.	Jain.	Parsi.	Dubla.	Vasava.	Dhed.	Khalpa.	Bhangi.	Total
	1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Umra	1	...	25	...	...	...	...	...	...	...	...	...	6	...	...	...	...	1	1	...	9	...	5	...	1	49
Sandhier	1	4	12	...	5	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
Bhadol	...	2	...	3	30	...	1	1	...	1	...	1	...	1	3	1	...	...	4	...	6	2	4	...	1	61
Total Gr. I	2	6	37	3	35	1	3	1	...	1	...	1	6	1	3	1	...	1	5	...	15	2	9	...	2	135
Sonsak	...	...	20	...	9	1	...	...	...	...	1	...	...	1	...	...	...	...	...	...	11	...	2	...	...	45
Ichhapore	...	1	33	...	67	1	2	1	1	1	1	1	1	1	1	...	...	...	...	12	4	...	7	...	...	135
Total Gr. II	...	1	53	...	76	2	2	1	1	1	2	1	1	2	1	...	...	...	...	12	15	...	9	...	...	180
Atodra	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34	...	...	4	...	7	8	...	53
Mahmadpore	...	...	...	17	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	8	...	...	...	...	26
Pardikoba	...	...	...	...	14	...	1	1	...	...	...	...	6	...	...	...	...	...	...	...	5	...	...	...	...	27
Total Gr. III	...	...	...	17	14	...	1	1	...	...	...	...	6	...	...	1	...	34	...	...	17	...	7	8	...	106
Karanj	...	...	...	...	8	...	...	...	...	...	...	...	3	...	4	...	...	...	...	14	6	...	2	...	...	37
Kuwad	...	...	...	...	37	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	37
Kasla	...	...	...	...	20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	5	...	...	26
Total Gr. IV	...	...	...	...	65	...	...	...	...	...	...	...	3	...	4	...	...	...	...	14	7	...	7	...	...	100
Bhagwa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	54	...	...	...	...	...	...	...	...	54
Pinjarat	8	...	...	...	104	...	3	1	...	1	1	...	4	1	...	1	...	...	2	...	5	...	3	...	...	134
Damka	...	3	...	...	62	...	1	...	...	...	1	1	1	...	5	...	...	...	8	...	...	...	2	...	...	84
Total Gr. V	8	3	...	...	166	...	4	1	...	1	2	1	5	1	5	1	54	...	10	...	5	...	5	...	...	272
Grand Total of all Groups	10	10	90	20	356	3	10	4	1	3	4	3	21	4	13	3	54	35	15	26	59	2	37	8	2	793

CHAPTER II

PHYSICAL FEATURES OF THE TALUKA

POSITION AND AREA

The taluka of Olpad is one of the eight talukas of the district of Surat in Gujarat. It is situated to the extreme north-west of the district and lies between 21° and 21°28′ north latitude, and 72°35′ and 72°57′ east longitude. It has an area of 312 square miles and is by far the largest taluka of the district. It is more than double the size of the adjoining taluka of Chorasi to its south, which, with an area of 114 square miles, is the smallest taluka of the district.

BOUNDARIES

The river Kim forms the northern boundary of the taluka as also of the district and divides it from the Ankleshwar taluka of the Broach district. On the south the taluka is limited by the town of Rander and the villages of Chorasi taluka.[1] On the west it stretches up to the Gulf of Cambay. To the east of the taluka are the paraganas of Vasravi and Galla of the Baroda State.

VILLAGES

The taluka at present comprises of 134 villages of which 3 are Inami. It includes 18 deserted villages thus bringing down the number of inhabited villages to 116. With the introduction of a fresh Survey Settlement of the taluka, the number of villages has, each time, gone on decreasing. The taluka comprised of 146 villages (142 Government and 4 Inami) in 1868. On the introduction of the Original Survey Settlement of the taluka in 1869-70, Rander and six other villages were transferred to the Chorasi taluka on the recommendation of Mr. Hope, the then Collector of Surat. In 1896, therefore, when proposals for

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1. The southern boundary of the taluka has undergone a change since, and, consequently, the area of the taluka has been reduced. Roughly speaking, villages to the south of the Tena creek have been transferred to the adjoining taluka of Chorasi ; the said creek, therefore, now forms the southern boundary of the taluka.

the Revision Survey Settlement of the taluka were submitted, the number of villages was 139. On the introduction of the Revision Survey Settlement, the number was reduced still further by the transfer of five more villages to Chorasi taluka from where, it was contended, they could be better administered. This brought down the number of villages to 134. These changes would give an idea of the difficulties involved in a comparison of statistics of different dates for the taluka as a whole.

GENERAL FEATURES OF THE SURAT DISTRICT

The district of Surat, for the most part, forms an alluvial plain with a gradual slope from east to west. The plain is broadest in the north, where, along the delta of the Tapti, its breadth east to west is sixty miles. As we pass to the south, the Arabian sea, which forms the western border of the district, bends inwards and the hill ranges found in Thana, Dharampore and Bansda to the east of the district, draw closer towards the sea with the result that the plain contracts till to the extreme south its breadth is reduced to about 15 miles. The district can be divided, north to south and parallel to the sea coast, into three belts:—(1) The Coastal Line is more or less barren, fringed for the most part by small hills of drifted sand and salt marsh. (2) The Central Belt comprises of a highly cultivated rich plain, and (3) The Inland Tract of poorer land gradually merges into hills and forests towards the east, and is cultivated by poor and uncivilised hill tribes, who replace the skilled cultivators of the central plain.

The above variations in the nature of the country are more marked in the north of the district, where they are clearly perceptible, as we travel further away from the coast towards the east. In Olpad taluka, we have to consider only the first two belts described above; the third does not touch it at any point.

PHYSICAL CONFIGURATION OF THE TALUKA

Olpad, for the most part, is a level plain which is broken along the coast, where the surface becomes a little undulating, by hillocks of sand drift which fringe the coast. The country is covered with brab and date trees which, when viewed from a distance, give to the coast a picturesque appearance. The coast line is not unbroken, for there are numerous inlets of the sea. Through

these inlets and the openings of the river mouths, the tidal waters of the sea find a ready entrance and flow over the plain country lying behind the sandy hillocks. Being a low lying country, the sea water at spring tides reaches as far as the west of Olpad, and thus flows into the very heart of the taluka. The parts run over by the tide regularly remain a salt marsh. The country, beyond the reach of regular low tides, in many parts, is run over by high tides which make their way through creeks and inlets of the sea. After the shallow layer of water dries up, the salt laden dust blows over the cultivated fields and damages cultivation. Beyond these parts, the country is a plain.

RIVERS

The taluka is not watered by any river which it can call its own. The Kim, which, as already noted, forms the northern boundary of the taluka, has a course of seventy miles and a drainage area of 700 square miles. Next to the Tapti, it is the largest river of the district, though not the most important. It rises in the Rajpipla hills and flows through the Rajpipla territory and the Western Division of the Baroda State over a distance of about fifty miles. It then takes a turn to the west and for the remaining twenty miles of its course, before emptying its waters into the Gulf of Cambay, separates the Ankleshwar taluka of the Broach district on the right from the Olpad taluka of the Surat district on the left. The river is not navigable and in this respect is of no importance as compared to the smaller but more valuable southern streams of the Surat district. Though it is difficult to be crossed during the monsoon, it dries up during the hot weather and leaves behind scattered pools of water. The course of the river like that of the other rivers of the district, and most of the rivers of Gujarat, is between high banks, and its water is not used for irrigation.

The Tapti has a course of 450 miles and a drainage area of about 3000 square miles. Passing through parts of Central Provinces and Berar and the plains of Khandesh, it enters Gujarat and for the last seventy miles of its course before meeting the Gulf of Cambay, flows over the alluvial plain of Surat. Although at one time (in 1852), before the advent of the railways, the possibilities of making the river navigable over a distance of 232 miles eastward

from the city of Surat were explored[1], to-day it is navigable only for the last 70 miles of its course across the Surat plains, and, more strictly for the last 20 miles only. The river is not used at present for irrigation.

Except these two large rivers, the taluka contains no river of importance. The Sena which passes through the village of Gothan to the south-east of the taluka, and joins the Olpad creek is insignificant. It dries up soon after the monsoon is over and what remains of the stream during the remaining part of the year is a pool here and a pool there in places where the channel is somewhat deep. It drains away the surplus water of the surrounding area during the monsoon. It passes for about twenty miles through the taluka and meets the sea at a distance of about five miles south of the Kim. For the greater part of the year it provides one more inlet for the tidal waters of the sea.

The above makes it clear that the rivers do not play any part in the agricultural economy of this tract. It presents an interesting contrast to the Bengal delta in the economic life of which the river system is of very great importance[2].

SOILS

It is a commonplace that, other things being equal, the outturn from land will depend upon or vary with the natural fertility of the soil. The plant draws its food from the inorganic world, the soil and the atmosphere. Its relation to the nature of both the soil and the atmosphere is thus intimate[3]. From the discussion of the soils of the taluka we shall, therefore, pass on to a consideration of the rainfall and the climate. The discussion on rainfall will naturally lead us on to a consideration of irrigation.

The plains of Gujarat are supposed to be the result of the alluvium brought down by the many rivers by which the province is watered. The principal soils of Gujarat are the Gorat or Goradu and the Kali[4], each of which has its numerous varieties. Goradu

1. Bombay District Gazetteer, Surat and Broach Vol. II. 1877 pp. 9–12.
2. Dr. Panandikar's Wealth and Welfare of the Bengal Delta, p. 11.
3. H. Martin Leake's The Bases of Agricultural Practice and Economics in the United Provinces, pp. 20 and 50.
4. Report of the Indian Irrigation Commission, p. 46.

soils, which term is used to denote soils varying from the drift sands of Ahmedabad to the rich loams of Kaira, are to be found in the three northern districts of Gujarat ; the Kali or the black cotton soil in the districts of Broach and Surat is the result of the alluvium brought down by the Narbada and the Tapti.

The soils of the taluka can be divided into the two big classes of the Kali and the Gorat. The Gorat soil in the taluka varies from the light sandy soil[1] along the coast to the rich soil, locally called 'Gubhan' when it is found near the village site and 'Khambhla' when it is at some distance. 'Punna' or loose sandy soil is found among the ridges of sand along the coast and is a very poor kind of soil. Gubhan, on the other hand, is considered to be the best kind of soil producing abundant crops year after year even without manure. Its existence to a small extent near some of the village sites may be due to the desire to select the best plot of rich soil as the site for constructing the village, so that it may produce shady trees and rich crops which can secure easy supervision by the owners. The soil termed "Gorat" proper is not very common, and occasional patches are found in a few villages. The soil is considered the most fertile in the taluka. The 'Bhatha' soil which is of the red, brown, or chocolate colour, and is formed by the alluvium deposited by rivers during high floods is almost entirely absent in the taluka. This soil whose fertility is renewed by fresh silt brought down by the river, is found in the belt of villages along the Tapti. It produces excellent irrigated crops. The old Batha soil which is found at a distance from the present rivers is called Gorat ; it is alluvial in character and suitable for irrigation.

The principal soil of the taluka, estimated to be seven-eighths of the whole, is black. The taluka can, therefore, very properly be called a black soil tract. The Kali or black soil is very suitable for the cultivation of cotton, and hence is generally known as the black cotton soil It has a great capacity of retaining moisture. In the hot weather, as a result of shrinkage due to evaporation, numerous cracks, sometimes several feet deep, are formed in the black soil. It is for this reason that the black soil is said to plough itself. The best variety of this soil,

1. This soil is locally called by the different names of 'More', 'Panna' or 'Morepanna'.

when it dries up, crumbles into tiny particles. The soil affords varieties according to its colour, texture and fertility. In the taluka, its principal varieties are 'Kali' or pure black, and 'Besar,' which is only an inferior sort of light black soil and can be distinguished from the former by its dingy appearance and coarse texture. In this respect the soil of Olpad is said to resemble more the black soil of Broach. However, it cannot, like Broach, grow rice and cotton mixed. This may be due to the inferiority of the black soil of Olpad. It is important to note at this stage that about one-third of the total area of black soil which includes both the Kali and the Besar is impregnated with salt. 'Kyari' may not be regarded as a different kind of soil. 'Kyaris' are only rice lands generally situated in low lying areas and receive drainage from the surrounding country. All these soils of the taluka are alluvial in character.

CLIMATE

The main attributes of climate are its relative lateral continuity, that is to say, like soil it does not show variations within a short distance, although it shows seasonal variations, and its uncontrollable character. In dealing with the seasonal or climatic conditions of the taluka we shall start with a few figures of temperature taken from the Local Board Dispensary at Olpad.

Figures of Temperature in 1929

(In Degrees Fahrenheit)

	Maximum	Minimum
January	84	55
February	88	50
March	103	68
April	103	78
May	98	76
June	96	74
July	89	74
August	89	74
September	98	77
October	94	74
November	96	65
December	92	55

The maximum temperature recorded during the year was 103° in the months of March and April, the minimum being 50° in the month of February. The figures show that January is the coldest month during the year and March and April are the hottest months. Generally speaking, it may be noted that the variations, though great, are such as would render the taluka free from extremes of heat and cold. The year is divided into three seasons, winter summer and the monsoon. The first may be said to correspond roughly to the months of November, December, Januuary and February; the summer corresponds to the months of March, April, May and June, and the monsoon falls in the months of July, August, September and a part of October. The figures of temperature show that from October onwards there is a gradual decline, although November shows a small increase of 2° over October, till it reaches low levels in January and February. The rise in temperature which commences from March shows a comparatively sharp decline in July. These conclusions are also borne out by the popular beliefs in the taluka where Posh which coincides with the month of January is regarded as the coldest month. It is, moreover, believed that heat begins to decrease after the Holi festival falling in the month of Falgun which roughly coincides with April. From the month of May the westerly sea breezes prevail and they lessen the severity of heat. At this time of the year, that is, during the months of May and June there are no standing crops in the taluka, all the staple crops being harvested before that time. The cultivators also now begin to prepare their fields for the next season.

EFFECT OF CLIMATE ON THE AGRICULTURIST AND HIS OCCUPATION

From the agricultural point of view, therefore, in so far as the climate affects the crops for good or bad, the hot months from March to June, usually devoted to the harvesting of crops and preparing them for the market, or to the cleansing of fields are not important, although excessive heat would certainly affect, as it does elsewhere, the efficiency of the farmer. The cold months, when the crops are maturing, are more important, for unfavourable weather conditions then would affect the outturn of crops. Changes in weather are not without their effect on the agriculture of the taluka. It is said that a cloudy day before the cotton plant has begun to

flower, helps its growth and has a beneficial effect on the plant, but such a day after the plant has begun to flower may result in loss of buds and flowers. Thus, due to a cloudy day the cotton plant may either thrive or lose its buds and flowers resulting in a poor yield. A foggy day may likewise mean a poorly nourished wheat grain, resulting in a poor yield of that crop. Similar instances of the effect of the variations in weather conditions on crops can be multiplied.

The importance of climate in the agricultural economy of a region, therefore, can never be overrated, and this fact is very vividly brought out by the figures of temperature of the year 1929 in particular. The taluka, in common with many other parts of the Presidency, was swept over by a severe frost, the like of which is not known within the memory of the present generation, on the 2nd February of that year when the temperature was recorded at 50°. The frost damaged and, in some cases, completely destroyed or, as it is locally known, 'burnt' mature cotton plants which promised a good crop of cotton. The severity of the damage can be easily understood by the fact that the 'frost-year' has become almost a by-word with the agriculturists of the taluka to bring home to us the uncertainty of their occupation. The above is, of course, an extreme instance. It is, however, necessary for our purpose to note the broad fact that the agricultural economy of this taluka, as of other parts of the country, is governed by climatic conditions, which in their extremes make the agriculturists despair of their occupation and sometimes help to make them fatalistic to a degree which would retard the healthy progress of any industry.

The taluka falls within that part of the district which is under the influence of sea breezes. The climate is therefore, equable and, on the whole, healthy. It is however, disquieting to note that of late years malaria is on the increase in the taluka.

RAINFALL: ITS VOLUME

The importance of rainfall in the economy of the taluka under study cannot be overemphasised in view of its complete dependence on the annual rains. In the event of the failure of rains there is no other source of water supply for the agriculture of the taluka to fall back upon.

The rainfall during the period 1894 to 1929 has varied from 52·90 inches in 1894, the year of maximum rainfall during the period, to 2·23 inches in 1905, the year of minimum rainfall. During this period of thirty-six years the rainfall exceeded 50 inches four times only.

The following statement of the statistics of rainfall arranged in the form of averages will be instructive.

Years	*Rainfall in Inches* (average for the period)
1881–1900	35·30
1900–1909	26·63
1910–1919	31·93
1920–1929	30·67
1881–1929	32·53
1900–1929	30·67

It will be observed that the average rainfall for different periods since the commencement of the century has never reached 35 inches which is the average of the last two decades of the last century. This point is also borne out by the information obtained by us in the villages studied according to which rainfall since the date of the great famine of 1899 has, comparatively speaking, declined. The foregoing statement further shows that the average rainfall has varied from 30 to 35 inches, with the exception of the 1900-1909 decade. The figures of normal mean rainfall given in the District Gazetteer tell much the same story. This, however, is far from saying that the farmer may with confidence expect to have this amount of rainfall, when its vagaries are well-known[1].

1. The following sets of figures show how a year in which the rainfall was above, and in some instances much above the average, has been preceded or followed by a year of average or scanty rainfall. These figures are a running commentary on the vagaries of the monsoon :—

Year	*Rainfall*		*Year*	*Rainfall*	
	Ins.	Cts.		Ins.	Cts.
1894	52	90	1914	50	35
1895	22	47	1915	19	19
1898	37	24	1916	52	78
1899	11	22	1917	14	60
1905	2	23	1922	36	49
1906	31	77	1923	20	64
1910	33	16	1924	31	52
1911	19	16			

RELATION BETWEEN THE AMOUNT OF RAINFALL AND THE NATURE OF THE SEASON

The Irrigation Commission of 1901-1903 opined, while studying the effect of rainfall on crops, that for comparative purposes, rainfall which fell short by 25 per cent. of the average of a particular tract would cause some injury to crops, and that which was deficient by 40 per cent., would cause severe injury[1]. On a due consideration of figures of normal mean rainfall, and of average rainfall of the taluka, we shall adopt 32·53 inches as the average for the purpose of the present discussion. By applying the said percentages to this figure of rainfall, we find that a rainfall of 24 to 25 inches and of 19 to 20 inches would give a dry year and a year of severe drought respectively in the taluka.

The following frequency table of rainfall of the taluka will help us in the present discussion. During the last thirtysix years from 1881 to 1929 there were :—

4	years	with	a	rainfall	above	50	inches.
6	,,	,,	,,	,,	between	40 and 50	,,
12	,,	,,	,,	,,	,,	30 and 40	,,
2	,,	,,	,,	,,	,,	25 and 30	,,
4	,,	,,	,,	,,	,,	20 and 25	,,
4	,,	,,	,,	,,	,,	15 and 20	,,
2	,,	,,	,,	,,	,,	10 and 20	,,
1	,,	,,	,,	,,	,,	5 and 10	,,
1	,,	,,	,,	,,	below	5	,,

It will be noticed that out of thirtysix years there were twelve years when the rainfall was 25 inches or less, and there were eight years when it amounted to 20 inches or less. If the assumption of the Irrigation Commission, already referred to, be accepted, this analysis would give four dry years and eight years of severe drought during the comparatively short period of thirtysix years. This would be too startling a state of affairs if it were really so. Fortunately, however, this is not borne out by the facts of the situation in the taluka. It may be useful to note here that we were informed in the course of our investigations that a rainfall of 25 inches, or even 20 inches according to some people, if properly distributed, would give a fairly good agricultural season over most of the black soil tract which covers more than

1. Report of the Indian Irrigation Commission 1901-1903, p. 4.

seven-eighths of the whole taluka. This makes it clear as to how illusory the limits of 25 inches and 20 inches of rainfall giving a dry year and a year of severe drought respectively in the taluka are. The present discussion affords, by the way, a very good illustration of how statistical presentation of certain economic phenomena, on the basis of an assumption of a standard made applicable to the whole of India, with its varying conditions of soils, crops and climate, would give us a very misleading picture, if applied to a smaller tract.

Apart from the usefulness of the frequency table in the discussion of the relation between the amount of rainfall and the nature of the season, it brings out the following facts: (i) During the period of 36 years the rainfall was below 10 inches only twice. (ii) For exactly one-third of this period the rainfall varied from 30 to 40 inches and, what is more, it varied from 20 to 40 inches for exactly one-half of the said period. (iii) If years with a rainfall of 10 to 20 inches be regarded as dry years, and those with a rainfall of less than 10 inches as years of drought in the taluka, we would get 6 dry years and 2 years of drought during the period of 36 years. This roughly works out at the probability of getting 22 years of scarcity for every 100 years. This interesting calculation is sufficient to place the taluka in a region of precarious rainfall.

We have now reached a stage when our discussion of the volume of rainfall considered from various standpoints can be conveniently summarised as under:—

(i) The volume of rainfall varies almost from year to year.

(ii) Figures of average rainfall for different periods show that the rainfall since the beginning of the present century has declined as compared with the two decades preceding it.

(iii) The average rainfall of the taluka has varied from 30 to 35 inches.

(iv) Although the average rainfall figure, looking to the conditions of the soil and climate, to which the agriculture of the taluka has admirably adapted itself, is not low, the extreme variability in the total volume of rainfall from year to year brings home the well-known vagaries of the monsoon.

(v) A study of the nature of seasons based on certain all-India assumptions, like those, for instance, of the Irrigation Commission, does not yield any useful result. A study of annual rainfall figures arranged in a frequency table, however, shows the

precariousness of the tract under study from the point of view of rainfall.

(vi) Although the average rainfall of the taluka is much smaller in amount than that of the southern talukas of the district, where it averages 66 inches, and although years of unfavourable rainfall are not uncommon, the taluka, like the rest of the district, is practically immune from a total failure of rains. The certainty of rainfall in this area, however, is evidently not as much as in some other parts of the country, like the Konkan, which enjoy an assured rainfall.

DISTRIBUTION OF RAINFALL

We had occasion, in the earlier part of the discussion of the subject, to refer to the fact that the comparatively low rainfall of 20 inches, if properly distributed, would give a fairly good agricultural season over most of the taluka. Distribution of rainfall is, therefore, perhaps more important than its volume or quantity. It is the common experience of the agriculturists of the taluka that a rainfall of 40 to 50 inches, which is distinctly above the average, if ill-distributed causes serious harm to crops resulting in an unfavourable season. The following figures of rainfall of Olpad by months for seven years from 1923 to 1929 taken from the Olpad Dispensary will help us in discussing this aspect of the subject.

Rainfall of Olpad by Months in Inches. (1923-29)

	1923	1924	1925	1926	1927	1928	1929	Average for 7 years
January	...	...	...	...	...	...	...	...
February	0·59	...	...	...	0·34	...	...	0·13
March	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	0·03	...
May	...	...	0·52	...	...	...	...	0·07
June	0·10	7·42	13·64	0·61	8·85	3·64	4·47	5·58
July	15·47	7·05	5·13	20·76	13·91	10·84	22·20	13·61
August	3·47	11·46	4·48	10·47	6·30	7·32	3·79	8·18
September	1·01	5·09	0·43	9·42	3·80	9·81	0·08	4·23
October	...	0·50	...	...	1·09	0·46	0·78	0·23
November	...	...	...	...	1·63	0·43	...	0·29
December	...	...	...	...	...	0·01	1·19	0·17
Total	20·64	31·52	24·20	41·26	35·92	32·51	32·54	31·21

A glance at the table shows that the monsoon commences from June and closes by the end of September. Very little rainfall is received either before June or after September. The following classification shows the frequency of particular ranges of rainfall during this period of seven years. The occasional shower which is received some time between January and May, we shall, for the sake of convenience, call ante-monsoon rains. This shower, locally known as 'Mavthun' has very little agricultural importance; if, however, it continues long enough to cause a downpour of more than an inch, it causes positive harm. Rain received in November and December will be called 'late rains', for the monsoon practically closes by the last week of October. With these preliminary remarks we give below the classification of rainfall into particular ranges:

Period: Seven Years From 1923 to 1929

	Ante-monsoon	June	July	August	September	October	Late rains
Below 1 inch	4	2	...	...	2	2	2
From 1 to 5 inches	...	2	...	3	2	1	2
From 5 to 10 „	...	2	2	2	3	...	...
From 10 to 15 „	...	1	2	2	...	...	...
From 15 to 20 „	...	...	1	...	...	...	...
Above 20 inches	...	...	2	...	...	...	...

The above analysis reveals the following tendencies:—

(i) There is almost an even probability of having ante-monsoon rains; but as such rainfall has varied from 0·03 to 0·59 inches and has never exceeded an inch, there is not much cause for alarm. It plays no part in the economy of the taluka.

(ii) There is an equal probability of getting from 1 to 15 inches of rainfall in June as of having from 5 to 20 inches of

rainfall in July. However, the rainfall in no single month has ever reached 25 inches, although it has exceeded 20 inches twice in July.

(iii) There is again an equal probability of receiving less than an inch of rainfall in June as of having more than 20 inches in July.

(iv) There is an even probability of having a rainfall of less than 5 inches in August as of getting more than 5 inches in September; and also of having 5 to 15 inches in August as of having 1 to 5 inches in September.

(v) The rainfall in September has never exceeded 10 inches in any year, and this shows that from September onwards the intensity of the rain shows a gradual decline. There is, moreover, an even probability of getting a rainfall of 1 to 5 inches as of having below 1 inch in September.

(vi) The rainfall shows a decisive decline in October which marks the close of the monsoon. It was only once in these seven years that the rainfall in October was between 1 and 5 inches, and in point of fact was only 1·09 inches. Thrice during this period there occurred a small rainfall of less than an inch. This is also borne out by facts. One acquainted with this tract finds that by the middle of the Hindu month of Ashwin, which corresponds to the latter half of October, the rainy season, generally speaking, is over. On the 15th of Ashwin falls the Hindu festival locally known as 'Manekthari Punam' when the moon is worshipped. This day is probably chosen as it is possible for the rural populace to get a glimpse of the full moon, uninterrupted by the monsoon clouds. It is significant as marking a change in the season.

As the prospects of good Kharif and Rabi crops largely depend on the timely distribution of rainfall even more than its total quantity, we give below the distribution of rainfall considered satisfactory by the people. The following dates are selected on the assumption, based on conditions in the taluka, that the monsoon commences from about the middle of June.

Month	*Rainfall in inches*	*Why required*
Latter part of June and earlier part of July.	5 Inches.	For preparatory tillage before sowing operations.
Latter part of July and earlier part of August.	8 to 10 Inches.	For sowing seed etc.
Latter part of August and earlier part of September.	7 to 10 Inches.	For the maturing of all crops; required at intervals and not the whole in a single downpour; also necessary for rice.
Latter part of September and earlier part of October.	5 to 7 Inches.	Necessary for favourable Rabi crops and rice crops.
	Total. 25 to 32 Inches.	

This shows that a total rainfall of 25 to 32 inches, if it is concentrated in one month will not produce a good harvest. For the season to be good, the rainfall should be properly distributed. To illustrate our point with the aid of the table of rainfall previously given, it will be observed that about 75 per cent. of the total rainfall was received in July in the year 1923. The late breaking of the monsoon and its abrupt end much before the usual time, as revealed by the monthly rainfall figures for 1923, must have delayed the Kharif sowings and caused deficiency of moisture for Rabi crops. The outturn of the Kharif crops must have been much reduced and Rabi crops could not have been sown. On the other hand, if the July rainfall had been more evenly distributed between June and August, the season would have been on the whole, satisfactory even with a total rainfall of 20·64 inches for the year. By a careful study on the above lines of the figures of monthly rainfall, similar instances of unseasonable distribution of rainfall with devastating effects on the nature of the season can be multiplied. Thus the distribution of rainfall may upset all our conclusions with regard to the nature of the season based on the

mere volume of rainfall. If immediately after sowing the rainfall is heavy, the seeds which have hardly germinated rot in the soil, and sowing operations may have to he repeated. If it is very late so that the opportunity for sowing is not provided, say, till October or November on account of unfavourable distribution, the outturn of crops is very much reduced, although the total amount of rainfall may happen to be adequate. This happened in 1931.

The following tendencies are established by our discussion of the rainfall of the taluka. (i) The volume of rainfall varies from year to year. (ii) The incidence of rainfall which is more important than the absolute quantity is equally variable. These two conclusions are enough to make the tract precarious, and although years of total failure of rains amounting to famine conditions may be of rare occurrence, there are no doubt a very large number of years when the crops are far from good.

A STUDY OF THE NATURE OF SEASONS

We shall discuss here the allied subject of the nature of the seasons from 1913-14 to 1929-30. Our study of the rainfall statistics does not help us in determining the exact nature of any particular season. There are two methods of studying the nature of the season. The first method consists in considering the percentage of current remissions and suspensions of land revenue over the current revenue demand of the Government for a particular tract. When 40 per cent. of the current land revenue is remitted or suspended, it means a widespread crop failure; when over 10 per cent. is remitted or suspended, it means a very bad year[1]. The second method consists in constructing indices of "annawari" for each year. The figures of "annawari" are based on the statistics of total outturn of important staple food crops of an area and of acreage under them, the figures in each case having been adopted from the Annual Season and Crop Reports published by Government. In the present discussion we have employed the second method, firstly, because we have not been able to get statistics of current remissions and suspensions of land revenue for the taluka for a number of years, and secondly, because the second method would

1. This method was employed by Dr. Mann in his evidence before the Royal Commission on Indian Agriculture to show the precariousness of the agricultural industry in Gujarat. Vide Vol. II. Part I, p. 16.

yield results nearer to the mark. It may be noted here that the question of granting remissions and suspensions of land revenue is very often determined by the anna valuation of crops made by the staff of the Revenue Department. Details of the method of constructing indices of "annawari" employed by us are given in Appendix I to this chapter. It will be observed from the details given there that out of the seventeen seasons

1 was very good,
3 were good,
6 were fair,
6 were bad, and
1 was very bad.

Although the terms employed above are more or less arbitrary, they are useful in giving us a comparative idea of the relative nature of different seasons. Out of seventeen seasons, seven are put down as bad; in other words, about 40 years out of every 100 will probably be bad. It will be noticed that we have not taken into account another very important factor, namely, the money value of the average yield of the crop per acre. Our experience in recent years shows that this is a very important factor capable of either worsening or ameliorating the agricultural situation at a particular point of time. However that may be, the above study of the nature of the seasons based on seasonal and climatic factors alone, on the assumption of a fairly stable level of prices, is instructive, as showing the precariousness of the agricultural industry and, therefore, of the income from agriculture in the taluka.

IRRIGATION

The necessity of pursuing a systematic policy in regard to irrigation and of providing means of irrigation suited to the conditions of soil, climate, crops and rainfall cannot be too much stressed in tracts of precarious and uncertain rainfall like the taluka. Such a policy would insure the farmer against the vagaries of seasons, and dispel the feeling that the industry which he carries on is a gamble in rains.

IRRIGATED AREA IN THE TALUKA : CHANGES ACCOUNTED FOR

We give below figures to show the position in regard to the practice of irrigation in the taluka for a few selected years.

Years	Cultivated Area	Irrigated Area	Percentage of irrigated area to cultivated area.
	Acres	*Acres*	
1894-95	128,963	3156	2·44
1903-04	121,568	3001	2·46
1910-11	101,901	2343	2·29
1918-19	124,699	86	0·06
1921-22	125,418	48	0·06
1922-23	125,465	48	0·03
1928-29	126,590	42	0·03

There appear to be two well marked periods in the history of irrigation in the taluka :—(i) from 1894-95 to 1910-11 and (ii) from 1918-19 to the present day. The total irrigated area had not been considerable at any time throughout this whole period. The decline, however, in the irrigated area since 1921-22[1] has been sharp and continuous. During the first period the percentage of irrigated to cultivated area varied from 2·29 to 2·46; during the second period it varied from 0·06 to 0·03. We shall try to find out if the quantitative aspect of the different sources of irrigation in the taluka can afford an explanation of this decline.

It may be observed at the outset that the taluka was not provided in the past, as it is not at present, with any Government or private canals. The only sources of irrigation in the taluka are wells and tanks. The following table gives figures of wells, tanks and other sources of irrigation for different years. To find out the relation, if any, at a glance between their number and the irrigated area the percentage of irrigated to cultivated area is shown against each.

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1. The year 1918-19 with a poor rainfall of 14 inches at Olpad was not normal in the taluka as elsewhere. We have, therefore, adopted 1921-22 as a normal year for our present discussion.

Sources of Irrigation

Year	Wells in use for irrigation			Tanks in use for irrigation			Other sources in use for irrigation			Grand total of all sources of irrigation	P.C. of irrigated to cultivated area.
	Pucka	Kacha	Total	Pucka	Kacha	Total	Pucka	Kacha	Total		
1894-95	127	26	153	2	332	334	...	6	6	493	2·44
1903-04	...	...	284	...	...	396	...	...	...	680	2·46
1910-11	...	...	288	...	...	411	...	...	...	699	2·29
1918-19			Not available.								0·06
1921-22	...	...	207	...	...	397	...	...	2	606	0·06
1922-23	...	...	207	...	...	400	...	...	2	609	0·03
1928-29	182	25	207	3	397	400	...	...	2	609	0·03

Leaving out for the moment a few important facts revealed by the above table and confining our attention to the issue we have raised, it will be seen that a certain amount of correlation exists between the total number of the sources of irrigation and the area put under irrigation. No mathematically exact relation, however, can be established. The total number of the sources of irrigation decreased from 699 in 1910-11 to 606 in 1921-22, while the percentage of irrigated area to cultivated area declined from 2·29 to 0·06 for the same years; in other words, whereas the former decreased by 13·3 per cent. below the previous year, the latter declined by 97·9 per cent. It would be useful to inquire whether the decline has been caused by the lesser use of wells or tanks. The answer to this will be helpful in indicating the lines of future advancement, based as it will be on past experience. A study of the table already given shows the decline to have been apparently caused by a decrease in the number of wells, for, whereas the number of wells has declined from 288 in 1910-11 to 207 in 1921-22, that of tanks has decreased from 411 to 397 only. This, however, cannot be taken as a conclusive proof of the phenomenon under investigation, unless the area under crops usually irrigated by wells also shows a similar decline in the taluka. Before we give the table intended to throw light on this aspect, a brief explanation of the method employed in preparing it is necessary. The forms of vegetation usually irrigated in this area by means of wells are vegetables and

spices. We have, therefore, combined the figures of acreage under vegetables and spices for the different years given in the table. For the purposes of comparison, we have reduced the combined figure to the percentage of the gross cropped area in each case. Moreover, we have also added a column to compare the percentage which the area irrigated of food and non-food crops other than rice, bears to the acreage under vegetables and spices. This will enable us to form a correct idea of the position which well irrigation occupied in the taluka in different years. With these remarks we give the following statement.

	1903-04. Acres.	1918-19 Acres.	1922-23. Acres.	1928-29. Acres.
1. Acreage under vegetables and condiments and spices.	606	154	1710	778
2. Percentage of area under vegetables and condiments to gross cropped area.	0·59	0·12	1·35	0·61
3. Area irrigated of food and non-food crops other than rice.	Not available.	66	12	25
4. Percentage of area irrigated of (3) to acreage under vegetables and condiments and spices.	Not available.	42·85	1·42	0·31
Rainfall for the year in inches.	29·26	14·16	36·49	32·51

Whereas the number of irrigation wells in the taluka decreased from 284 in 1903-04 to 207 in 1922-23 and 1928-29, the percentage of area under condiments and spices for both the latter years showed an increase over that for 1903-04. In the year 1918-19, it being an abnormal year from the point of view of rainfall, although the area under these crops is the lowest, the percentage of irrigated area (exclusive of rice) to the area under vegetables and condiments is the highest. The failing water supply in wells in years of scanty rainfall like that of 1918, however, affords but little real protection to the agriculture of the taluka. The area under these crops seems to follow very closely the amount of annual rainfall. However, the statistics clearly show that the decline in irrigated area since 1918-19 or 1921-22 cannot be explained away by the decline in the number of wells. The other

important source of irrigation in the taluka being tanks, it remains to be examined, if the area under crops generally irrigated by means of tanks can give us any clue to the decline in the irrigated area. The only crop irrigated in the taluka by ponds or tanks is paddy. The following table, therefore, attempts to correlate the number of irrigation tanks to the acreage under paddy and also the percentage of irrigated paddy to total area under this crop.

	1903-04	1918-19	1922-23	1928-29
Total number of tanks used for irrigation.	396	Not available.	400	400
Percentage of acreage under paddy to gross cropped area.	3·33	0·01	2·37	1·10
Percentage of irrigated paddy acreage to total area under paddy.	Not available.	9·96	22· 6	0·50
Rainfall for the year in inches.	29·40	14·60	36·49	32·51

The year 1918-19 for reasons already given may be left out of account for the present. Although the rainfall of the years 1922-23 and 1928-29 was heavier than that of 1903-04, and although the number of tanks shows, if anything, a slight increase of 4 in the years 1922-23, and 1928-29 over that in 1903-04, the acreage under paddy has undergone a steady and continuous decline since 1903-04. The percentage of the area under paddy to gross cropped area in 1928-29 represents about one-third of that of 1903-04. The diminution in the total area under paddy is, in like manner, seen in a falling off in the area of irrigated paddy. The rainfall of the year 1928-29 was not in any sense less favourable for paddy than that of 1922-23. The percentage of irrigated to total area under paddy, however, was 2·26 in 1922-23, while it was 0·50 in 1928-29. It is unfortunate that the figure of area of irrigated paddy for 1903-04 is not available. Otherwise, it would very probably have enabled us to ascertain the tendency towards a steady and continuous diminution of the area of irrigated paddy. However, the tendency towards a steady and continuous diminution in the area under paddy, and the probability of a similar decline in the area of irrigated paddy which can be read from the preceding table, seem to establish the fact, that although the number of

irrigation wells in the taluka has suffered a serious decline in the years 1922-23 and 1928-29 as against 1903-04 and 1910-11, and the number of irrigation tanks has remained fairly constant throughout this period, the steady and continuous decline in the irrigated area in the taluka has been caused, not by wells but by tanks. This conclusion before being accepted should be further examined in the light of the facts of the situation. Till now we have examined the quantitive aspect of the sources of irrigation only in so far as it helped us in searching out the causes of decline in the irrigated area. To place the conclusion above stated under the searchlight of facts, it is necessary to examine the figures of sources of irrigation a little more closely.

QUANTITATIVE ASPECT OF THE SOURCES OF IRRIGATION : SIGNIFICANCE OF CHANGES IN THE NUMBER OF EACH SOURCE

The only important sources of irrigation in the taluka are wells and tanks.

WELLS

From the table of sources of irrigation given on a previous page it will be seen that irrigation wells in the taluka are for the most part 'pucka', that is, are built of masonry, for, otherwise they would not allow of the use of a Kos (i.e., a leather-bag) or some arrangement to draw water for irrigation. There are, however, a small number of 25 'kacha' wells in the taluka. These, according to our information, are confined to the south-west of the taluka, where irrigation is practised on a very small scale in a village or two by drawing water out of wells in earthen pots, by hand, for irrigating small patches of land which grow vegetables and spices.

The most important fact brought out by the table giving the number of wells, tanks and other sources of irrigation in the taluka is that the number of irrigation wells showed a very large increase of 131 during the period 1894–95 to 1903–04. This increase in the number of wells was more than maintained till 1910–11, after which year there seems to have followed a period of gradual diminution so much so that their number decreased in 1921–22 by 81, below the figure for the previous year. The explanation of the

very large increase in the number of irrigation wells in 1903-04, is to be found in the appearance of the great famine of 1899-1900, which for the taluka was a year of severe drought. We have been able to gather in the course of our investigations, that a large number of wells were constructed by the people during this period of scarcity, mainly to raise fodder for cattle. The severe setback received by the number of irrigation wells by the time we enter upon the second decade of the present century, without in any way affecting the acreage under crops, shows that a large number of wells built during the period of activity were of a temporary nature. The moment the external stimulus of scarcity was withdrawn, and the free play of economic forces under normal conditions was established, the seeming popularity of well irrigation disappeared. This is an important conclusion, for the unpopularity of wells must be traced to some local causes peculiar to the taluka. This aspect will be discussed fully while considering the future possibilities of irrigation in this area.

TANKS

It will be noticed that tanks used for irrigation in the taluka are as a rule 'kacha' tanks dug on the surface and bordered by earth and mud. They command an area of land locally known as 'Kyari' or rice beds. Out of 400 tanks, only three have some sort of masonry walls to protect them.

Briefly, to pass over the period from 1894-95 to 1928-29, like wells, the construction of tanks also received a stimulus in the closing years of the last century and since the commencement of the present century. Their number increased from 334 in 1894-95, to 396 in 1903-04, and further increased to 411 by 1910-11, this being the year when the number recorded was the highest. The most characteristic feature which distinguishes irrigation tanks from irrigation wells, is that unlike wells, the number of tanks has remained fairly constant throughout the whole period from 1903-04 to 1928-29. The mushroom growth of wells during the the first decade of the present century was ephemeral in character. Tanks constructed during the period of activity, on the other hand, seem to have proved attractive enough to become a permanent feature in the agriculture of the taluka.

Future Prospects of Irrigation in the Taluka

The irrigation works of our country are usually divided into (i) Canals (ii) Wells and (iii) Tanks. We shall discuss the question of future possibilities of irrigation in the taluka under each of these three heads. Before, however, we take up for consideration each of the above items separately, a few facts regarding the position which the taluka occupies in the district in regard to the practice of irrigation may be noted with advantage. The most important point which deserves notice is, that although the taluka occupies the premier position in regard to the number of irrigation tanks, the percentage of irrigated to cultivated area in its case is the lowest[1] among all the talukas of the district. The southern talukas of Bulsar and Pardi, having a more copious rainfall than Olpad, are better situated in respect of irrigation. However, rainfall is not the only factor which determines the amount of irrigation in a tract. The northern talukas of Chorasi and Jalalpore, although they fall within the zone of less copious rainfall, hold a superior position because of the suitability of their soil, and of the subsoil water for irrigation, and of certain other factors. Moreover, they are better provided with irrigation wells than other parts of the district. It is useful to note that in an ordinary year when the rainfall is favourable, tanks which are used almost exclusively for irrigating paddy are not much drawn upon; on the other hand, irrigation wells will have a good supply of water and will consequently be worked to their fullest capacity during such a year. In an ordinary year, therfore, the position in respect of the extent of area irrigated in each taluka will be determined more by the number of wells than by that of tanks. It is this fact which, more than anything else, explains the unenviable position of being the least irrigated tract which the taluka occupies in the district. In the year 1921-22, out of the total number of 7,386 irrigation wells, Olpad accounted for 207 only. This taluka which occupies an area larger than any other taluka of the district accounted for less than 3 per cent. of the total number of wells in the district.

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1. The number of irrigation tanks in Olpad in 1921–22 was 397 being the highest in the district; the p.c. of irrigated to cultivated area was 0·01 being the lowest in the district.

WELLS : FUTURE POSSIBILITIES

The outstanding facts to be considered while making any suggestion for improvement in the direction of well irrigation in the taluka are (i) that the taluka is backward regarding the provision of irrigation wells, (ii) that wells have proved unpopular as a source of irrigation in this area, and (iii) that the area under crops usually irrigated by wells in the taluka has remained more or less unaffected by the number of wells, it being determined mostly by the amount of annual rainfall. These facts lead us to inquire about any special factors that limit the extension of irrigation by wells in the taluka. The limiting factors are, however, to be found in the physical conformation, geological formation and the nature of the soil of the taluka and not in the skill, intelligence and equipment of the cultivators, who in this area are no whit inferior to their compeers of the southern talukas of the district. The most important of these limitations is that wells in the taluka are generally brackish, and therefore, unsuited for irrigating garden crops. In quite a large number of villages, fresh water wells used by the people for drinking purposes are to be found by the side of tanks used for cattle, washing and similar purposes. In some cases these wells are found in the beds of tanks themselves, from the level of which they are raised much above by means of masonry walls which surround them.

The brackishness of well water is partly due to the physical conformation of the taluka. As we have already seen, Olpad, besides being a level plain, is a low lying country. Those parts on the coast which remain a salt marsh, and those over which tidal waters flow, are, therefore, areas where the question of constructing irrigation wells does not arise. Moreover, one-eighth of the area of the taluka consists of loose sandy soil, not rich sandy loam like that of the Kaira district. The remaining seven-eighths mostly consist of black soil of which one-third is impregnated with salt. This is true of most parts of the taluka lying to the west of Olpad town. But unfavourable conditions are not confined to the western part, for in the taluka as a whole fresh water wells are few. This may be explained by the nature of the geological formation.

The brackishness of well water in any part may be due to, (i) the existence of salt in the strata of the subsoil at the time of

their original formation; (ii) salt springs; (iii) the filtering down into the subsoil strata of salt deposited on the surface, or, (iv) the percolation of salt water into the soil from the sea or its estuaries. The plains of Gujarat are considered to have the appearance of estuarine or marine deposits formed from the alluvium brought down by the Tapti, the Narbada and other rivers of Gujarat. The rise of the plains of South Gujarat, in which the taluka is situated, above the level of the sea is placed at no remote geological date. The brackishness of wells in the taluka can, therefore, probably be ascribed to the presence of salt in the strata of the subsoil when they were originally formed. Without making the discussion technical, it is sufficient to note that the brackishness of well water in some parts is due to the nature of the geological formation of the taluka. The brackishness of wells rendering them unfit for irrigation, therefore, is partly the result of physical conformation and partly that of geological formation. But, there is also a third factor hindering the extension of well irrigation, namely, the nature of the soil. Of all the soils, the black cotton soil, which in the whole of the district is the most common soil in this tract, is considered to be as a rule unsuitable for irrigation. Irrigation of deep black cotton soil which overlies an impervious substratum, even supposing fresh water fit for irrigation to be available, is not a paying proposition. This, according to our information, seems to be the case in a large numer of eastern villages. If, however, black cotton soil is less deep and the subsoil strata afford good drainage, well irrigation pays in the case of valuable crops only. These conditions of soil, however, may not go together with the tapping of a suitable supply of well water. Except in a few favoured spots, which the cultivator has neither the knowledge nor the equipment to strike upon, well water in the taluka, as already said, is brackish. The cultivator with limited means and without the aid of scientific knowledge cannot be expected to experiment with the construction of wells under such circumstances.

The following, therefore, are our conclusions on the subject of the future of well irrigation in the taluka :—(i) The unfavourable position which the taluka occupies in respect of well-irrigation is the result of immutable physical conditions of the tract like the physical conformation, geological formation and nature of the soil. (ii) The conditions described above explain

the short-lived nature of the activity in well construction witnessed during the first decade of the present century. This shows that the wells built under the stress of years of scarcity were of a temporary nature, and could not become a permanent feature in the agriculture of the taluka. This experience shows incidentally that the point of maximum extension of wells has already been reached in the taluka. (iii) Under the above circumstances, therefore, and in the absence of a scientific subsoil survey, or of any help of a scientific nature from the Government, or without any monetary help, we are not very sanguine about witnessing ordinarily any great activity in the construction of irrigation wells.

It may be noted that taccavi loans either direct from the Government or advanced through the agency of the co-operative banks for the construction of wells, are not likely to be popular in this area, unless suitable conditions for the sharing of risks by Government in the event of tapping unsuitable supplies of water are attached to the granting of such loans. The danger of causing salt efflorescence and consequent deterioration of the soil by the use of unsuitable brackish water for irrigation, are too well-known in the taluka to need any discussion here. A word of caution is necessary. What we have said above, should not be construed to imply that not a single irrigation well can be constructed in this area. Far from it, we would like to witness any small possibilities of extension of well irrigation worked up with the help of scientific aid and appliances.

TANKS: FUTURE POSSIBILTIES

The position of tanks in the taluka is different in the following important respects from wells. (i) The only crop irrigated by means of tanks in this area is paddy. Even in black soil areas rice can be, and, in fact, is grown with the help of tanks. (ii) The question of brackishness of water does not arise here as the tanks merely store up the rain water for use. (iii) The past experience in the construction of tanks is reassuring, for, whereas the wells constructed during the period of activity soon got out of use, the tanks have continued to be popular with the people up to the present day. The usefulness of tanks in helping the paddy crop to tide over a period of break in the rains, or giving it the last one or two waterings, is very

great. Their importance, however, in a tract of precarious rainfall like this taluka cannot be gainsaid. We would, therefore, like to suggest the extension of the construction of tanks in the taluka wherever possible. There is, however, one disquieting feature in the matter of tank irrigation, which was brought to our notice during our investigations, and which also seems to be borne out by statistics. We have already seen that although the number of irrigation tanks has remained fairly constant throughout the last thirty years, the percentage of area under paddy to gross cropped area, as also the area of irrigated paddy, has undergone a steady and continuous decline in the taluka. The acreage under paddy might have declined either because of the more extensive cultivation of other crops, or because the existing tanks cannot be worked to their full capacity so necessary to protect the rice crop, or, both. From our inquiries we find that it is much more due to the operation of the second cause than the first. Although the cultivation of cotton has increased considerably, and that of cereals decreased during the last thirty years in the taluka, there is no reason to believe that cotton has gained at the expense of paddy. Our information shows that cotton has gained at the expense of juwar and wheat. The area under paddy, moreover, has always been a small percentage of the total cropped area of the taluka. The area under this crop is put to some other use only when it becomes unfit for paddy, because the tanks on which it depends have become useless for irrigation purposes. The paddy crop in the past, yielding as it does both grain and fodder, did not prove less valuable than cotton. We received numerous complaints in the villages we investigated, about the silting up and falling into disrepair of irrigation tanks. In some cases, because of the ignorance of cultivators, and their inability to distinguish that part of the land revenue which is charged for water from the total consolidated revenue paid by them from year to year, the Government revenues do not sustain a loss, although the tanks in fact are not in a proper condition for being used for irrigation. The suggestions in regard to tanks are, therfore, twofold. In the first place, the existing tanks should be kept in proper repairs, and not allowed to be silted up, so that they can give the necessary protection to the rice crop for which they were constructed. Secondly, wherever conditions of soil permit, the extension of the construction of tanks should be taken up. By

these means, a part at least of the cropped area of the taluka, which will be put under paddy, will be placed beyond the vagaries of rainfall to some extent. The cultivators also will be assured of a more or less fair return for a part of their cropped area.

CANALS : FUTURE POSSIBILITIES

The taluka, like the rest of the district, is not served by any irrigation canals. Projects for the construction of irrigation canals connected with the Gujarat rivers were framed from time to time by the Government in the past. As the projects for utilising the waters of the Tapti for irrigation took account of irrigating parts of Olpad taluka, a brief mention of these schemes may be made here. What, however, is of greater importance is to discuss the advantages to be derived, if an irrigation scheme affecting the taluka is made to materialise in the future. The possibilities of having irrigation canals connected with the river Tapti were brought to the attention of the Government as early as 1856. The scheme was considered several times over[1]; but each time the matter fell through for financial or other considerations. Each scheme was contemplated to bring a substantial part of the taluka under irrigation. But, in spite of the recommendation of the Irrigation Commission, the schemes did not materialise with the result that no part of the taluka as of the district is at present irrigated by means of a canal.

Apparently, in a tract like this taluka with a precarious rainfall, an irrigation project would be welcomed by the people. This, however, is not the case. The main reason for this attitude of indifference of the people is not to be found in their conservative nature or lack of intelligence, but in certain local conditions. The most important of these conditions is the nature of the soil. The black cotton soil of the taluka is not suitable for irrigation, nor would the light sandy soil on the coast repay the cost of irrigation. Cotton and Kharif millets, which constitute about three-fourths of the total cropped area of the taluka, would derive little benefit from irrigation even in a comparatively dry year. Cotton thrives best in a year of light rainfall and is damaged if the rainfall is heavy. Moreover, if an attempt is made to save crops like cotton and juwar, grown in

1. Bombay District Gazetteer Vol. II., Surat and Broach, p. 15-18.

black soils, in a year of scarcity, by giving them sufficient water even when it is available, the soil sometimes deteriorates. The crops of succeeding years, on account of the moisture that still remains in the soil, do not fare so well as they would otherwise do. In an ordinary year, rice crop is the only one which would derive benefit from an assured water supply in the taluka. The question will then be asked, if rice cannot be substituted for cotton on the advent of canal irrigation. We do not know what value, if any, can be attached to such a course like the one suggested here, when the established opinion and practice regard tanks as the best means of protecting the rice crop against the vagaries of the monsoon. Because of its blacksoil, Olpad resembles the Broach district. The opinion expressed by the Irrigation Commission regarding the irrigation of pure deep black soil of the Broach district, was that the soil cannot bear irrigation, except for rice, and that also on a restricted scale, both as regards the area and the supply, if irrigation is not to do harm. In view of the limitations imposed by local conditions of soils and crops of the taluka, our fear is that a copious supply of water from a canal may do more harm than good in a tract like this. To add to the above considerations, we have to take into account the attitude of doubt and hesitation of the people. Our conclusion on the subject, therefore, is that utmost caution should be exercised in having an irrigation canal in the taluka. This is most essential, for, if once a canal estimated to be remunerative is constructed, it would impose an additional, and in some cases iniquitous, burden on the people, the reason being that Government would then be most reluctant to manage it as a losing concern. This, however, does not preclude the desirability of conducting experiments for testing the value of irrigation for crops like cotton raised at present without its aid. It may also be useful to find out if improved varieties of cotton cannot be profitably cultivated with the help of irrigation. We may observe in conclusion that in a tract of precarious rainfall like the taluka, the Government should give great and vigilant attention to the extension and improvement of tanks, keep them in proper repairs, and help the agriculturists in the construction of wells, wherever possible, by making available to them the necessary capital, and scientific and other aid.

APPENDIX I

EXPLAINING THE METHOD OF CONSTRUCTING INDICES OF ANNAWARI

The principal crop of the taluka is cotton. A study of the outturn and acreage of this crop for a number of years would have been valuable. However, the Season and Crop Reports published by Government do not give figures of area and outturn for cotton for different districts. They are given for cereals and pulses or foodgrain crops only. A study based on these figures has, therefore, necessarily to be based on the figures of these crops.[1] The most important cereal crop of the taluka is juwar, while the acreage under pulses is negligible on the whole. Moreover, the cotton crop, under taluka conditions of soil, rainfall and climate, generally follows the fortunes of the Kharif juwar crop, which is almost the only variety to be reckoned with in the taluka. A study based, therefore, on the figures of area and outturn of juwar under the above circumstances, would yield fairly reliable results. We have, therefore, taken the figures of total outturn in tons and acreage under juwar for the Surat District from the above mentioned Reports. The figures for the years prior to 1916-17 are not given separately for Surat District. Hence, the corresponding figures for British Gujarat have been adopted. For each year, we have calculated the average yield in maunds by converting the outturn in tons into so many maunds (1 ton : 56 maunds) and dividing the total yield in maunds by the acreage under juwar. The figure of highest yield per acre was taken as representing a '12 anna' or a fully normal crop, and the other figures were converted into corresponding anna valuation in terms of the 12 anna crop.

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(1) Vide Mukhtyar's Life and Labour in a South Gujarat Village, App. II.

Annawari of Seasons

Year	Juwar yield in tons.	Juwar yield in maunds.	Acreage under Juwar.	Yield in maunds of Juwar per acre.	Conversion into annas by taking the highest yield per acre as 12 annas or Index of Annawari.	Nature of the season
1913-14	167831	9398536	441541	21·28	11·83	Good.
1914-15	205478	11506768	533286	21·57	12·00	Very good.
1915-16	187973	10526488	801231	13·14	7·31	Bad.
1916-17	239704	13423424	666915	20·13	11·19	Good.
1917-18	28316	1585696	81951	19·34	10·75	Good.
1918-19	22453	1257368	115489	10·88	6·52	Bad.
1919-20	25958	1453648	98426	14·79	8·22	Fair.
1920-21	24949	1397144	97032	14·40	8·01	Fair.
1921-22	29401	1646456	113538	14·50	8·06	Fair.
1922-23	27361	1532216	93144	16·45	9·15	Fair.
1923-24	22399	1254344	89536	14·09	7·83	Bad.
1924-25	18059	1011304	68391	14·79	8·22	Fair.
1925-26	18395	1030120	79798	12·90	7·17	Bad.
1926-27	20925	1171800	89589	13·08	7·27	Bad.
1927-28	20814	1165584	86197	13·52	7·52	Bad.
1928-29	12362	692272	71404	9·62	5·35	Very bad.
1929-30	23548	1320704	87505	15·09	8·39	Fair.

N. B. Scale adopted in judging the nature of seasons.

12 annas — Very good.
10 to 12 annas — Good.
8 to 10 annas — Fair.
6 to 8 annas — Bad.
Below 6 annas — Very bad.

CHAPTER III

POPULATION

IMPORTANCE OF THE HUMAN FACTOR

There are two factors namely, the physical and the human, which to a great extent determine, under normal conditions, the economic life and conditions of a region. Each of these factors is influenced by the other. We have already dealt with the first; we propose to consider the second in this chapter. Instances are not wanting where, through intelligence, industry, and organisation, a people have converted comparatively unfertile lands with unfavourable physical characteristics into rich and smiling fields. The extent to which natural conditions are controlled by the human factor in some countries is so great, that some writers attach more importance to the human factor than the natural environment, and have gone to the length of maintaining that the wealth of a country depends not so much on its material resources as on the energy and initiative of the people[1].

THE DECAY OF OLPAD TOWN

The taluka is entirely a rural tract. It is interesting to note in this connection that Olpad, the headquarters of the taluka, was treated as a town in the Census Reports till 1901. Although the definition of a town for census purposes did not undergo any change since then[2], Olpad did not appear as a town in the Census Reports of 1911 and 1921. It is significant that from 1881 onwards Olpad showed a continuous loss in its population, it being 4,126 in 1881, 3,960 in 1891 and 3,275 in 1901, This brings vividly to our mind the force of the remark that in Western India "the types of places which are losing to the cities are not the smaller villages but the middle sized country towns"[3].

The decline of Olpad has been so marked that it always arrests the attention of those who were in the past associated with

1. cf. T. N. Carver's Principles of Rural Economics, p. 174.
2. (i) Census of India, 1901, Vol. I, Part I, p. 21.
   (ii) Census of India, 1911, Vol. I, Part I, p. 29.
   (iii) Census of India, 1921, Vol. I, Part I, p. 63.
3. Census of India, 1921, Vol. I, Part I, p. 66.

the place and now happen to visit it. Although the popular belief ascribes it to the plague, influenza epidemic and such factors, we are not disposed to accept this explanation as wholly correct. The continuous stream of emigration, permanent or temporary, from the town, especially noticeable among the higher strata of society, is a factor which would hardly be missed by any resident of the place.

The recent development of some places on the railway line, made possible on account of their favourable position in regard to communications, may also partly account for this. With the gradual decline of Olpad may be contrasted the rapid rise in the importance of Sayan, formerly a small village, now a railway station, on the east of the taluka. A comparison of the population of Sayan in 1931 with that in 1921 makes the point clear. It was 1,449 in 1921 ; in 1931 it increased to 1,999. This works out at an increase of 33 per cent. within a decade. Whatever position Olpad occupies at present has been maintained on account of its being the administrative headquarters of the taluka, the existence of the sub-judge's court, and its comparatively favourable central position on a good metalled road.

However that may be, in 1921 and 1931 the population of Olpad was less than 3,000, being 2,832 and 2,960 respectively. As compared with 1881, the population showed a decline of about 28 per cent. If Olpad is not to be regarded as a town, then the population of the taluka may be said to be entirely rural.

DESCRIPTION OF A TYPICAL OLPAD VILLAGE

Before we proceed to discuss the distribution of the population in the villages, it would be proper to give a general idea of a village in this part of the country. A typical village of the taluka consists of a cluster of houses surrounded by cultivated lands which supply the means of livelihood. It has generally a pond and a temple, and the approaches to it are lined with shady trees, so that from a distance it appears like a grove of trees. On the outskirts, and at a short distance in one corner, live the Dheds and such other castes regarded as untouchables. At one end, but not necessarily at a distance from the rest of the village, one finds the huts of the Dublas who supply agricultural and other labour to the village. In the centre live the village aristocracy represented by the classes generally known as the Ujalivaran. It may be of

interest to note that this compactness, which is an important feature of a typical Olpad village, gives place to a more or less scattered nature of some of the villages on the coast, where what are known as the 'falias' of the village are situated at a distance of three or four miles from the principal village site. This reminds one of the Kaliparaj villages of talukas like Mandvi, Bulsar and Pardi of this district. In some instances, these 'falias' look more like hamlets than integral parts of the village to which they belong.

DISTRIBUTION OF POPULATION IN VILLAGES AND THE SIZE OF AN AVERAGE OLPAD VILLAGE

We give below the different ranges of population and the number of villages which fall within each, to enable us to form an idea of the size of an average Olpad village.

Total Population	Number of villages with this population.
From 1 to 100	8
„ 101 to 200	17
„ 201 to 300	17
„ 301 to 400	15
„ 401 to 500	19
„ 501 to 600	13
„ 601 to 700	7
„ 701 to 800	6
„ 801 to 900	1
„ 901 to 1,100	...
„ 1,101 to 1,500	8
„ 1,501 to 2,000	2
„ 2,001 to 2,500	1
„ 2,501 to 3,000	1
Above 3,000	1
Total ...	116

It will be observed that the most common ranges are from 101 to 600. A few details about places with a population above 1500 will be of interest. Within the group 1501 to 2000 falls Sayan about which we have already spoken, and another village whose scattered 'falias' go to swell its population. Similar also is the case of the village falling within the range 2000 to 2500, it being

composed of two more 'falias', in addition to the principal village. Within the group 3000 and above falls a village, which in reality includes, over and above the village of that name, two more hamlets; one of these is said to consist of 27 scattered 'falias'.

The above discussion shows how misleading are the ranges above 1500. The only place with any claim to compactness falling within the group 2500 to 3000 is Olpad. Thus the average village is essentially a small unit with a population of less than 600 persons.

MOVEMENT OF POPULATION

The following statement shows the growth of population of the taluka during 1891[1] to 1931.

Year	Population	Variation per cent. since previous census
1891	66,668	...
1901	58,748	−12
1911	53,440	− 9
1921	54,440	+ 2
1931	60,831	+10
1891 to 1931	...	− 8

The census statistics show only the *de facto* population; therefore, the growth of population of a tract will be determined by the relation between the birth-rate and death-rate, and migration. Assuming that the number of immigrants into and emigrants from the taluka almost equal each other at a particular point of time[2], the changes in the population from census to census can be explained thus:—(i) The reduction of 12 per cent. in the population from 1891 to 1901 was chiefly due to the great famine of 1899-1901. The death-rate of the taluka in 1900 reached the abnormal

1. We have selected this date, partly because the 1891 census, being the second regular census of population, the figures would have acquired a fair degree of accuracy by that date, but mainly because the decade 1881–1891 was free from any special calamity in the taluka.

2. This assumption is based on the following considerations: (i) That the problem of immigration in the taluka has not changed in 1931 as compared with 1921; (ii) The excess of births over deaths during the decade 1921-30 works out at 6,247. By adding this figure to the population figure for 1921, we get the total of 60,687 persons. The figure does not much differ from the 1931 census figure.

figure of 79·79. The excess of deaths over births during this year was 3,348. This famine, locally known as 'Chhappania', falling as it did in the Samvat year 1856, still lingers in the memory of the old inhabitants of this area. (ii) During the decade 1900-1911, the population instead of showing any sign of recovery, as under normal conditions it would do, revealed a further loss of 9 per cent. The decline was partly due to bad seasons, as can be seen from the meagre rainfall of the taluka which was below 20, 10, and 5 inches in 1901, 1904, and 1905 respectively. The decline was, however, mainly due to plague which ravaged the area for all the years from 1902 to 1909, and was in its severest form in 1904 and 1907. Those at the reproductive ages spared by the Great Famine were thus carried away by plague. (iii) The outstanding feature of the decade 1911–1921 was the influenza epidemic, which broke out in the taluka in 1918. This was again a year of poor rainfall, it being 14 inches only. The excess of deaths over births in the taluka for this year was 3,700 and the death-rate for the area stood at the unprecedented figure of 85·44. In spite of this, however, the population showed a slight recovery in 1921, with an increase of 2 per cent. over the previous census, mainly due to the satisfactory economic conditions during the intercensal period. (iv) The last decade 1921–1931 was free from calamities like famines and epidemics. The population of 1931 shows, therefore, a marked increase of 12 per cent. over the figure of 1921.

The two important conclusions established by the above discussion are: (i) The growth of population of the taluka has been determined more by the operation of such positive checks as famine, plague, influenza, and lean years, than by the relation between normal birth and death rates of the area. (ii) In spite of the marked increase in the population registerd in 1931, the total population of the year still falls short by 8 per cent. of that for 1891, thus showing that the taluka has still not completely recovered from the effects of famine and plague of the first two decades.

MIGRATION

(i) IMMIGRATION

Our census reports base their discussion of the problem of migration on the table of birth-place. We give below the number

of immigrants in the taluka in 1931 from other districts on that basis. Out of the total population of 60,831 of the taluka, persons enumerated as born outside the district of enumeration i.e. Surat, numbered 6,665 or 10 per cent. of the total population. It is interesting to know that 1,682 persons were immigrants from 'the rest of the Bombay Presidency'; 1,951 from Western India States i.e. Kathiawar States and Agencies; 2,306 from the Baroda State; 258 from Bombay States and Agencies which include Surat, Mahikantha, Revakantha and Cambay Agencies. These figures taken together account for more than 6,000 immigrants.

NATURE OF IMMIGRATION: It is clear from the above that the bulk of the immigrants come from within the Presidency, and very probably from Gujarat and Kathiawar. The taluka, being a rural tract without any urban centre, does not attract outsiders from distant parts of the country, or foreigners. We have no hesitation in saying that almost the whole of this immigration is of a temporary nature. Immigration from Kathiawar, accounting for about one-third of the total, would fall into the category of what is called 'periodic' immigration, as it is due to the seasonal demand for labour in the taluka, especially during the cotton picking season. The rest of the immigrants are probably labourers on roads and railways, employees in government or private service, traders and money-lenders, who by no means intend to settle in the taluka.

SEX DISTRIBUTION OF THE IMMIGRANTS: One or two interesting points in this connection may be discussed here. The proportion of females to males is greater in the immigrants from 'the Rest of Bombay' and the Baroda State, it being 960 to 722 and 1,210 to 1,096 respectively. This may perhaps be accounted for by the too well-known practice in this part of the country, for females to return to their parents' house for the birth of the first, and sometimes, even the subsequent children. There is another interesting point which these statistics bring out with regard to Jains. The Western India States and Rajputana Agency, the latter of which is responsible for the greater part of Jain immigration in this area, accounted for 58 Jain male as against 18 female immigrants. The disproportion is due to the fact that a poor Marwari, who, sometimes begins as a

hawker, and gradually makes his way up by setting up as a petty village trader in the first instance and then as a Sowcar ; and even some of the more favourably placed Jain traders and money-lenders do not bring their women folk with them. Although this is generally true of other temporary immigrants as well, we have drawn special attention to this in view of its relation to the distribution by sex of Jains in the taluka.

The following figures of immigration classified according to religion and sex will be found interesting :—

IMMIGRATION ACCORDING TO SEX

Religion	*Males*	*Females*
Hindu	2,882	3,078
Musalim	261	221
Jain	74	29
Zoroastrian	34	70
Christian	2	2
Tribal and others	1	1
Total ...	3,254	3,401

This statement shows that the female immigrants exceed the male immigrants. The Hindu female immigrants outnumber the male, and this has a marked effect on the total immigration figures. In the case of Musalmans, the dispairity can be accounted for by the general character of the migration problem, by which we should expect more males than females in the immigrant population of a tract. In the case of Zoroastrians, the position cannot be easily explained. It may be a marriage feast or some other occasion which might have attracted more females than males. Moreover, it must be remembered that the birth-place register gives only a rough idea of the problem.

(ii) EMIGRATION

Our Census Reports base their calculation of emigration thus:—that those who are enumerated outside the district of their birth, but are returned as 'born in that district', are regarded as emigrants from that district. The smallest unit for which the figures of emigration are thus calculated is, therefore, the district. As it was neither possible to collect and compile ourselves statistics of emigration, nor to obtain them in some other way for the

taluka as a whole, we have to satisfy ourselves with our observation in the area.

The taluka sends out men, sometimes, to such distant countries beyond India as China and Africa. The most outstanding fact brought out by our observation is that emigration from the outer or coastal zone of the taluka is greater than from the eastern or inner zone of black cotton soil villages. Parsis, who chiefly abound in some villages on the coast, are a community known for their emigration habits. Some of them have established themselves in Bombay, and in a few cases have gone to countries beyond India. The other community is the 'Kharwas' or the sailors' caste, who inhabit a group of villages on the coast, and are well-known as a sea-faring people. We came across a large number of Kharwa families in which the males had either gone out to serve as lascars on steamships or had returned from service on the sea. They also go to some places in Africa, where they work as hawkers or petty shopkeepers. Next comes the small but the comparatively socially and economically important caste in the taluka of Motala Brahmins, many of whom have emigrated to Bombay, although they have not broken off the link with their places of birth viz., Olpad and the village of Saras. The same is true of some Anavil Brahmins. A few Kolis of the coastal villages sometimes emigrate to Rangoon and Africa. Some of the Dheds, who are regarded as untouchables, have emigrated to Bombay and serve as domestic servants in Parsi and European families. This discussion brings out the force of the remark made by the Census Superintendent, Bombay, in 1921 that 'Surtis go far afield'

The following figures of sex distribution of some of the castes and communities mentioned above are instructive in this connection.

SEX DISTRIBUTION OF SELECTED CASTES AND COMMUNITIES (1931)

	Males	Females
Parsis	335	417
Kharwas	1,528	2,354
Dheds	1,711	1,980
Motala Brahmins[1]	277	325

1. Figures for 1931 and the previous two censuses for Motala Brahmins are not available. Figures for 1901 are therefore given, the same being sufficient and relevant for the purpose.

The above figures show an excess of females over males in each case, and consequently bring out clearly the migratory character of persons belonging to these castes and communities.

There are two points which need emphasis. One is that man is enterprising, and more ready to leave his home where Nature is unkind. This is so in the western zone, and especially the coastal villages which are under the influence of the sea, where the soil is less fertile and where people have to walk miles before a fresh water well can be reached. The second point is that emigrants are partly drawn from those sections of the population like the Parsis, the Motala and Anavil Brahmins, who on account of education leave their homes in order to keep up their standard of life, and partly from castes like Dheds, who have given up their traditional occupations and taken to other work. It may also be noted that although we have no exact figures of emigration for the taluka as a whole, we are inclined to the view that the emigrant population would be almost equal to the immigrant population of the taluka.

BIRTH-RATE AND DEATH-RATE

We give below statistics of birth-rate and death-rate for the taluka from 1921 to 1931.

Birth-rate and Death-rate, 1921 to 1931.

Year	Birth-rate	Death-rate
1921	38·00	24·55
1922	39·99	27·04
1923	36·24	29·39
1924	44·49	24·32
1925	39·90	23·46
1926	42·93	34·44
1927	45·62	27·53
1928	40·01	29·28
1929	37·05	31·56
1930	38·90	35·80
1931	39·91	30·60

The period 1921 to 1931 was free from any special calamity like famines or epidemics. If, therefore, these years are to be taken as normal from the point of view of birth and death rates, it will be observed that the birth-rate varied from 36·24 to 45·62, while the death-rate showed variations from 23·46 to 35·80.

Not only are the birth-rate and death-rate of the taluka high as compared to those of some European countries[1], but, unlike these latter, they do not show any marked signs of falling. This is evident from the following statement of average birth-rate and death-rate of the taluka for different decades.

Period of years	*Average Birth-rate*	*Average Death-rate*
1891–1900	36·1	41·6
1901–1910	34·3	35·7
1911–1920	42·4	38·7
1921–1930	40·3	31·7

The causes of high birth-rate are to be found in the social customs, and the stage of economic development of different sections of the people. The early age of marriage among the high caste Hindus, and consequently the comparatively early age at which child-bearing begins, is responsible for this. Although early marriage is not much prevalent among the lower castes like Dublas, the fertility of these Kaliparaj castes is a matter of common observation in this area as in the rest of the district[2]. It may be due to the lower stage of economic development of these castes. Moreover, widow-marriage is allowed among them. This is also perhaps true of the other caste of Kolis in the taluka. In this connection we may note that among the lower castes like Dublas, children are not a source of economic burden to the family, as a Dubla boy is expected to earn his living by serving as a cow-boy to an agriculturist of the higher castes.

The high death-rate seems to follow as a necessary corollary to a high birth-rate. A very high birth-rate in the taluka means a high rate of infant mortality, which in turn affects the death-rate, making it comparatively high. This is borne out by the following figures of the rate of infant mortality.

Year	*Infant Mortality per 1,000*
1921	152·7
1931	213·3
Average for 1921 to 1931	192·0

1. cf. Dr. J. M. Mehta's Rural Economy of Gujarat, p. 36.
2. cf G. C. Mukhtyar's Life and Labour in a South Gujarat Village, pp. 53–54.

AGE DISTRIBUTION OF THE POPULATION

The following statement gives the age distribution per 1,000 of the population of the taluka according to the census of 1931. Similar figures for British India for 1921 are also given for the sake of comparison.

Age groups.	*Number of persons per 1,000 of the population.*	
	Olpad Taluka (1931)	*British India* (1921)
0-10	288	274
10-20	220	198
20-30	162	170
30-40	137	143
40-50	98	94
50-60	57	61
60-70	27	36
70 and over.	11	17

The difference of 70 between the first two age groups is a measure of the high infant mortality[1] in the taluka. This compares unfavourably with that for the advanced countries of the West. It will be noticed that the number of persons in the age groups 0-10 and 10-20 is greater in the taluka than that for British India. The taluka figures for the age groups 20-30 and 40-50, however, are less than those for British India. It shows that there is a very large number of infants and children in the taluka and the number of active workers is small.

Coming to the last age groups 50-60, 60-70 and 70 and over, the taluka figures for each of these groups compare unfavourably with those for British India. This shows that the number of old persons in the taluka is few. Chances of survival after the age of 50 become distinctly meagre. This is only to be expected

1. In this connection the following figures are instructive.

Age	*Number per 1,000 of the population*
0-1	31
1-2	27·5
2-3	27

It will be seen that the real decline in number sets in during the very first year of the birth of the infants.

on account of the low average expectation of life in the case of our people. The comparatively small proportion of persons in the age groups from 50, to 70 and over, shows that the people do not continue as active producers, and by the time they reach the age of 50 and over, they either go to swell the number of dependents or are on the way to their graves. The above conclusions prove beyond doubt the existence of low vitality, and a low level of economic life of the people of the taluka, compared with the average condition in India.[1]

EFFECTIVE *versus* NON-EFFECTIVE POPULATION

In examining the question of effective population, we have adopted 15 years as the lower limit for estimating the working population, and 55 years for males and 50 years for females as the upper limits. We have adopted 50 years for females, because a female, on account of the early age of marriage and frequent child-bearing, ceases to be an active worker five years earlier. The following statement gives the estimate of working population on that basis.

1.	Total Population of the taluka ...	... 60,831
2.	Effective or Working Population of the taluka ...	... 31,936
3.	Percentage of Effective to Total Population ...	... 52

These figures show that the number of dependent or non-working population, who are consumers, is very large; this proportion is much higher than in the case of Western countries. Females of higher castes in the taluka do not work in the fields. The total number of actual workers will, therefore, fall short of the total effective population as worked out above. We were fortunate in getting the figures of the 1931 census in this connection, The number of actual workers enumerated in the taluka in 1931 were 27,418 as against 33,413 dependents; in other words, actual workers were 45 per cent. of the total population.

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1. It will be remembered that in all the important features in which the taluka position seems more unsatisfactory than that revealed by the All-India figures, our country compares unfavourably with any other leading country.

SEX DISTRIBUTION OF THE POPULATION

According to the census of 1931, there were 30,418 males and 30,413 females in the taluka. There was thus an almost equal proportion of male to female population. At first sight, the much-talked of deficiency of females in the population of our country does not appear in this area. It will be asked: are the conditions of the taluka exceptional in this respect? To answer this, it will be necessary to examine the nature of sex distribution of the population at previous censuses. The following table giving figures of population according to religion and sex throws light on the subject.

SEX DISTRIBUTION OF POPULATION

(By Religion)

Year	HINDU		MUSLIM		JAIN		Total Population (all religious)	
	Mal.	Fem.	Mal.	Fem.	Mal.	Fem.	Mal.	Fem.
1891	30,046	30,828	1,715	1,890	452	333	32,781	33,887
1901	26,501	26,810	1,573	1,825	462	366	29,079	29,669
1911	28,239	24,641	1,401	1,451	301	216	26,552	26,984
1921	24,720	25,033	1,372	1,381	301	222	27,060	27,380
1931	28,322	28,345	1,493	1,477	265	171	30,418	30,413

These figures show that the excess of females over males is more or less a constant phenomenon in the taluka and that the recent census figures showing almost an equal proportion between the two sexes are, therefore, not open to question. The following considerations, however, will show that the almost equal proportion of males and females in the population of the taluka is only apparent and not real:—(i) The nature of immigration in the taluka is such that it brings more female than male immigrants to the taluka. (ii) The nature of emigration from the taluka, on the other hand, is such as would go to swell the proportion of female to the disadvantage of male population in this tract. The sex distribution of some of the important castes, whose numbers of either sex are above 1,000 and may, therefore, eventually be taken to affect the sex distribution of the whole population, is given overleaf. We place side by side the figures of castes in which there is a deficiency of females and in which there is an excess of females over males.

Castes with deficiency of females			Castes with excess of females		
Names of Castes	Males	Females	Names of Castes	Males	Females
Kanbi.	2,665	2,460	Kharwa.	1,528	2,354
Koli.	10,118	10,010	Dhed.	1,711	1,980
Talavia.	3,598	3,839			
Dubla.	1,263	1,204	Total	3,239	4,334
Brahmins.	1,614	1,478			
Rajput.	1,064	956			
Total	20,322	19,947			
Difference :	−375	females.	Difference :	+1095	females.

The above figures bring out the interesting fact that the two castes of Kharwas and Dheds, who are well-known for their emigration habits, affect the sex distribution of the population of the taluka. It will also be observed that there is, in fact, a deficiency of females in the stay-at-home castes of this area. We, therefore, conclude that on the whole there is a deficiency of females in the population, and that this real deficiency is concealed by the nature of immigration and emigration.

The causes of the above mentioned real deficiency of females in the population of the taluka are : (i) Female life is generally less esteemed than male. A change for the better, however, is noticeable in this attitude, which is more a feature of the higher castes. (ii) The deficiency of females among Brahmins and Kanbis, is probably due to the early age of marriage and their social customs; among the Kolis and Dublas, it is due to the life of hard work coupled with dangers consequent on frequent child-bearing.

CIVIL CONDITION

According to the census of 1931, out of the total population of the taluka, 28 per cent. were unmarried, 61 per cent. were married and 11 per cent. were widowed. The following table of the percentages of the population in each condition classified by sex reveals a slightly different story :—

CIVIL CONDITION BY SEX (P. C. OF THE TOTAL POPULATION)

	Unmarried	*Married*	*Widowed*	*Total*
Males	32 p. c.	59 p. c.	9 p. c.	100
Females	23 p. c.	63 p. c.	14 p. c.	100

The percentages of the married and the widowed in the case of females are higher than those of males. The proportion of the unmarried among females is, on the other hand, smaller. The effect of the preponderance of Hindus on the figures of civil condition is clearly observed when it is remembered that the total percentages of the married and the widowed work out at 68 and 77 for males and females respectively for the taluka as against 64 and 66 for Gujarat (1921).

In order to understand more clearly the significance of the very large number of married and widowed persons in the taluka, the following statistics of civil condition of persons of each sex between the age of 15 and 40 will be instructive :—

CIVIL CONDITION OF THE POPULATION BETWEEN 15 AND 40

	Unmarried	*Married*	*Widowed*
Males	12 p. c.	82 p. c.	6 p. c.
Females	2 p. c.	90 p. c.	8 p. c.

It will be seen that 88 per cent. of the male population between 15 and 40 consisted of married persons and widowers. On the other hand, 98 per cent. of the females between 15 and 40 were married females and widows. The combined percentage of married and widowed persons is smaller for males than females, and this is probably due to the deficiency of females among some higher castes in which some males have to live and die as bachelors. The universality of marriage, however, is clearly established by the percentages of married and widowed females between the said age limits. The taluka figures in this respect, as in others, are affected by the number of Hindus who are in a majority. Marriage is not only universal in the taluka, but as the following statistics show, it is generally performed at an early age among Hindus :—

NUMBER OF MARRIED AND WIDOWED FEMALES BELOW THE AGE OF 10 YEARS

Age group	*Married*	*Widowed*	*Total number of persons in this age group.*
0–1	49	3	908
1–5	538	15	3,099
5–10	2,096	48	3,785

It will be clear from the above that the practice of marriage of girls before the age of puberty has not undergone any appreciable change. It may be noted that 66 girls have attained

widowhood by the time they completed their ten years. The first two age groups show that early marriage, even before the age of 5, has not ceased in the taluka. But the last age group is more eloquent both on the subject of early marriage, and marriage before puberty, by showing that about 57 per cent. of the females between 5 and 10 years are either married girls or widows.

To revert to the subject in hand, among Jains no girl below 10 years was either married or widowed out of 38 girls below that age. Among Parsis 3 girls were married before the age of 10, and there was no widow below the age of 25. Both these communities are in a minority in the taluka. The figures for Jains, however, show a tendency for raising the age of marriage among them. This is probably due to their greater contact with the outside civilising influences, and their higher economic status than that of the Hindus. It may also be accounted for by the fact that in some cases they enter into marital relations with townspeople, among whom the tendency to postpone marriage to a comparatively late age is more noticeable than among the village people. As for Parsis, late marriage is a rule with them. That 44 per cent. of Parsi females between 15 and 40 years were returned as unmarried is a sufficient proof of this.

The statistics of widowed persons from the strictly economic point of view are perhaps of less interest. The larger proportion of widowed females than males in the total population is due to the fact that the question of remarriage is of importance only with regard to females, males being generally allowed to remarry in all communities. Divorce is allowed among Mahomedans and Parsis, and among the lower strata of Hindu society. It is sufficient to note that among Brahmins, Banias and some other higher castes, and Jains, widow remarriage is not permitted.

CASTES

As caste has a special economic significance in the taluka as in the country, it will be useful to discuss it at some length here. Among the several influences like race, religion and place of domicile, which were at work in shaping caste in its present form, the influence of varying occupations was not the least important. It was birth rather than aptitude which determined, and still determines to a large extent in the villages, a man's vocation in life. We shall discuss the relation between castes and occupations in the taluka. The following are the figures of important castes.

Name of the Caste	*Number of persons*
(a) *Kaliparaj*	
Dubla	10,264
Bhil, Dhodia, Naika, Kokna, Chodhra, Gamit and other Kaliparaj ...	1,266
Total Kaliparaj ...	11,530
(b) *Ujaliparaj*	
Brahmins	3,092
Vania	108
Rajput	2,020
Kanbi	5,125
Koli	20,128
Soni (Goldsmith)	307
Darji (Tailor)	538
Kumbhar (Potter)	1,366
Ghanchi (Oilman)	459
Mochi (Shoe-maker)	146
Luhar (Blacksmith)	224
Suthar (Carpenter)	317
Hajam (Barber)...	530
Dhobi (Washerman)	59
Bharwad (Shepherd)	1,012
Kharwa (Sailor)...	3,882
Machhi (Fisher)...	542
Bava (Religious beggars and mendicants) ...	276
Other Ujaliparaj	282
Dhed	3,691
Khalpa	434
Garoda, Mahar and other Untouchables	176
Bhangi...	92
Total Ujaliparaj ...	44,806
Others	331
Total ...	56,667

Caste has a special significance in Gujarat, where the two broad divisions of the population into the Kaliparaj and the Ujaliparaj are important not only from the sociological but also from the economic point of view. The poverty and general backwardness of the former, their appalling illiteracy and their serfdom even as agriculturists, who only toil in order that the Sowkar may thrive, are too well-known in Gujarat.

The first point to be borne in mind in this connection

is that the Kaliparaj constitute only one-fifth of the total Hindu population of the taluka[1]. Moreover, there are no Kaliparaj agriculturists in the taluka as in some other parts of the district. Dublas, who account for almost the whole of the Kaliparaj population, are pre-eminently a caste from which the supply of agricultural labour is drawn in this area. Any one who has toured in the district will have no difficulty in distinguishing a Dubla agricultural labourer of the taluka from other sections of the Kaliparaj population. He is, more often than not, better dressed than the half-naked Dhodia, Chodhra or other Kaliparaj agriculturist of the Bulsar, Mandvi and Pardi talukas. In his speech and mode of living, on account of his greater contact with the Ujaliparaj, he stands distinct among the Kaliparaj population. The other Kaliparaj castes, who are insignificant individually in the taluka, have also mixed with the Dublas and taken to agricultural labour. The taluka, therefore, does not have the problem of the amelioration of the Kaliparaj people as in some parts of the Surat district and the Panchmahals. We may well say that the taluka is pre-eminently an Ujaliparaj tract.

CASTE AND TRADITIONAL OCCUPATIONS

We have said that common occupation was a chief factor in the evolution of caste. Mr. Risley distinguished seven types or varieties of caste[2], one of which he called the functional or the occupational type. Although, in theory, every caste professes to have a traditional occupation, caste is no longer a fair index to occupation. The Brahmins, for instance, instead of being priests, have taken up various occupations. The question now arises as to how far the artisan and craftsman castes as well as some others, which are pre-eminently occupational or functional castes and take their name from the occupations followed by them e. g. Suthar (carpenter), Soni (goldsmith) etc., have given up their traditional occupations in favour of others.

The table which follows has been prepared to bring into relief this feature of the problem in regard to a number of occupational castes in the taluka.

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1. It may be noted that if Jains, Parsis and Christians are classed as Ujaliparaj as is done by some, (vide p. 43 Foot-note in Mukhtyar's Life and Labour in a South Gujarat Village), the Kaliparaj would account for only one-sixth of the total population.

2. Vide Census of India, 1901, Vol. I, Part I, pp. 521-530.

TABLE SHOWING OCCUPATIONS OF SELECTED FUNCTIONAL CASTES (MALES)

Name of Caste.	Total number of principal earners.	Number of earners who follow the traditional occupation as indicated by the caste with no other occupation.	Number of principal earners who follow the traditional occupation with some other subsidiary occupation.	Number of principal earners belonging to the caste whose principal occupation is								
				Agriculture and Pasture.	Industries (artisans and other workmen).	Transport (labourers etc.).	Trade.	Public administration.	Arts and Professions (lawyers, doctors teachers etc.).	Persons Living on their income.	Domestic service.	Labourers unspecified.
1	2	3	4	5	6	7	8	9	10	11	12	13
Soni (Goldsmith) ...	84	74	...	5	...	...	1	...	...	2	2	...
Darji (Tailor) ...	133	124	3	6	...	...	...	...	...	...	...	...
Kumbhar (Potter) ...	468	115	7	273	60	...	2	...	1	...	...	10
Ghanchi (Oilman) ...	127	43	7	9	3	...	54	...	...	...	5	6
Mochi and Chamar (Shoe-maker) ...	76	52	5	17	2	...	...	...	...	...	...	...
Luhar (Blacksmith) ...	54	47	2	...	...	...	...	...	...	...	...	5
Suthar (Carpenter) ...	107	75	3	22	1	...	1	...	1	...	4	...
Hajam (Barber) ...	114	91	11	6	3	...	...	2	...	...	1	...
Dhobi (Washerman) ...	16	15	...	1	...	...	...	...	...	...	...	...
Bharwad (Shepherd) ...	227	188	7	26	...	...	...	...	...	...	3	3
Dhed (Weaver) ...	842	66	24	705	3	6	...	1	...	...	30	7
Bhangi (Scavenger) ...	31	9	...	5	7	...	...	1	...	...	...	9
TOTAL ...	2,279	899	69	1,075	79	6	58	4	2	2	45	40

The foregoing table brings out that about 58 per cent. of the male earners of these castes, who act pre-eminently as craftsmen, artisans, and personal servants in the villages, find it impossible to maintain themselves by pursuing their traditional callings, or even by combining some other occupations with them. Even in these functional castes, therefore, caste is no longer a safe index to occupation. The most outstanding feature of the whole position is that 82 per cent. of this large proportion, who have taken up occupations other than the traditional ones, have taken to agriculture.

A more detailed examination of the statistics shows that the castes more faithful to their traditional callings in the taluka are the Soni, Darji, Hajam and Dhobi. They constitute those castes of personal servants and artisans, which cater to the personal needs of dress and toilet where competition is the least. Among others, Mochis and Luhars have been able to maintain in a better way their position than other castes; the former, because ready-made shoes have not entered the village market to oust them from the traditional occupation; the latter, because the agricultural needs in the form of implements etc., have still not to compete with foreign implements and tools in this area. Suthars or carpenters seem to have fared a little worse than the foregoing castes. The castes affected the most are the Ghanchi, Kumbhar and Dhed, the last two of which have taken up agriculture. In the absence of other industries, and on account of their backwardness in education, they naturally took to land.

What are the causes of the decline of the age-long occupations at which these castes worked in the taluka? The cheap German, Japanese and other kerosene lamps with their fragile globes, have largely displaced the old type castor oil lamps. Not only this, but in the case of the majority of cultivators in ordinary circumstances, the open-wick kerosene lamps without glass globes or chimneys—a very objectionable type of lamp from the hygienic point of view—is preferred to castor oil lamps. Kerosene has thus almost displaced castor oil which Ghanchis supply. Work in the fields does not seem to have suited the temperament of Ghanchis, who have, unlike other castes, taken to shop-keeping and other trades. The next class to suffer are the Kumbhars or potters. Brass, copper and the cheap aluminium vessels have taken the

place of earthenware pots used for cooking and drinking purposes, and for fetching water. It is most common to find a small number of these brass and other vessels, even among those families who are regarded in this area as the lowest in the social or economic scale. The potters' industry of tile making has also suffered on account of the use of corrugated iron sheets for roofing and other purposes, which, of late, appear to have found favour with the people. Many of the potters of the taluka, not finding it possible to earn a living by their traditional occupation, have swelled the number of those dependent on agriculture. The decay of the indigenous weaving industry, which was the traditional occupation of the Dheds, has been so patent that it does not call for any criticism from us. The statistics reveal that of all castes, the Dheds in very large numbers have become cultivators and field labourers.

We, therefore, conclude that each one of the old village industries has suffered a decline to a more or less degree; that those village industries in which the competition of cheap machine-made goods has been most severe, are the worst sufferers in the taluka; and that with the solitary exception of the Ghanchi caste, which found shop-keeping and trade more suited to its temperament and tradition, every other caste which was compelled to abandon its traditional occupation has tended to increase the number of people engaged in and dependent on agriculture.

OCCUPATIONS

Time and again the census reports allude to the fact that although the occupational statistics collected at the periodical census are the most important from the economic point of view, they are, of all the census statistics, the most complicated and perhaps the least satisfactory, because of the difficulty of accurate collection and precise compilation. In 1931 the Census Superintendents had opined that the occupational statistics had by that date become fairly accurate. These statistics are arranged in the census reports into 4 classes and 12 sub-classes[1]. Following the census scheme of classification of occupations, we give

1. It is useful to note in understanding the discussion which follows that these sub-classes are further divided into 'orders', and the 'orders' into 'groups'.

below the number of persons engaged in different occupations[1] in 1931 in the taluka.

NUMBER OF PERSONS ENGAGED IN DIFFERENT OCCUPATIONS

	Total number of persons employed.	P. C. occupied in each occupation to the total.
A. *Production of Raw Materials* ...	*22,815*	*83·5*
I. Exploitation of animals and vegetation. (Pasture, Agriculture and Fishing).	22,815	83·5
II. Exploitation of Minerals etc.		
B. *Preparation and supply of Material Substances*... ...	*2,359*	*8·6*
III. Industry	1,410	5·2
IV. Transport	457	1·6
V. Trade	492	1·8
C. *Public Administration and Liberal Arts.*	*619*	*2·27*
VI. Public Force	21	0·07
VII. Public Administration ...	236	0·9
VIII. Professions and Liberal Arts	362	1·3
D. *Miscellaneous*	*1,525*	*5·58*
IX. Persons living on their income	47	0·16
X. Domestic Service ...	417	1·5
XI. Insufficiently described occupations	1,000	3·7
XII. Unproductive	61	0·22
Total ...	27,318	

1. The whole scheme of classification of occupations has been evolved after the experience of about half a century by the census authorities and is, on the whole, well adapted to bring out the nature of the occupations of the people. The crude statistics which we could obtain from the Census Office at Surat, have been, after a laborious process and a thorough mastering of the 193 groups of occupations, which the Census Code gives for the purposes of classification, arranged and classified by us, so as to fit in with the census scheme of occupational classification.

The above figures are interesting as showing the preponderance of the agricultural industry in the economy of the taluka. Production of Raw Materials accounts for about 83 per cent. of the workers and the percentage would be still higher if the sub-class Insufficiently Described Occupations[1], is combined with sub-class I. Out of 22,815 persons employed in the Exploitation of Animals and Vegetation, agriculture proper occupies 21,799 or 79·7 per cent., of the total workers. Of the remainder of this group 538 are herdsmen and cattle breeders, who, in reality, are shepherds, and 470 are fishermen. These latter eke out a precarious existence, and are to be found in the west of the taluka on the sea-board. However, the number of persons engaged in pasture and fishing is almost equal to the number of those grouped in the sub-class of Insufficiently Described Occupations. It will, therefore, not be incorrect to say that about 83 per cent. of the workers are connected with agriculture proper in the taluka. The proportion of workers engaged in agriculture, pasture and fishing in this area is much higher than that for the whole of India which for 1921 was 72·2 per cent. The competition of local and imported cheap machine-made goods must be responsible for this large number of persons connected with agriculture.

The next class of occupations characterised as Preparation and Supply of Material Substances, which includes the sub-classes Industry, Transport and Trade, gives employment to about 8 per cent. of the workers of which industry accounts for 5. It is, however, useful to note that it is not the organised or manufacturing industry of the Western type that occupies the above mentioned proportion of workers. They are principally the unorganised and indigenous industries of the taluka which cater for the needs of the village population, like supplying them with the personal and household necessities and the implements of agriculture. A detailed examination shows that the industrial statistics of the taluka are chiefly made up of such workers as carpenters, blacksmiths, potters, tailors, barbers and goldsmiths.

Transport employs 457 persons or 1·6 per cent. of workers. This sub-class would give a misleading picture of the situation, if

1. This sub-class of Insufficiently Described Occupations is almost exclusively made up of 'unspecified labourers', who are probably connected with land in some way.

we did not add that about more than three-fourths of the persons returned as engaged in Transport, were accounted for by the census group 102 of shipowners etc. They are probably some of the Kharwas living on the coast who may have given sea-faring etc., as their occupation. Their occupation is not an integral feature of the taluka economy, for they are employed as lascars on steamships outside the taluka. The next large group under this sub-class is that of railway servants and railway coolies employed on the two railway stations, and on the railway line passing through the taluka.

Trade occupies 492 persons and represents 1·8 per cent. of workers. The most important classes of traders in the taluka are those dealing in foodstuffs who account for more than one-fourth the number engaged in trade. The other important classes are the moneylenders, cloth merchants, hotel-keepers and wine-dealers. But the point that deserves special mention is that a very large number of persons returned as occupied in Trade is accounted for by the census group of 'other trade'. It represents one-fifth the number of workers of this sub-class. This big group of 'other trade' is due to a very large number of general store-keepers and shop-keepers, who deal in a thousand petty articles of daily use and could not be placed in any other group. They are a characteristic feature of rural life in India.

The third class of Public Administration and Liberal Arts accounts for 619 persons or 2·27 per cent. of workers. It includes the sub-classes of Public Force, Public Administration, and Professions and Liberal Arts. The sub-class of Public Force need not detain us long. It employs a fraction of the total workers and is made up of policemen. Public Administration likewise employs less than one per cent. of the total. This sub-class consists of government servants, including village officials and servants, except those like doctors, teachers etc., who could be more appropriately included in the sub-class Professions and Liberal Arts.

Professions and Liberal Arts give employment to 362 persons or 1·3 per cent. of the total workers. The 'orders' which make up the figure of this sub-class are religion, law, medicine, instruction and letters, arts and sciences. The most important 'orders', however, are religion and instruction. They account for about 85 per cent. of workers engaged in Professions and Liberal Arts.

The order of law is made up of 6 lawyers. 'Medicine' engages 42 persons of whom 8 are registered medical practitioners, and 11 local unregistered physicians or Vaidyas, Hakims, etc. It may be of some interest to note that under 'medicine' are included 23 midwives. They are the local 'Dais', generally drawn from certain low occupational castes. Their only training in midwifery is the accumulated experience handed down to them from previous generations, to which they have added their own experience acquired by trial and error. Under the 'orders', letters, arts and sciences, are included 8 actors. They are probably 'Bhavayas', that is, performers of 'Bhavai'[1], who visit the taluka during the summer months.

The last class Miscellaneous includes the four sub-classes of Persons Living on their own Income, Domestic Service, Insufficiently Described Occupations, and Unproductive. Occupations represented by this class could not be conveniently grouped under any one of the other classes. It is rather unfortunate that this class accounts for 1525 persons, or 5·58 per cent. of workers. This proportion is even higher than that for Industry which gives employment to 5·2 per cent. only.

The sub-class of Persons Living on their Income, is made up of 47 pensioners. Domestic Service gives employment to 417 workers or about 1·5 per cent. It consists of 27 private motor-drivers and cleaners, and 390 domestic servants.

The sub-class of Insufficiently Described Occupations has been the bugbear of the Census Officer[2]. This class includes 2 contractors, 119 accountants etc. engaged in private service, 12 mechanics, and a large number of 866 'unspecified labourers'. These labourers far exceed any other occupational group in the whole scheme except those connected with agriculture. We have already said that persons classified as unspecified labourers are probably connected in some manner with agriculture. But the comparatively large group of 'unclassified clerks', who by the nature of their occupation can be regarded as literate, and, therefore,

1. 'Bhavayas' are bands of stray comedians who move about the whole of Gujarat after the close of the rainy season, and provide amusement which attempts to immitate the modern dramas in city theatres. This is perhaps the only amusement of the type which the villagers in Gujarat are able to enjoy.

2. Vide Bombay Census Report 1921, Part I, p. 232.

in a much better position than labourers to answer questions put by the enumerator, deserves little justification. The last sub-class Unproductive accounts for 61 persons who are beggars, vagrants, etc. This unproductive class is perhaps scattered throughout the country[1].

SEX DISTRIBUTION OF WORKERS

We shall now consider the sex distribution of workers in the taluka. We prepared detailed statistics of workers by sex reaching down to the smallest occupational census groups. A detailed discussion by groups, or even the larger subdivisions called 'orders', would be too unwieldy here. We, therefore, give below figures for the twelve important sub-clssses.

	Occupational Sub-class	*Number of Workers*	
		Males	Females
I.	Exploitation of Animals & Vegetation (Agriculture, Pasture & Finishing) ...	12,706	10,109
II.	Exploitation of Minerals etc. ...	...	...
III.	Industry	1,104	306
IV.	Transport	455	2
V.	Trade	434	58
VI.	Public Force	20	1
VII.	Public Administration	230	6
VIII.	Professions and Liberal Arts ...	318	44
IX.	Living on Private Income ...	46	1
X.	Domestic Service	412	5
IX.	Insufficiently Described Occupations	458	542
XII.	Unproductive	60	1
	Total ...	16,243	11,075

1. These beggars and vagrants are found in large number in cities, places of pilgrimage etc., and have become such a feature of Indian life that they may fairly be said to have given rise to a Beggar-Problem on a large scale. They deserve little justification at the hands of the economist. It may be asked, if the time has not come in this country to make a very thorough examination of the whole problem, and for devising ways and means by which the huge wastage of human power and energy, which the sturdy beggars represent, can be prevented by directing their energy to more productive channels. We do not know if the State cannot help in its solution by suitable help at any rate in the initial stages.

It will be observed that with the exception of agriculture, pasture, and fishing, and the class of insufficiently described occupations, female workers play but a small part in the economy of the taluka. Whatever the economic significance of the distinction between the work of a man, who produces the raw material of food in the field, and of the woman, who converts it into food, the fact remains that women do not figure prominently in non-agricultural occupations as workers, who are defined by the Census as persons who work regularly, and help to augment the family income, which can be, or is capable of being measured in money[1].

Apart from considerations like those of child-bearing, looking after infants, sickness etc., the part which tradition and custom play in determining the number of workers among females, can be seen from the fact that out of 27,418 actual workers, 16,343 are males, and 11,075 females. This difference in the number of workers of the two sexes is mainly due to the fact that, women of higher castes in the taluka refrain from any work except that of the household. The attitude of the higher castes to turn their women more and more into parasites, even if it results in a fall in their standard of life, poisons the surrounding atmosphere. These false notions infect those strata of society represented by the Kanbi and Koli castes of this area, who come immediately below them in the social scale.

In recent years we have been hearing much about diversification of occupations, and the creation of subsidiary occupations for the agriculturist. Very little is said or heard of the huge wastage of human energy involved in the self-imposed idleness of large numbers of womenfolk in rural areas, and the way to remove the same. The question is not merely of providing suitable occupations, but of making the women realise their responsibility to the household and the nation. We believe that the necessity of providing suitable occupations that the women could take up and work at in the home in their leisure hours is indeed great. These remarks need not be construed to mean that the duties of the household or even of child-bearing are less important either to the family or the nation. The only point that we need to stress is that social parasitism demoralises no less the class which breeds it than the class which falls prey to it.

1. Vide, Bombay Census Report 1921, General Report, p. 297.

Some women workers are returned as engaged in Industry, because females of such classes as the washerman, the potter, the blacksmith and the like do engage in work, or regularly help the male members in their work. As for trade, some widows of higher castes engage in moneylending, and so do some females of the lower castes gather and sell firewood, or engage in hawking or selling vegetables etc. In Professions and Liberal Arts, a few females work as midwives and teachers, or are connected with temples as religious mendicants. These are some of the occupations commonly open to women.

PERSONS 'SUPPORTED' BY DIFFERENT OCCUPATIONS

We shall pursue the subject of occupations of the people of the taluka further by discussing in some detail the question of the proportion of persons 'supported' by each occupational class. In view of the changes that have taken place in the census schedule in 1931, it was not possible to arrive at these statistics in a direct manner. As the changes in the schedule have an important bearing on the present subject, we have fully explained the same as well as the method adopted to work out the number of persons supported by each occupational sub-class in Appendix I to this chapter. The figures worked out on that basis are given below:—

Number of workers and dependents by sub-class or combination of sub-classes

	Occupational sub-class.	Number of actual workers.	Number of depend-ents.	Total population supported by.
I	Agriculture, Pasture and Fishing	22,815	26,783	49,598
III	Industry	1,410	1,794	3,204
IV-V	Transport and Trade	949	1,842	2,791
VIII	Professions and Liberal Arts	362	562	924
VI	Public Force	21	26	47
VII	Public Administration	236	354	590
IX	Private Income	47	84	131
X	Domestic Service	417	341	758
XI	Insufficiently Described Occupations	1,000	1,000	2,000
XII	Unproductive	61	15	76
		27,318	32,801	60,119

In view of the detailed discussion of the proportion of workers occupied in each of the occupational subclass, it is not necessary to enter into a detailed examination of the proportion of population supported by each on the basis of the above figures. Moreover, we have the authority of both Mr. Sedgwick and Mr. Marten, to say that it is of little advantage to know which occupations support more and which less of the dependent population. It is, however, clear that the picture we have presented in our study of occupations is substantially correct when we observe that the percentage of population supported by agriculture, pasture and fishing in the taluka works out at 82·5 per cent. of the total population, whereas that engaged in the said occupations represents 83·5 per cent. of the workers. The preponderance of agriculture and allied occupations, nay, it would be more correct to say, of agriculture, in the economy of the taluka does not diminish from the point of view of the number it supports; it is equally great.

DENSITY OF POPULATION

The density of population of the taluka at the four censuses held between 1901 and 1931 is given below.

Year	*Density per square mile*
1901	182
1911	171
1921	174
1931	194

The area of the taluka having remained constant, the variations in density are to be accounted for by variations in the movement of population. It would be useful to give figures of density for the 1921 as well as the 1931 census for all the talukas of the district, as they would afford a good basis of comparing differences in density prevailing in the same district.

The table that follows gives the density per square mile of the talukas of the district. For 1921, we have given, besides the absolute density figure, the density per square mile on cultivable area. The other columns are devoted to statistics of rainfall, irrigated area etc. which throw light on variations in density. As regards physical configuration, the Surat district may be said to be, on the whole, a level plain, which does not present difficulties in

cultivation like a rocky or mountainous region. Fertility of the soil is another factor to be reckoned with in the discussion of density in an agricultural tract; it, however, is equally difficult of statistical presentation. Moreover, a fertile soil and a high density do not always go together, for agriculture is more dependent upon rainfall and water supply, and physical configuration than on the character of the soil[1].

DENSITY PER SQUARE MILE OF TALUKAS OF SURAT DISTRICT

(*1921–1931*)

Name of the taluka.	Density per sq. mile (1921).	Density per sq. mile on cultivable area (1921).	Density per sq. mile (1931).	Normal mean rainfall between 1912 and 1922. (Ins.)	Percentage of irrigated area to net cropped area (1922–23).
Chorasi	1,536	2,178	1,534	39·81	1·66
Bulsar	460	558	498	66·84	2·07
Pardi	460	463	473	73·99	1·18
Jalalpore... ...	432	4,608	460	46·56	3·12
Chikhli	382	418	444	65·05	0·87
Bardoli	417	449	338	52·50	0·54
Mandvi	83	273	205	52·24	0·04
Olpad	174	269	194	34·87	0·03

The foregoing table throws light on the relation between density and rainfall. In the three southern talukas of Chikhli, Bulsar and Pardi where rainfall is much heavier than in the northern talukas, the density of the population ranges from 444 to 498; in the three northern talukas it varies from 194 to 338. And yet, no exact correspondence between the volume of rainfall and density can be established with the help of the above figures. The modifications which are introduced in the case of the northern talukas of Chorasi and Jalalpore are not difficult to explain in view of the proportion of irrigated area to net cropped area in these talukas. The more extensive practice of irrigation in Jalalpore places it in line with the southern talukas in this respect.

1. (i) cf. Radhakamal Mukerjee's The Rural Economy of India, p. 84.
(ii) cf. Brij Narain's The Population of India, p. 65.

The case of Chorasi is exceptional. With much the same amount of rainfall, Olpad and Chorasi are at the opposite ends of the scale. Even the practice of irrigation is not sufficient to explain the high density of Chorasi[1], it being more than three times that of Bulsar. Does the existence of the rich Bhatha and Gorat soils of the taluka, which produce valuable garden crops year after year, and the facilitics of a ready and convenient market for this produce in the city of Surat, explain the high density of Chorasi? Although these are contributory factors, the high density of Chorasi is due to the inclusion in it of the high population figure for the city of Surat, which in 1921 was 1,17,434.

We would like to draw attention to column 2 of the table which gives for 1921 the density of population on cultivable area for each taluka. The correspondence between absolute density and density on cultivable area, the latter of which naturally is higher than the former, is well established. The point which would arrest attention is the abnormally high density on cultivable area of Jalalpore. It is more than double the corresponding figure for Chorasi, and more than ten times its own absolute density. This extreme divergence between the two is difficult to explain even by reference to its foremost position in respect of irrigation in the district. Olpad stands last in the scale, and the correspondence between density, rainfall and irrigation is so well established in its case by its rearmost position in each case that it calls for no further observation. And yet, can it be said with accuracy that the pressure of population on resources is the greatest in Jalalpore, Chorasi or Bulsar, and the least or non-existent in Olpad? We shall attempt an answer to the question with reference to Olpad in the following section.

PRESSURE OF POPULATION ON RESOURCES

We are now familiar with the fact of Olpad being pre-eminently a black cotton soil tract, and of its having the lightest density, both absolute and per cultivable area[2], in the district. The latter

1. It may be interesting to note that in 1921 Chorasi was one of the four talukas in the Bombay Presidency with a density above 750. Vide, Bombay Census Report, 1921, p. 34.

2. cf. Professor Radhakamal Mukerji in his Rural Economy of India at p. 84 says "The fertile black cotton soil is nowhere associated with a density of population approaching that of the lower Gangetic plain."

fact should not lead us to conclude that there exists no pressure of population on resources in the taluka. A high density does not necessarily mean pressure of population, nor does a low density indicate its absence.

It will be convenient to study the problem by discussing firstly, whether there exists any pressure of population on resources, and secondly, by attempting to find out the ways and means, in the taluka or outside, of relieving the pressure, if it is found to exist. A consideration of the existence of the pressure would lead us to some interesting calculations. In view of the importance of the conclusion, it is necessary to explain in brief the calculations, and the safeguards in making the same. The taluka is purely a rural tract ; about 85 per cent. of the total number of workers are occupied in agriculture, and a corresponding percentage of population subsists on it. A study of the problem of the pressure of population will, therefore, naturally have to take stock of the agricultural resources of the taluka. As the estimates of yield are either unavailable, or are considered to be inaccurate[1], our discussion will take into account the acreage under cultivation, or to be more precise, the acrage of net cropped area. In the year 1928–29, the net cropped area of the taluka was 1,25,587 acres. Taking into consideration the fact that the taluka is pre-eminently a Jarayat or a dry-crop tract and assuming the existing methods of agricultural practice and so on, let us further assume that 20 acres of land cultivated by a peasant is sufficient to maintain himself and his family at a standard of life considered by him to be necessary. If, therefore, the total net cropped area of 1,25,587 acres were divided between actual cultivators, so that each of them may have a cultivated holding of 20 acres, we should have 6,279 actual self-working cultivators. Let us now see the facts as revealed by the Census of 1931. The detailed occupational statistics show that 5,582 persons are returned as ' principal earners ', being cultivating owners and tenant cultivators. This evidently leaves a margin of 697 persons, who can possibly be absorbed in the cultivation of land without marring economic efficiency. To put the same thing in a slightly different manner, taking the average size of the family in the taluka at 5 persons, 697 more ' principal earners ' with their dependents can

1. Vide B. T. Ranadive's Population Problem of India, p. 127.

eke out subsistence from land for 3,485 persons. But it is not the case, as will be shown presently. In examining the actual returns of those occupied in agriculture, we have left out of consideration the non-cultivating proprietors receiving rent in money or kind, and a very large number of agricultural labourers. In the former class 146 persons are returned as principal earners, and 6,597 in the latter. In order to be cautious in our calculations, the number of female agricultural labourers returned as principal earners may be left out, for it may be suggested that these female earners either add to the income of the male labourers, or, if widows, support none but themselves. The number of non-cultivating proprietors and male agricultural labourers returned as principal earners, therefore, comes to 3,888. Taking again the average size of the family at 5 persons, this accounts for 19,440 persons actually dependent on the soil. If we set off against this, 3,485 persons, who could possibly be maintained out of agricultural resources, we are still faced with a net surplus population of 15,955 persons at present pressing on the soil. It may be argued that our calculations are based on the fallacy of dispensing with agricultural labourers. To this our answer is that they are based on the assumption that the self-working cultivator does the actual field work, drives the plough and the harrow, secures, if required, the assistance of the members of the family, and employs outside labour only when absolutely necessary. This will mean that the class of agricultural labourers, according to the assumption, will find work only casually, and during certain periods of heavy and pressing work. This class, therefore, would be pressing on the soil, if not in the absolute sense at least in the relative sense. Moreover, we have excluded from consideration the large class of 'unspecified labourers', who are probably connected with land; we have secondly excluded the female agricultural labourers; and we have thirdly excluded those persons who are returned as pursuing agriculture as a subsidiary occupation. These facts, in our opinion, ought to satisfy even an overzealous critic. In any case, the above calculations work out at 15,955 persons, or about one-fourth of the total population, pressing on the resources of the taluka.

It will naturally be asked, whether there are any actual indications in the taluka of the pressure of population on resources. To this our answer is both definite and emphatic. We have

already referred to the emigration of Kharwas, who go to Africa, and to other parts of this country in search of employment. It may perhaps be said that the Kharwa and other castes known for their emigrational habits are not by tradition or occupation agriculturist. We readily grant the force of this contention. But even among the predominantly agricultural classes like the Kolis, Kanbis and Rajputs in the taluka, signs of pressure on the soil are not wanting. We came across a few Koli families in which the male members had emigrated out of India, and, in some cases, even returned empty-handed, crushed by the debt incurred to pay for the expenses of emigration. More than this, a close acquaintance with local conditions shows that persons belonging to these castes are now taking to non-agricultural occupations like that of a school-master or a revenue accountant. They are as anxious as any other caste in the taluka to see their members taking to such petty non-agricultural employment. We may say that some of the families of these castes are prevented from giving their sons higher education due to want of financial resources. These facts, borne out by our observation in the area, are sufficient indications of the pressure of population on agricultural resources. There are, besides, other considerations which point to the same conclusion. The rents paid by tenants for the cultivation of land have been continuously rising, and have probably reached a point where they have become uneconomic. The competition for land has increased, so much so that the tenants undertake to pay rents which they cannot afford ; and, as will be seen in our discussion of the problem of indebtedness, some of the tenants are now groaning under the load of debt contracted to pay the rents. We conclude therefore, that there exists a pressure of population on resources in the taluka.

REMEDIES

(*a*) EXTENSION OF CULTIVATION

We give below some statistics to show if there is any possibility of extension of cultivation in the taluka. The statistics refer to the year 1922-23, for it is possible to obtain comparative statistics for the said year for other talukas of the district as well. Moreover, the land classed as uncultivable in that year is not likely to become cultivable within a couple of years, when we

know that nothing noteworthy has happened in the district in the last few years to bring about such a change.

CULTIVATED AND CULTIVABLE AREA

1922-23

Name of the Taluka	Percentage of cultivable area to the total area for which statistics are available	Percentage of cultivated area to the total	Percentage of net cultivated area to cultivable area	Percentage of irrigated area to net cropped area
1	2	3	4	5
Olpad	64·60	63·15	97·69	0·03
Chorasi	75·08	74·43	99·13	1·66
Mandvi	67·42	60·45	89·65	0·04
Bardoli	87·72	87·59	99·85	0·54
Jalalpore	87·85	61·77	70·41	3·12
Chikhli	89·98	86·11	95·67	0·87
Bulsar	83·94	75·70	90·17	2·07
Pardi	88·70	87·29	99·40	1·18
Valod Peta	89·64	89·09	99·03	0·27
TOTAL ...	78·93	73·07	92·58	0·98

What is of interest to us is to know the extent of cultivable land not cultivated at present, for it is the proportion of actually cultivated area to total cultivable area, that indicates the possibility of extending cultivation, or bringing uncultivated land under the plough. This information is given in column 4 of the table. It will be observed that less than 3 per cent. of the cultivable area is not cultivated in Olpad. It is, therefore, clear that the possibility of bringing more land under the plough in the taluka is almost non-existent, and can be ignored as a measure of relieving the pressure of population. The prospects within the district are also not bright. Jalalpore, with a margin of 30 per cent. between cultivable and cultivated land, is the only taluka which stands out

prominently in the table. We have, however, seen that it is the most densely populated taluka in the district from the point of view of density per cultivable square mile. If this fact is recalled, it is not too much to assume that this margin of cultivable land, not actually cultivated, must be incapable, for reasons difficult to explain, of being brought under cultivation. The same can perhaps be said about talukas of Bulsar and Mandvi, each of which shows a margin of about 10 per cent. The other talukas are not much better than Olpad in this respect and call for no special reference. We can, therefore, say that not only are the possibilities of extension of cultivation in the taluka itself non-existent, but that, even if it were theoretically possible to divert the surplus agricultural population of the taluka to other parts of the district, the possibilities of extension of cultivation are either very limited or non-existent. Moreover, we do not know if the other talukas suffer from the same evil of the pressure of population on resources. In the event of this being the case, it is impossible to expect or search for relief of the sort we are thinking of within the district itself.

(*b*) INTENSIVE CULTIVATION

Intensive cultivation may mean more use of manure, or the substitution of heavy yielding varieties of crops for light yielding ones. In short, it means use of more capital and labour on the existing cultivated land. More manure means more water or, in other words, more irrigation ; and the limitations of extension of irrigation in the taluka have already been discussed in a previous chapter. As regards the substitution of other heavy yielding varieties of crops for those cultivated at present, we do not foresee any revolutionary changes. Lastly, intensive cultivation would mean more capital, and its dearth is the thing from which the average cultivator suffers at present. We do not hope that any relief is likely to be secured from this direction, at any rate in the immediate future, in solving the problem of the pressure of population in the taluka.

(*c*) COTTAGE INDUSTRIES

We have reserved a fuller discussion of this subject to a later chapter. Here it is sufficient to observe that the development of subsidiary occupations is an important measure in the rural reconstruction of the taluka ; they will have to be devised and

advocated to give employment to the already underemployed peasants. They will be a useful source of supplementing the slender resources of the average cultivator. Their value as a specific for curing the disease of pressure of population on land is great.

(*d*) MIGRATION

This leads us to consider whether there is any other possibility of relieving the pressure of population in the taluka. There are two definite and clear-cut methods: emigration of the surplus population to (a) countries outside India; and (b) to other parts of the country. On the question of the possibilities of overseas emigration of the Indian population, all competent authorities are agreed that such possibilities are non-existent. The daily tale of the disabilities under which the Indian immigrants in Africa are suffering, and the growing prejudice against the coloured immigrants in overseas countries are facts too well-known to the Indian public. We do not see if any relief is likely to accrue from that quarter. The question then ultimately resolves itself into migration of the surplus population within the country itself. Under present conditions of industrial development of the country we seek in vain for relief by migration within the country.

CONCLUSION

The remedy lies in rapid and intensive industrialisation of the country, and development of diversified non-agricultural occupations to which the surplus agricultural population can be diverted. Our conclusion, therefore, is that the real problem of the agriculture of the taluka cannot be satisfactorily solved unless the existing pressure of population, which goes to make the *per capita* share of the taluka's income less and less, is relieved by the development of other non-agricultural industries and subsidiary occupations.

APPENDIX I

SHOWING THE METHOD OF ARRIVING AT THE NUMBER OF PERSONS 'SUPPORTED' BY DIFFERENT OCCUPATIONS

It would be useful to introduce this subject with a few remarks on changes in the census schedule. We give below for comparison the columns dealing with occupations in the census schedule for 1921 and 1931.

1921			1931		
Occupation or means of subsistence of actual workers.		For dependants the occupation of the worker by whom supported.	Earner or dependent.	Principal occupation (this will be blank for dependents.)	Subsidiary occupation (Occupation of dependants may be given.)
Principal	Subsidiary				
9	10	11	9	10	11

In order to make a correct use of the occupational statistics, it is necessary to know what these columns mean, for, of all the columns, these are the most complicated and difficult to understand. To take up first the 1921 columns dealing with occupations, columns 9 and 10 were meant for filling in the principal and subsidiary occupations respectively of actual workers[1]. Column 11 was to remain blank for actual workers; here, the occupation of the persons on whom dependents, like children and infirm persons, relied for their maintenance was to be entered. In 1921, therefore, we could know the number of persons supported by each occupation by combining the number of actual workers engaged in that occupation with the number of dependants supported by it. The census columns in 1931 have changed in some important respects. The occupational columns at the 1931

1. It should be noted that among workers were included such persons as women and children who worked regularly and whose work helped to augment the income of the family, e.g. a boy who acted as a regular cowherd to his father's cattle.

census aim at the primary classification of persons into earners[1] and dependents. It is important to note that at the 1931 census, in column 9 only those persons who earn a wage were shown as 'earners', e.g. if a son of a cultivator regularly works in the fields but does not earn a separate wage, he would be shown as 'dependent' in column 9 and his occupation will be shown in column 11. He would be a 'working dependent' for the purposes of classification. The principal and subsidiary occupations of 'earners' were shown in columns 10 and 11 respectively. To obtain the number of 'actual workers' engaged in an occupation in 1931, we have, therefore, to combine the figures of 'principal earners' of column 10 with 'working dependents' of column 11. The columns say nothing about the occupations by which the 'non-working dependents', or only dependents as we would call them, are supported.

Although it is possible even now to know the number of workers employed in an occupation, it is not possible to know the number of dependents supported by it. Unlike 1921, it is therefore, not possible to know on the basis of the 1931 figures the number of persons supported by each occupation.

The crude occupational statistics for the taluka, which we obtained from the Census Office and which we compiled and classified to suit our purpose, being based on the columns of the schedule used in 1931, naturally did not say anything about the number of dependents supported by each occupation. In the absence, therefore, of direct evidence in this connection, we have made an attempt to arrive at the figures of the number of persons 'supported' by each sub-class of occupation by calculating in the following manner the number of dependents supported by each occupation. We took the following figures of workers and dependents in the agricultural, industrial, commercial and professional population for Surat district for 1921, and on that basis we worked out the figures of dependents for the taluka. It is interesting to note that the total of workers and dependents thus arrived at falls short of the total population, with which it should tally, by a small fraction of a per cent. of the total population. We, therefore, have no hesitation in giving the figures as being

1. It may be noted that the term 'actual workers' of 1921 disappears now and in its place 'earner' is substituted.

good for general purposes. We give below the figures of percentages of workers and dependents for Surat district. We have given in the table on page 59 the taluka figures of workers as we actually obtained, and of dependents as we have calculated on the basis of the proportion of workers to dependents as shown by the following figures.

DISTRIBUTION OF THE AGRICULTURAL, INDUSTRIAL, COMMERCIAL AND PROFESSIONAL POPULATION IN SURAT DISTRICT (1921).

P. C. on agricultural population of (Agricultural order 1 (a) and (b).		P. C. on industrial population of (Sub-classes II and III *i. e.* Mining & Industry.)		P. C. on commercial population of (Sub-classes IV and V *i. e.* Transport and Trade.)		P. C. on professional population of (Sub-class VIII *i.e.* Professions & Liberal Arts.)		P. C. on other population of (*i.e.* other orders of class I, sub-classes VI, VII & IX to XII*.)	
Actual Workers	Dependents	Actual Workers	Dependents	Actual Workers	Dependents	Actual Workers	Dependents	Actual Workers	Dependents
46	54	44	56	34	66	37	63	61	39

* 'Other population,' contains, as we see, a large number of classes which in the above statement are given after sub-class VIII. In view of the smallness of number in one or the largeness in the other of the remaining sub-classes, we did not think it proper to employ district percentages; we have instead taken percentages of workers and dependents for each of the remaining sub-classes for the Presidency.

CHAPTER IV

Land and its Problems

RELATION OF THE PEOPLE TO LAND

In order to consider the various ways in which people usually have interest in land, it is useful to divide the agricultural population of the taluka into the following classes :—

(i) Landlords living on rent alone.

(ii) Cultivating owners, who are generally small proprietors, cultivating their own lands, and taking on lease more lands, or sometimes giving a part of their lands on lease. Some of them also work as agricultural labourers to supplement their earnings.

(iii) Tenant cultivators who take on lease lands either for short or long periods on payment of rent. They also, like the former class, work as agricultural labourers.

and

(iv) Agricultural labourers.

According to the census of 1931, there were 146 rent-receiving landlords, 5,524 cultivating owners, 58 tenant cultivators and 6,597 agricultural labourers in the taluka. The agricultural labourers are so numerous as a class, and the problem they create is so important that we have devoted a separate chapter to the treatment of the problem of agricultural labour.

LAND AND ITS DIVISIONS

(A) CLASSES OF SOIL

We shall first consider the principal varieties of soil into which the lands of the region are generally divided. They are Jarayat (or dry-crop land), Kyari (or rice-land) and Bagayat (or garden land). The areas of land under each of these classes as determined at the time of the First Revision Survey Settlement in 1896 were as follows :—

Nature of Land	*Area (acres)*
Jarayat or Dry-crop	126,068
Kyari or Rice	4,280
Bagayat or Garden	348
Total ...	1,30,696

If the area classed as uncultivable at the time, which was 71,567 acres, be added to the above figure, we get the total area of the taluka at 2,02,263 acres. The taluka is pre-eminently a Jarayat tract. Kyari or rice land is hardly 3 per cent. of the total cultivable area and Bagayat or garden land is almost negligible. We have alluded in a previous chapter to the fact of the transfer of four pre-eminently Bagayat villages since the Revision Settlement to the adjoining taluka of Chorasi. If, therefore, Bagayat or garden land becomes almost a negligible quantity at the time of the Second Revision Survey Settlement of the taluka, we shall not have any cause for surprise.

(B) SUBDIVISION AND FRAGMENTATION OF LAND

The term 'subdivision' has been defined by the Royal Commission on Agriculture in India as follows:—"By 'subdivision' we mean the distribution of the land of a common ancestor amongst his successors in interest, usually in accordance with the laws of inheritance, but sometimes effected by voluntary transfers amongst the living by sale, gift or otherwise[1]." The real point of this definition is that subdivision is generally the result of an increase of holders within a family. The problem, therefore, resolves itself into a consideration of the extent of areas held by persons who have some kind of permanent hereditary right in the lands they hold. The importance of the problem of subdivision lies in this that for success in cultivation a holding must conform in size to economic requirements.

SYSTEM OF LAND-TENURE: ITS RELATION TO THE PROBLEM

The system of land-tenure in the taluka has been Raiyatwari. The law which defined this system, and is embodied in the Bombay Land Revenue Code (Bombay Act V of 1879), characterises this tenure as Survey or Occupancy Tenure. The Code calls the landholder an occupant and describes what occupancy means. The right of occupancy is itself a permanent, heritable and transferable property, subject to the payment of the revenue assessment. The tenure is known as Raiyatwari, because each landholder or occupant, who is locally known as 'Khatedar', holds his land direct from Government and pays his revenue dues direct to the

1. Vide, Report of the Royal Commission on Agriculture in India, p. 129.

village officers who represent the Government. Such is the legal position of the landholder or the occupant in the taluka.

KHATEDARS OR OCCUPANTS NOT NECESSARILY ACTUAL CULTIVATORS

The nature of the tenure described above does away with the existence of complicated grades of interest in land, like those of superior and inferior proprietors as found in Northern India. It, however, does not do away with the existence of tenants under the occupants[1]. The occupant or landholder has a clear legal right to sell or otherwise alienate the whole or part of his land without the permission of Government. The result is that there are six different ways in which people in the taluka have interest in land: (1) There are some persons who own but do not cultivate land, that is to say, who are non-cultivating owners. (2) Some persons both own and cultivate only the land they hold, and neither give nor take on lease extra land for cultivation. (3) There are persons who cultivate all the land they own, and also take on lease extra land for cultivation. This class is the most numerous in the taluka. (4) Some persons cultivate only a part of the land they own and give on lease the rest. (5) There are persons who cultivate only a part of their land, give on lease the rest, and also take on lease some land belonging to others. (6) And there are persons who do not own any land themselves, but merely cultivate as tenants land owned by others. In brief, all landowners are not necessarily cultivators of the land they own, nor are all cultivators owners of the land they cultivate. We give a table in Appendix I to this chapter classifying for the villages studied the owners and cultivators of lands in these six classes. It will be observed that the most important classes are those of owner cultivators, and cultivators who attempt to enlarge the owned holdings by taking extra land on lease. It is because the conditions of holding land both in ownership and cultivation are not so simple as represented by the second category of persons described above that introduce an element of complexity in our discussion of the problem.

1. It is interesting to note that the Bombay Land Revenue Code scrupulously avoids the use of such terms as 'proprietors' or 'owners' with reference to the occupants.

TWO ASPECTS OF THE PROBLEM

It will thus be clear that the extent of areas held by occupants in the taluka differ from those tilled by actual cultivators. The problem of subdivision of land in ownership therefore differs from that of subdivision in cultivation. The former is a consideration of the legal aspects of landholding, while the latter is primarily a discussion of its economic aspect. We shall keep the two aspects distinct in our discussion. Our justification for considering the legal aspects of landholding lies in this, that it tends to be reflected in the subdivision of cultivators' holdings. It is easy to understand that from the economic point of view, the question 'who holds the land' is of much less importance than 'who cultivates it'. Subdivision of occupants' holdings is thus a lesser evil than that of cultivators' holdings.

FRAGMENTATION OF HOLDINGS

For successful cultivation, a holding must conform not only in size but also in constitution to economic requirements. The problem of subdivision refers to the size of the holding; the problem of fragmentation has reference to the structure of the holding. If a holding, over and above being of uneconomic size, is also unsuitable in structure, the evil of subdivision becomes still more serious in this, that the holding will become more uneconomic. Fragmentation is a process by which the land held by an individual comes to be scattered throughout the village area in small plots or fields and does not form a contiguous block. As in the case of subdivision, the fragmentation of holdings held by occupants will differ from the fragmentation of areas taken for cultivation by actual cultivators. It may, however, be observed that, like subdivision, the fragmentation of the holdings of occupants tends to be reflected in the fragmentation of cultivation. We shall, therefore, consider the fragmentation of holdings in both the aspects of ownership and cultivation.

ECONOMIC HOLDING. THE SIZE ADOPTED FOR THE TALUKA

Before undertaking the discussion of subdivision of holdings, it would be proper to fix the size of an economic holding for the taluka. The definition of 'economic holding' has raised a controversy among Indian Economists. The controversy mainly centres round the question, whether production or consumption is

to be adopted as the criterion in defining an economic holding. Those who have the first criterion in mind, define it as a holding which can be managed with a pair of bullocks without incurring any loss as regards the costs on and returns from it. There are others who adopt the second criterion of consumption, and define it as a holding which will provide for an average family at the minimum standard of life considered necessary. This second definition is perhaps more satisfactory from our standpoint, firstly, because it refers to the cultivator and his family who are supported by it, and secondly, because in a study of this nature it is the one which is more usually adopted[1].

The income from a piece of land will depend upon a number of factors, such as the nature of the soil, crops, climate, marketing facilities, and so on. It will also depend upon the practice of irrigation and intensive cultivation. Taking all the pertinent factors into consideration and assuming the average size of a family at 5 persons, we have adopted 20 acres as the size of an economic holding for the taluka. That our assumption, if it errs at all, does not err on the side of overestimation, will be clear from the following considerations. It may be recalled, in the first place, that the taluka is essentially a Jarayat or dry-crop tract. Secondly, there is little of irrigation to speak of, and consequently the system of cultivation is extensive. The tract entirely depends upon rainfall whose caprices are well-known. Thirdly, there are two precedents which strengthen us in the view we have taken. Mr. Mukhtyar, in his study of a village in South Gujarat, with its abundance of well and tank irrigation, assumed 15 acres as the size of an economic holding of which 3 acres were to be Kyari or rice land. No such favourable conditions in respect of irrigation exist in the taluka, nor is any assumption as to Kyari or rice land possible. The holding to be economic should, therefore, be larger in the present case than that assumed by Mr. Mukhtyar. Another precedent is furnished by the following observation made on the subject by Mr. Keatinge in his 'Agricultural Progress in

1. (i) Cf. Mr. Mukhtyar's Life and Labour in a South Gujarat Village, p. 113. (ii) Mr. Keatinge's Rural Economy of the Bombay Deccan, p. 52. Mr. Keatinge defines an economic holding as a holding which supports a man and his family in reasonable comfort after paying his necessary expenses.

Western India' : "A good cultivator aims at cultivating 15 to 20 acres with one pair of bullocks". This size of a holding was regarded as economic for the dry-crop villages of the Surat district, and such in fact are the villages of the taluka.

SUBDIVISION OF HOLDINGS

The following figures give an idea of the distribution of agricultural holdings in the taluka in the years 1903-04 and 1921-22.

SIZE OF HOLDINGS[1]

Year	Number of Holdings						Total Area of Holdings	Average Size of Holding
	Under & upto 5 acres	Over 5 & upto 25 acres	Over 25 & upto 100 acres	Over 100 & upto 500acres	Over 500 acres	Total Number		
1903-04	6,621	6,309	1,010	36	...	13,976	1,21,536	8·7
1921-22	6,787	4,666	911	64	...	12,428	1,15,634	9·3

PARADOX OF INCREASED AVERAGE SIZE OF HOLDING AND PROGRESSIVE SUBDIVISION

If we were to confine our attention to the last column in the foregoing table, it would appear that there is no cause for alarm in respect of the size of holdings in the taluka. The average area of a holding shows a slight increase, and this fact, one would think, is sufficient to allay all anxiety regarding subdivision of holdings. A word of caution is here necessary. The process of subdivision may go on with reference to the medium sized and small holdings, and yet the average size of a holding may nevertheless show an increase. It may come about thus. The lands held by small cultivating owners may pass out of their hands, and we may thus have a single large non-cultivating owner, say, a moneylender, in the place of a number of small landholders. With the total area of a region remaining the same, and a decrease in the number of landholders, the average size of a holding may show an increase. We

1. The figures are taken from the Statistical Atlas of the Bombay Presidency, 2nd and 3rd Editions.

have no desire to say with definiteness at this stage that this has actually happened in the taluka. This may, however, be put forward as a hypothesis which, if it is possible to get the required data for both the dates given, may be tested. In the course of our investigations, we came across a certain number of tenant-cultivators, who, originally held some land, and having sold it to a money-lender to pay off their debt, have now become mere tenants. It is facts like these that lend support to the above hypothesis. It, however, shows that mere averages prove nothing, and may often be misleading. Moreover, any feeling of unfounded optimism arising out of a superficial study of the average at once vanishes by looking more closely into the figures of the different sizes of holdings. The facts revealed by a close study of the statistics given in the previous table are :—(i) The number of holdings over 5 and upto 25 acres, and those over 25 and upto 100 acres, have decreased ; (ii) The number of holdings over 100 acres and those below 5 acres have increased. In other words, the very tiny holdings at one end of the scale, and large holdings at the other have increased, and the number of small and medium sized holdings has diminished. The conclusion from these facts is that the increase in the number of holdings at either end has been brought about by a process of subdivision of the small and medium sized holdings. How this two-fold tendency must have worked to the detriment of a number of economic holdings, which have now become multiplied into a large number of uneconomic holdings, will be clear from the following considerations. The process of subdivision of holdings in the taluka has gone on with reference to that particular class of holdings in which its operation becomes a serious evil. The holdings of the size of 5 to 25 acres are, as a rule, cultivated by the owners themselves. Their subdivision into very tiny holdings means that the evils arising from the subdivision of occupants' holdings tend to be more or less reflected into what is a more serious evil viz. the subdivision of cultivators' holdings. The reason is to be found in the tenacity with which the owners of the tiny holdings of less than 5 acres cling to their land. We found that they try to supplement the income from the tiny plots of land by working as agricultural labourers. They do not lease their plots to owners of larger holdings than their own, and take to other non-agricultural employment. This latter course, obviously, as we have seen, is not open to them under present conditions.

SUBDIVISION OF OCCUPANTS' HOLDINGS AS REVEALED BY OUR INQUIRY

We give below an analysis of the data collected by us on this question with special reference to the following points :—

(i) The total number of landholders or occupants ;
(ii) The total area held ;
(iii) The average size of the holding ;
(iv) The nature of distribution of the total area held as between different landholders.

TABLE SHOWING SIZE OF OWNED HOLDINGS[1]

Name of the village and Group	Total Number of land-holders	Total area held	The average size of the holding
Umra ...	31	356	11·4
Bhadol ...	43	465	10·8
Sandhier ...	18	385	21·4
Total—Gr. I ...	92	1206	13·1
Sonsak ...	26	352	13·5
Ichhapore ...	102	547	5·3
Total—Gr. II ...	128	899	7·02
Mahmadpore ...	19	370	19·4
Atodra ...	33	324	9·8
Pardikoba ...	24	121	5·04
Total—Gr. III ...	76	815	10·7
Total—Grs. I to III ...	296	2920	9·9
Karanj ...	19	178	9·3
Kuwad ...	49	156	3·1
Kasla ...	24	170	7·0
Total—Gr. IV ...	92	504	5·4
Pinjarat ...	102	679	6·6
Damka ...	87	469	5·3
Bhagwa ...	14	16	1·1
Total—Gr. V ...	203	1164	5·7
Total—Grs. IV to V ...	295	1669	5·6
Grand Total of All Groups ...	591	4589	7·7

1. According to the usual practice in presenting these figures, we have regarded all joint holdings as though they were held by one of the joint holders. The number of holdings, therefore, becomes co-extensive with the number of holders.

SUMMARY TABLE

Group or Zone	*Average size of holding* (acres)
I	13·1
II	7·02
III	10·7
Eastern Zone (Grs. I, II & III) ...	9·9
IV	5·4
V	5·7
Western Zone (Grs. IV & V) ...	5·6
Average of all Groups ...	7·7

CLASSIFICATION OF VILLAGES ACCORDING TO AVERAGE SIZE OF HOLDING

Number of villages with the average size of the holding	
	above 20 acres ...1
„ „ „ „	between 15 and 20...1
„ „ „ „	„ 10 and 15...3
„ „ „ „	„ 9 and 10...2
„ „ „ „	„ 7 and 9...–
„ „ „ „	„ 5 and 7...5
„ „ „ „	below 5 acres ...1
	Total ... 13

We conclude from these figures that: (i) The average size shows variations from village to village. It ranges from about 21 acres in the case of Sandhier with its preponderance of Kanbi landholders, to 3 acres for Kuwad with its entirely Koli population[1]. (ii) The average size of a holding for the eastern zone of the taluka is 9·9 acres; it is 5·6 acres only for the western zone, or about one-half the size of the former. (iii) The same tendency is revealed by a study of the frequency table already given. It shows that in six villages out of thirteen, the average size of a holding is 7 acres or below it. Of these six villages, four are Koli villages of the western zone; the other two are Koli villages of the eastern zone. The remaining seven villages, with the average size of a holding above 9 acres, belong to the eastern zone[2]. From this it follows that a village chiefly populated by Kolis, irrespective of its position in our scheme of study groups, is essentially a village of petty landholders, and a village with a predominating element of Kanbi, Rajput and other high castes is, comparatively speaking, one of medium sized holdings. It will also be observed that the average size of a holding, whether for the village, the group, or the zone, falls far below the size of an economic holding for the taluka which we have put at 20 acres.

We shall now consider the exact distribution of land as between different landholders. The following table gives the relevant data :—

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1. The village of Bhagwa (Group V) with its average size of 1 acre should be excluded from consideration, as the small Kharwa landholders, who account for this average size, are not agriculturists by profession. They hold tiny plots of land, which sometimes grow nothing except a few shrubs used by them for burning as fuel. We were informed that they prefer to pay land revenue assessment to Government, which, by the way, is a small amount, for these salt lands on the coast, to relinquishing the tiny plots of land to Government. To relinquish an ancestral piece of land means to a Kharwa loss of prestige (*ijjat*). It may be noted that we have for this reason also excluded this village in the classification of villages according to the average size of the holding.

2. In these seven villages is included the Parsi village of Karanj (Gr. IV)

TABLE SHOWING DISTRIBUTION OF LAND BETWEEN DIFFERENT LANDHOLDERS

Name of the Village and Group	Number of Holders with											
	more than 100 acres	71–100	51–60	41–50	31–40	21–30	15–20	11–15	6–10	1–5	below 1 acre	Total
Umra	...	...	1	...	1	5	1	3	5	12	3	31
Bhadol	...	...	...	1	3	1	4	5	13	13	3	43
Sandhier	...	1	1	1	3	1	1	1	5	4	...	18
Total Group I	...	1	2	2	7	7	6	9	23	29	6	92
Sonsak	...	...	1	...	1	3	1	7	7	6	...	26
Ichhapore	...	...	...	...	2	...	4	8	15	56	17	102
Total Group II	...	...	1	...	3	3	5	15	22	62	17	128
Mahmadpore	...	1	...	1	1	2	2	4	3	5	...	19
Pardikoba	...	...	...	...	...	...	1	3	3	11	6	24
Atodra	...	...	...	1	1	2	1	5	7	15	1	33
Total Group III	...	1	...	2	2	4	4	12	13	31	7	76
Karanj	...	...	...	1	...	...	3	1	6	7	1	19
Kuwad	...	...	...	...	...	...	1	1	7	24	16	49
Kasla	...	...	...	...	...	2	1	3	4	8	6	24
Total Group IV	...	...	...	1	...	2	5	5	17	39	23	92
Pinjarat	1	...	1	1	2	2	5	7	14	49	20	102
Damka	...	...	...	1	...	...	4	7	15	46	14	87
Bhagwa	...	...	...	...	...	...	...	...	...	6	8	14
Total Group V	1	...	1	2	2	2	9	14	29	101	42	203
Grand total of all groups	1	2	4	7	14	18	29	55	104	262	95	591
Percentage of the total	0·17	0·34	0·68	1·18	2·37	3·05	4·90	9·31	17·60	44·33	16·07	100·00

It need not be too often repeated that mere averages may prove misleading. One or two substantial landholders among a large number of very small holders may help to raise the average size of a holding, thus giving an incorrect picture of the situation. The present discussion is thus primarily meant to serve as a corrective to that based on averages.

The holdings of each village and group have been classified according to the size of the respective holdings. An examination of the detailed results of such classification for each village would be tiresome. A discussion based on the following summary table giving figures for each group will be helpful in bringing out the important tendencies :—

SUMMARY TABLE

Group	Total number of Holdings	Number of holdings of or above the size of the Economic Holding	Number of Uneconomic Holdings	Percentage of Uneconomic Holdings to the total
I	92	19	73	79·3
II	128	7	121	94·5
III	76	9	67	88·1
IV	92	3	89	96·7
V	203	8	195	96·0
Grand Total of All Groups	591	46	545	92·2

Comment is unnecessary except that the proportion of uneconomic holdings is very high and that the tendency for more and more holdings to be uneconomic becomes accentuated as we pass from one group to the other. This upward tendency, as revealed by a high percentage of holdings to be uneconomic, suggests that not only the average size of a holding is smaller in the western than in the eastern zone, but that the proportion of uneconomic holdings is also higher in the Koli villages of the western zone.

The seriousness of the problem of uneconomic holdings, however, will be best appreciated by an examination of the frequency groups of 1 to 20 acres. A detailed analysis of holdings for all groups combined shows that : (i) 60 per cent. of the holdings are less than 5 acres in size (ii) 17 per cent. are from 6 to 10 acres

(iii) 9·31 per cent. are of 11 to 15 acres, and (iv) only 4·90 per cent. are from 15 to 20 acres. Incidentally, this shows that the average size of a holding, namely 7·7 acres, is misleading, in as much as a very large number of holdings are less than 5 acres in size. The average size thus reflects the existence of a small number of substantial holdings which helps to raise the average. These facts are sufficient to establish the seriousness of the problem of subdivision of owned holdings in the taluka.

SUBDIVISION OF CULTIVATORS' HOLDINGS OR AREAS TAKEN FOR CULTIVATION

As in the case of owned holdings, we give in the following tables data regarding : (i) the number of cultivators, (ii) the total area cultivated between them, (iii) the average size of a cultivator's holding, and (iv) the exact nature of distribution of land between different cultivators.

TABLE SHOWING SIZE OF CULTIVATED HOLDINGS

Name of the Village and Group.	Total number of Cultivators.	Total area Cultivated. Acres.	Average size of area taken for cultivation. Acres.
Umra	32	479	14·9
Bhadol	45	775	17·2
Sandhier	19	515	27·1
Total Gr. I	96	1769	18·4
Sonsak	28	454	16·2
Ichhapore	109	950	8·7
Total Gr. II	137	1404	10·2
Mahmadpore ...	18	530	29·4
Pardikoba	25	245	9·8
Atodra	45	841	18·6
Total Gr. III	88	1616	18·3
Total Grs. I to III ...	321	4789	14·9
Karanj	18	169	9·3
Kuwad	38	277	7·3
Kasla	23	250	10·8
Total Gr. IV. ...	79	696	8·8
Pinjarat	118	873	7·4
Damka	68	621	9·1
Bhagwa	13	13	1·0
Total Gr. V	199	1507	7·5
Total Grs. IV & V ...	278	2203	7·9
Grand Total of all Groups	599	6992	11·6

TABLE SHOWING DISTRIBUTION OF CULTIVATED HOLDINGS

	Number of Holders with									
	more than 50 acres	41 to 50	31 to 40	21 to 30	15 to 20	11 to 15	6 to 10	1 to 5	below one acre	Total
Umra	... 1	3	2	3	1	3	6	13	...	32
Bhadol	... ...	1	6	7	8	8	8	7	...	45
Sandhier	... 2	1	4	3	5	1	2	1	...	19
Total Gr. I	... 3	5	12	13	14	12	16	21	...	96
Sonsak	... ...	...	3	7	6	3	1	7	1	28
Ichhapore	... 1	...	...	5	14	9	31	40	9	109
Total Gr. II	... 1	...	3	12	20	12	32	47	10	137
Mahamadpore	... 3	...	3	2	1	5	...	4	...	18
Pardikoba	... ...	...	...	4	3	3	4	10	1	25
Atodra	... 4	2	3	5	4	8	10	9	...	45
Total Gr. III	... 7	2	6	11	8	16	14	23	1	88
Karanj	... ...	...	...	3	1	1	5	8	...	18
Kuwad	... ...	...	...	1	4	3	9	19	2	38
Kasla	... ...	...	1	2	3	5	3	8	1	23
Total Gr. IV	... ...	...	1	6	8	9	17	35	3	79
Pinjarat	... ...	...	2	6	3	8	33	60	6	118
Damka	... ...	1	...	4	8	9	12	33	1	68
Bhagwa	... ...	...	...	...	...	...	...	6	7	13
Total Gr. V	... ...	1	2	10	11	17	45	99	14	199
Grand Total of all Groups	... 11	8	24	52	61	66	124	225	28	599
P. C. of the Total	... 90	1·33	4·0	8·68	10·19	11·02	20·70	37·55	4·68	100

RELATION BETWEEN SUBDIVISION OF OWNED HOLDINGS AND CULTIVATED HOLDINGS

The statistics of the average size of owned and cultivated holdings for the different villages are given below : firstly, in the form of a group summary, and secondly, in the form of a frequency table so as to enable us to form a comparative idea of the relation between each type of holding in a general manner.

SUMMARY TABLE SHOWING AVERAGE SIZE OF HOLDING

Group or zone	*Owned Holding* (acres)	*Cultivated Holding* (acres)
I	13·1	18·1
II	7·0	10·2
III	10·7	18·3
Eastern Zone (Grs. I, II & III)	9·9	14·9
IV	5·4	8·8
V	5·7	7·5
Western Zone (Grs. IV & V)	5·6	7·9
Average for All Groups	7·7	11·6

CLASSIFICATION OF VILLAGES ACCORDING TO THE AVERAGE SIZE OF OWNED AND CULTIVATED HOLDINGS.[1]

	Owned Holding	*Cultivated Holding*
Number of Villages with the average size of a holding above 20 acres.	1	2
„ „ „ between 15 & 20 „	1	4
„ „ „ „ 10 & 15 „	3	...
„ „ „ „ 9 & 10 „	2	4
„ „ „ „ 7 & 9 „	...	3
„ „ „ „ 5 & 7 „	5	...
„ „ „ below 5 acres	1	...
Total No. of Villages	13	13

1. The village of Bhagwa (Gr. V.) has been excluded from this classification for reasons already given.

(i) The summary table shows that whereas the average size of an owned holding for the eastern zone is 9·9 acres, the average size of a cultivated holding is 14·9 acres ; that whereas in the western zone, an owned holding is 5·6 acres in size, a cultivated holding is 7·9 acres ; and that as against an average owned holding of 7·7 acres, an average cultivated holding is 11·6 acres for all the groups combined. The size of an average cultivated holding is, roughly speaking, one and a half (1½) times the size of an average owned holding. It will be observed that this is also true with minor modifications of each of the five groups separately.

(ii) The second point that deserves notice is that a sort of general uniformity between the size of owned and cultivated holdings is observable throughout, whether the unit be village, group or zone. What is meant is that where an owned holding is comparatively small, a cultivated holding, while being larger than the owned holding, is also comparatively small. There are no sharp variations between the two types of holdings. It is not that a cultivated holding is twice the size of an owned holding in one case, and is four or five times the owned holding in the other[1].

(iii) The frequency table shows that whereas there are only two villages with the average size of an owned holding above 15 acres, there are six villages in which the cultivated holding exceeds that size. Moreover, it may be noted that although there are three villages with the average size of an owned holding between 10 and 15 acres, there is no village with a cultivated holding of that size.

(iv) Similarly, whereas there are six villages with the average size of an owned holding below seven acres, there is no village with the average size of less than 7 acres of a cultivated holding. On the other hand, in seven villages the average size of a cultivated holding is between 7 and 10 acres.

The above facts point to a tendency for villages having small owned holdings to pass into higher frequency groups of cultivated holdings. In other words, the size of a cultivated holding is always larger than that of an owned holding in a village. The conclusion

1. For individual variations in the size of the two types of holdings for each village and group, reference should be made to the respective tables.

that follows from the above study of comparative statistics of owned and cultivated holdings is that the subdivision of lands in cultivation is less serious than the subdivision of owned holdings in the taluka. In order, however, to be able to sustain this feeling of satisfaction, it is necessary that we should not stop here with this comparative study, but continue the present subject a stage further by comparing briefly the statistics[1] of economic holdings of each type in the following manner[2].

Name of the Group	Total number of Holdings		Number of Holdings of or about the size of the Economic Holding		Number of Uneconomic Holdings		Percentage of Uneconomic Holdings to the Total	
	owned	cultivated	owned	cultivated	owned	cultivated	owned	cultivated
I	92	96	19	33	73	63	79·3	65·6
II	128	137	7	16	121	121	94·5	89·0
III	76	88	9	26	67	62	88·1	70·4
IV	92	79	3	7	89	72	96·7	91·1
V	203	199	8	13	195	186	96·0	93·4
Total of all Groups ...	591	599	46	95	545	504	92·0	84·1

It will be observed that: (i) The percentage of uneconomic holdings in cultivation is less than that in ownership in each group. (ii) The difference between the percentages of owned and cultivated uneconomic holdings is 14 and 18 in groups I and III respectively of the eastern zone; it is only 5 and 3 in groups IV and V respectively of the western zone. In group II of the

1. These statistics are worked out from tables showing distribution of holdings of each type given on a previous page.

2. The importance of this aspect of the discussion will be clear when it is remembered that a few substantial cultivators may help to inflate the figure of the average size of a cultivated holding, although there may happen to be a large number of very small cultivators at the other end of the scale.

eastern zone, due to a large number of Koli cultivators of the village of Ichhapore, the similar difference is 5. This shows that the difference in the percentages of the two types of uneconomic holdings is less in the Koli villages of the taluka, and especially, in the western zone. In other words, the facilities of enlarging the holdings, so as to make the uneconomic holdings in ownership economic in cultivation, are less in the Koli villages of the taluka than in others. (iii) As against 8 per cent. of economic holdings in ownership, the percentage of economic holdings in cultivation is 16. A comparative study of the distribution of holdings of each type thus confirms the conclusion based on a study of the averages that the subdivision of land in cultivation in the taluka is much less serious than that in ownership. To a student of rural economics, this conclusion is a matter of some consolation in as much as the faulty distribution of land in ownership is attempted to be rectified to some extent in actual cultivation.

A comparative statement of the percentages of owned holdings and cultivated holdings below 20 acres in size for all groups combined would be instructive :—

	Owned holdings: percentage of the total	Cultivated holdings: percentage of the total
Holdings between 15 and 20 acres	4·90	10·19
„ „ 11 and 15 „	9·31	10·02
„ „ 6 and 10 „	17·60	20·70
„ „ 1 and 5 „	44·33	37·55
„ below 1 acre	16·07	4·68

The highest and the lowest frequency groups in the table are of special interest as they bring out the following facts :—

(i) The percentage of owned holdings between 15 and 20 acres to the total is 4·90 ; the percentage of cultivated holdings of the same size is 10·19, or more than double the former. This

shows that the number of holdings which approaches the economic size tends to be greater in cultivation than in ownership. This is a happy feature of the situation. As regards the holdings of 11 to 15 and 6 to 10 acres, the percentage of cultivated holdings is higher than that of owned holdings. The tendency revealed by the holdings of 15 to 20 acres, therefore, holds good to a smaller extent in the case of holdings between 6 and 15 acres.

(ii) The percentage of owned holdings between 1 and 5 acres to the total is 44·33 as against 37·55 of cultivated holdings. It shows that the peasants are disinclined to cultivate a very small holding. This tendency is, however, most conspicuous in the case of holdings below 5 acres. As against 16·07 per cent. of owned holdings of this size, the percentage of cultivated holdings is only 4·68. This shows that peasants owning very tiny holdings of less than 5 acres take extra land on lease for cultivation as far as possible.

The general tendency, therefore, that is unmistakably stamped on all the frequency groups from 20 acres and below is that peasants who own uneconomic holdings constantly make an attempt to enlarge their holdings so as to make them economic in cultivation. In other words, subdivision of cultivation has not gone as far as subdivision of lands in ownership.

A word of caution is necessary. This somewhat gratifying fact of the subdivision of land in cultivation being less acute than that in ownership, need not lead us to believe that the evil of subdivision exists in owned holdings and not in cultivated holdings. The difference is only one of degree and not of kind. Whereas 9 holdings out of 10 are uneconomic in ownership, as many as 8 holdings out of 10 are uneconomic in cultivation. The factors already noted which mitigate the severity of the evil, need not be taken as doing away with the evils of subdivision of lands both in ownership and cultivation in the taluka.

FRAGMENTATION OF OWNED HOLDINGS

The table classifying the holdings of each village, group etc., according to the number of fragments of which they are made up is given overleaf.

CLASSIFICATION OF FRAGMENTATION OF HOLDINGS

	Number of holdings having Fragments									
	1 to 5	6 to 10	10 to 15	16 to 20	21 to 30	31 to 40	More than 40	More than 70	Total No. of Holdings	Total Number of Fragments.
Umra ...	20	7	3	1	...	...	...	...	31	171
Bhadol ...	26	11	3	2	1	...	...	...	43	231
Sandhier ...	11	4	3	...	...	...	...	...	18	100
Total Gr. I ...	57	22	9	3	1	...	...	...	92	502
Sonsak ...	10	14	2	...	...	...	...	...	26	155
Ichhapore ...	80	16	4	1	...	1	...	...	102	425
Total Gr. II ...	90	30	6	1	...	1	...	...	128	580
Mahmadpore ...	11	5	2	...	1	...	...	...	19	116
Pardikoba ...	17	7	...	...	...	...	...	...	24	85
Atodra ...	27	5	1	...	...	...	...	...	33	118
Total Gr. III ...	55	17	3	...	1	...	...	...	76	319
Karanj ...	11	5	2	...	...	...	1	...	19	135
Kuwad ...	32	9	4	3	1	...	...	...	49	293
Kasla ...	16	5	2	1	...	...	...	...	24	124
Total Gr. IV ...	59	19	8	4	1	...	1	...	92	552
Damka ...	70	14	2	...	1	...	...	...	87	305
Pinjarat ...	63	25	6	3	3	1	...	1	102	640
Bhagwa ...	14	...	...	...	...	...	...	...	14	15
Total Gr. V ...	147	39	8	3	4	1	...	1	203	960
Grand Total of all Groups ...	408	127	34	11	7	2	1	1	591	2913
Percentage of Total ...	69·03	21·49	5·75	1·86	1·19	0·34	0·17	0·17	100·00	

A few general observations based on the above table may be stated thus :—(i) The most prominent fact brought out is that a very large number of holdings have from 1 to 5 fragments ; the percentage of such holdings to the total is about 70 and it varies from 60 to 70 for the different groups. (ii) About 21 per cent. of holdings (for all groups combined) consist of 6 to 10 fragments. Thus about 90 per cent. of the total number of holdings have from 1 to 10 fragments. This is only to be expected when it is recalled that a very large number of owned holdings, or about 80 per cent. of the total, are small, being less than 10 acres in size. (iii) Less than 2 per cent. of the holdings have from 16 to 20 fragments ; (iv) The percentage of holdings in any one of the frequency groups, (taken separately), of more than 20 fragments is less than one, and is two for all of them combined. This is because large holdings are few and far between in the taluka, holdings above 50 acres being about one per cent. of the total. This, however, does not minimise the seriousness of the evil of fragmentation. The fact that a large number of holdings, which are extremely subdivided and uneconomic, should, in addition, be also fragmented into a number of small plots situated at a distance from one another, is enough to call attention to the seriousness of the problem of subdivision and fragmentation of holdings in the taluka.

FRAGMENTATION OF OWNED AND CULTIVATED HOLDINGS COMPARED

Fragmentation of cultivation is an evil of a more serious nature than fragmentation of land in ownership. If, therefore, cultivated holdings are more fragmented than owned holdings, the evils of fragmentation will be pronounced to be more serious than otherwise. If the tendency is in the opposite direction, it will be a matter of some satisfaction, and an attempt should be made to understand the process by which this more hopeful tendency is brought about. With a view to make a comparative study of fragmentation of holdings in ownership and in cultivation, we give the following figures.

TABLE SHOWING FRAGMENTATION OF OWNED AND CULTIVATED HOLDINGS

Name of Village or Group	OWNED HOLDINGS			CULTIVATED HOLDINGS		
	Number of holdings	Number of fragments	Average number of fragments per owned holding	Number of holdings	Number of fragments	Average number of fragments per cultivated holding
Umra	31	171	5	32	223	7
Bhadol	43	231	5	45	323	7
Sandhier	18	100	5	19	134	7
Total Gr. I	92	502	5	96	680	7
Sonsak	26	155	6	28	190	7
Ichhapore	102	425	4	109	589	5
Total Gr. II	128	580	5	137	779	6
Mahmadpore	19	116	6	18	155	8
Atodra	33	118	4	45	261	6
Pardikoba	24	85	4	25	127	5
Total Gr. III	76	319	4	88	543	6
Total Grs. I to III	296	1401	5	321	2002	6
Karanj	19	135	7	18	141	8
Kuwad	49	293	6	38	387	10
Kasla	24	124	5	23	173	7
Total Gr. IV	92	552	6	79	701	9
Pinjarat	102	640	6	118	741	6
Damka	87	305	3	68	334	5
Bhagwa	14	15	1	13	13	1
Total Gr. V	203	960	5	199	1088	5
Total Grs. IV & V	295	1512	5	278	1789	6
Grand Total of All Groups	591	2913	5	599	3791	6

For the purposes of our discussion, a summary table giving figures of fragmentation for each group abstracted from the above table, and of the average size of owned and cultivated holdings is given on the following page :—

SUMMARY TABLE

Name of Group and Zone	Average size of owned holding (acres)	Average number of fragments per owned holding	Average size of cultivated holding (acres)	Average number of fragments per cultivated holding.
I ...	13·1	5	18·4	7
II ...	7·0	5	10·2	6
III ...	10·7	4	18·3	6
Eastern Zone or Total of Groups I to III ...	9·9	5	14·9	6
IV ...	5·4	6	8·8	9
V ...	5·7	5	7·5	5
Western Zone or Total of Groups IV & V ...	5·6	5	7·9	6
Grand Total of All Groups ...	7·7	5	11·6	6

The average number of fragments per cultivated holding is higher than that per owned holding. Does it mean that fragmentation of cultivation is of a more serious nature than that of lands in ownership in the taluka ? This apparently seems to be the case. It may, however, be remembered that fragmentation must, and does, refer to the size of a holding. The relation, therefore, between the average size of holding of each type and the average number of fragments in each case should be examined to reach a correct conclusion on the subject of the comparative fragmentation of owned and cultivated holdings.

Whereas the average size of an owned holding for the eastern zone is 9·9 acres, that of a cultivated holding is 14·9 acres. The latter is thus 50 per cent. larger than the former. The average number of fragments, on the other hand, is 5 per owned holding and 6 per cultivated holding, that is to say, shows an increase of 20 per cent. over the former. Similarly, for the western zone the average size of an owned holding is 5·6 acres, as against a cultivated holding of 7·9 acres. In other words, the latter is 41 per cent. larger than the former. The average number of the fragments on the other hand is 5 per owned holding and 6 per cultivated holding or an increase by 20 per cent. only. The same tendency is revealed by a study of figures of each group separately or of all groups combined. In simple language, the tendency established by these figures is that, although the average number of fragments per

cultivated holding is in each case greater than that per owned holding, the increase of fragments in cultivation over that in ownership is not in the same proportion as the increase in the size of cultivated holding over owned holding. The increase in the number of fragments is always not equivalent to the increase in the size of the holding. The conclusion, therefore, is that the fragmentation of cultivation in the taluka has not gone so far as fragmentation of holdings in ownership.

It will, however, be asked, whether it is possible to find traces of this more hopeful tendency in actual cultivation. The answer to this is in the affirmative. We found in the villages studied a number of cultivators attempting to take on lease plots of land contiguous to those owned and cultivated by them. Such sporadic attempts at consolidation of fragments in actual cultivation are responsible for this tendency. We have given in Appendix II to this chapter 12 illustrations picked out from some of the villages showing how consolidation of fragments is attempted in different ways.

Except these few attempts at consolidation of fragments in actual cultivation there are no other special factors mitigating the evils of fragmentation. One such factor is the cultivation of paddy which is always grown in small beds surrounded by boundaries raised on all the sides[1]. In a Jarayat tract like the taluka, where paddy occupies a small percentage of the cropped area, this factor is of very little importance and may be ignored for all practical purposes. On the other hand, the evils of fragmentation become more serious for the Koli cultivators of the coastal villages, who, except during the monsoon, live on their farms. For those of them who own and cultivate only one small plot, the problem of fragmentation, which presupposes the existence of more plots than one, does not arise. But for those who own two or more small plots, fragmentation is a serious evil. It is easy to understand that if their small and scattered plots were consolidated into contiguous blocks, their fields would be better managed and attended to.

CAUSES OF SUBDIVISION AND FRAGMENTATION OF LAND

(i) The main cause is to be found in the operation of the Hindu Law of Inheritance and Succession which secures for each male member of a family an equal share in the family property. Separate families seem to be the rule in the taluka. So long as

1. Vide, G. C. Mukhtyar's Life and Labour in a South Gujarat Village, p. 115.

the sentiment of the joint family was strong, the unit of cultivation continued to be the joint family estate and partition was not common. The evils of subdivision which were held in abeyance then have now come to the surface.

(ii) The other factor, which, without swelling very much the number of occupants, increases the seriousness of subdivision of holdings in the taluka, is to be found in the gradual acquisition of lands through sales and transfers by moneylenders and non-cultivating proprietors. When more and more land passes out of the hands of agriculturists and is absorbed by moneylenders, less and less of the cultivated land remains to be divided between the agriculturist landholders. And, when these holdings, thus reduced in size, happen to be divided equally between the heirs of a deceased father, the process of subdivision goes much further. The aggregate effect of this process is very great, for, although the number of landholders may remain almost the same, the number of uneconomic holdings increases. And it is in the creation of a larger and larger number of uneconomic holdings that the seriousness of the evil of subdivision lies. We specially observed the operation of this factor in the Koli villages of the coast. A very good illustration of this is provided by the village of Pinjarat (Group V). In this village, whereas as many as 80 Koli landholders held between them 356 acres of land, only one landholder of the moneylending caste of Jains held 103 acres of land. He and other moneylenders had acquired large areas of land by sale and transfer in the course of their business of moneylending. We also came across an instance of a Parsi moneylender who acquired lands in the same manner in a number of villages of the taluka.

(iii) The evil of fragmentation of holdings does not arise directly out of the operation of the Laws of Inheritance and Succession, but is the result of the manner in which these laws are put into effect. If a man, whose holding consists of 3 acres in 3 isolated plots dies leaving after him 3 sons to succeed him as heirs, the sons, while partitioning their father's holding, do not take one plot each, but insist upon splitting up each plot into three equal parts and taking one share from each field. On the other hand, if each son inherits one plot, there would be three holdings instead of one, the number of plots remaining the same. Whereas the process of subdivision would thus be accentuated, the process of fragmentation would not be carried any further. But as things stand, the process of sub-

division in the taluka goes on hand in hand with that of fragmentation. We could ascertain during our investigations that although the peasants realised the disadvantages of having their holdings broken up into small and scattered fragments, a certain amount of fragmentation was defended by a number of them. It was argued that by having their holdings scattered in different parts of the village, the farmers were able to take advantage of different soil conditions. The plots may vary in quality, fertility or other physical or natural advantages. Moreover, it was also said to facilitate the distribution of work on the fields, for, it may, and does happen that when it rains in one part of the village, the fields in another part, where it may not rain, can either be ploughed or prepared for sowing the seed. It thus enables them to make a more effective use of their time and labour and of their bullocks. We are prepared to concede the truth of these arguments.

A moderate amount of fragmentation of lands based on different soil areas of varying degrees of fertility, which makes possible the system of rotating crops or insures the farmer to a certain extent against the vagaries of the monsoon, may be justified. However, the minute and excessive fragmentation of holdings found in the taluka, which can neither stand the test of reason and justice, nor of security against the vagaries of the climate, nor again of efficient and economic production, is an unmixed evil and needs to be rectified. Very often the desire to secure an equitable division, which sometimes is only fancied and not real, gives rise to smaller and more irregular fragments generation after generation.

REMEDIES

The problem of subdivision and fragmentation of holdings is so serious in the economy of the taluka that much of the existing backwardness and indebtedness of the agriculturist of the taluka may be ascribed to it. It is, therefore, necessary to find ways and means of combating this evil. The problem, however, is not peculiar to the taluka or our country. All countries with a population of peasant proprietors had to face this problem. France, Belgium and Denmark had to deal with this evil and it still remains an important problem with Italy. In these European countries legislation of some sort has been tried either to check the process of subdivision of holdings, or to help the enlargement of small holdings by means of consolidation. Legislation has also been tried in these countries to combat the evils of fragmentation by

providing for compulsory restripping of small plots. The measures adopted by them are reported to have been largely successful.

Although the evils of subdivision have been long since recognised in our country, no attempt has so far been made to solve the problem on any large scale by means of legislation, as it would interfere with the prevailing Laws of Inheritance. Any attempt to interfere with these laws or to impose restrictions on the right to subdivide landed estates has always been stoutly opposed. The attempted legislation in Bombay in 1916 to create impartible holdings, and the unsuccessful attempt in this direction made by the Bombay Bill XVI of 1927 are instances in point. As for the evil of fragmentation, legislation has been tried with some success in the Central Provinces. The Central Provinces Consolidation of Holdings Act of 1928 has been made applicable to the Chattisgarh Division of that province. But more striking results have been achieved in this direction through co-operative consolidation societies in the Punjab and in the Baroda State[1].

The Royal Commission on Indian Agriculture examined critically various remedies proposed for combating the evils of subdivision and came to the conclusion that no suggestions of a practical nature had been put before them. They further held that the best method for obtaining relief from the evils of fragmentation was the co-operative society of the Punjab type. The problem is, however, serious and calls for a solution, particularly because it grows in intensity with the lapse of time.

The Bombay Bill of 1927 attempted to check excessive subdivision and also to bring about consolidation of holdings. It did not interfere directly with the Laws of Inheritance; it, however, certainly imposed restrictions on the right to divide land beyond certain limits. The rights of existing small holders were not to be interfered with, but an attempt was made to check their further subdivision. Holdings which were below the standard size of the economic holding fixed for a district were to be registered as fragmented holdings. Such holdings could be leased to one who cultivated a contiguous plot and sold preferably to the neighbouring holder. If by the subdivision of an economic holding fragmented holdings were created, such a holding could

1. (i) Dr. Mehta's Rural Economy of Gujarat, p. 53. (ii) Vide an article on Societies for Consolidation of Holdings (pp. 116-136) contributed by Mr. Bashir Ahmed Khan to 'Co-operation in India' edited by Prof. H. L. Kaji.

not be subdivided. The Bill also aimed at helping consolidation of holdings. It provided for the compulsory introduction of a scheme of consolidation where two-thirds of the holders of plots and not less than half the number of owners of land in the area concerned, agreed to do so. The above are the main features of the proposed legislation into the details of which it is not necessary for us to enter. We would urge the adoption of such a measure for combating the evils of subdivision and fragmentation. Its application, in the first instance, should, however, be restricted to selected areas. We recommend its adoption subject to the above safeguard in view of the serious objections that are raised against such legislation. The objection is that such a measure would deprive many people dependent on land of their means of subsistence[1]. The Bill has been dropped ; in the meanwhile, we would recommend that a trial ought to be given to the Co-operative method for bringing about consolidation of holdings in the taluka. Some writers become restive on account of the slow progress that can be secured through the adoption of this method[2]. We are, however, of the opinion that this is a slow but sure method, and is, in certain ways, superior to a legislative measure dealing with the problem.

The Co-operative method as tried in the Punjab almost entirely does away with the element of compulsion. A legislative measure, interfering with the rights in, and the attachment for, the small plots which a farmer has, is likely to become odious. The chances of such an odious measure to succeed in practice are small. The Co-operative method, by its very nature, will have to rely upon persuasion and propaganda, which will have an educative effect not only on the tract in which consolidation has been effected but on the neighbouring tracts as well. It would therefore be best to tackle the problem at the outset on Co-operative lines. Once the farmer is familiarised with the new method and begins to appreciate the advantages which he derives from consolidation, the task of the legislator will be made easy. This method should therefore be tried in the taluka.

For a permanent solution of the problem of subdivision, however, the remedy lies in the development of non-agricultural occupations to which a portion of the population now subsisting on land in the taluka can turn.

1. Vide, Dr. J. M. Mehta'sRural Economy of Gujarat, p. 57.
2. Cf. G. C. Mukhtyar's Life and Labour in a South Gujarat Village, p. 124.

APPENDIX I

Showing the different ways in which people have interest in land

Name of the Village & Group	Number of owners who merely own land but do not cultivate	Number of owners who cultivate only their own land	Number of owners who cultivate part of their land and give the rest on lease	Number of owners who cultivate part of their land, give the rest on lease & take land on lease from others	Number of owners who cultivate their land and take on lease extra land from others	Number of persons who do not own but merely cultivate land as tenants
Umra	3	10	1	1	15	5
Sandhier	2	6	...	1	9	3
Bhadol	2	10	3	1	15	16
TOTAL OF GR. I	7	26	4	3	39	24
Sonsak	...	8	2	...	15	3
Ichhapore	5	35	3	...	49	22
TOTAL OF GR. II	5	43	5	...	64	25
Atodra	1	8	2	1	19	15
Pardikoba	...	6	1	...	14	4
Mahmadpore	...	7	1	...	10	...
TOTAL OF GR. III	1	21	4	1	43	19
TOTAL OF GRS. I TO III	13	90	13	4	146	68
Kuwad	...	6	...	...	28	4
Kasla	...	5	1	1	11	5
Karanj	5	5	4	1	3	5
TOTAL OF GR. IV	5	16	5	2	42	14
Bhagva	2	13	...	...	...	...
Pinjarat	7	23	8	4	51	32
Damka	7	17	7	5	29	10
TOTAL OF GR. V	16	53	15	9	80	42
TOTAL OF GRS. IV & V	21	69	20	11	122	56
GRAND TOTAL OF GRS. I TO V	34	159	33	15	268	124

APPENDIX II

Showing how sporadic attempts at consolidation of fragments in actual cultivation are made (i) by taking on lease plots contiguous to those owned by farmers (ii) by purchase and (iii) by tenants taking on lease contiguous plots owned by different landholders.

A — VILLAGE : UMRA

Illustration No. 1. *Family Schedule No. 26.*

Survey No.	Land owned.	Land taken on lease
	A-G.	A-G.
172/1	...	0-38
172/3	1-17	...
173	...	2-3
174	...	1-4

Illustration No. 2. *Family Schedule No. 26.*

Survey No.	Land owned	Land purchased	Year of purchase
	A-G.	A-G.	
374/2	0-24	0-24	1930-31
374/3	0-25	...	...
375	...	0-26	1928-29
376/1	...	0-13	1930-31
376/2	0-2	...	...

B — VILLAGE : BHADOL

Illustration No. 3. *Family Schedule No. 39.*

Survey No.	Land owned	Land taken on lease
	A-G.	A-G.
310/1	5-35	...
310/2	...	1-19

C — VILLAGE : ICHHAPORE

Illustration No. 4. *Family Schedule No. 75.*

(A tenant attempts consolidation in cultivation).

Survey No.	Land leased from one landholder.	Land leased from another (a different landholder.)	Land leased from a third landholder.
	A-G.	A-G.	A-G.
384/2	1-14	...	...
384/3	...	1-10	...
384/4	...	...	1-21

D — VILLAGE : PINJARAT

Illustration No. 5. *Family Schedule No. 122.*

(A tenant attempts consolidation in cultivation).

Survey No.	Land leased from one landholder	Land leased from another landholder
	A-G.	A-G.
652	1-36	...
653	...	0-38

Illustration No. 6 *Family schedule No. 54.*

(A tenant attempts consolidation in cultivation).

Survey No.	Land Leased from one landholder.	Land leased from a second landholder.	Land leased from a third landholder.
	A-G.	A-G.	A-G.
658/4	0-20	...	...
659	...	1-9	...
832/1	2-7	...	...
832/2	...	...	2-6

Illustration No. 7 *Family schedule No. 76.*

(A tenant attempts consolidation in cultivation).

Survey No.	Leased from one landholder.	Leased from a second landholder.
	A-G.	A-G.
700/1	0-28	...
700/2	0-16	...
700/3	...	0-30

E—VILLAGE : DAMKA.

Illustration No. 8 *Family schedule No. 12.*

Survey No.	Land owned.	Land leased.
	A-G.	A-G.
506/1	2-33	...
506/2	...	4-34

Illustration No. 9 *Family schedule No. 16.*

Survey No.	Land owned.	Land leased.
	A-G.	A-G.
471/1	...	0-5
471/2	...	0-5
471/3	...	0-5
471/4	...	0-5
472/1	2-27	...

Illustration No. 10. *Family schedule No. 21*

Survey No.	Land owned.	Land leased.
	A-G.	A-G.
457	13-13	...
458	...	1-15
459	...	1-17

Illustration No. 11. *Family schedule No. 25*

Survey No.	Land owned.	Land leased.
	A-G.	A-G.
78	...	4-24
79/1	...	1-38
79/2	1-33	...

Illustration No. 12. *Family schedule No. 32*

Survey No.	Land owned.	Land leased.
	A-G.	A-G.
51/1	1-3	...
51/2	...	0-39
51/3	...	0-30
425/1	2-12	...
425/2	...	1-24
425/3	...	1-30

CHAPTER V

Agricultural Labour

NEGLECT OF THE STUDY OF THE PROBLEM

The problem of agricultural labour has received little attention at the hands of students of Indian Economics. Agricultural labour in this country is not organised and is not vocal as industrial labour is ; it has no trade unions which can redress its grievances ; and its feeble voice scarcely reaches the Economist in the city; yet, the agricultural labourer has problems of his own, which are none the less real and important, and deserve a special study. This chapter is an attempt to study the problem of agricultural labour in the taluka.

At the census of 1931, out of 21,799 actual workers engaged in agriculture proper, as many as 15,984, or three-fourths, were returned as agricultural labourers. This numerical preponderance of agricultural labourers among the agricultural workers of the taluka is sufficient to establish their claim for a separate treatment in this study.

CLASSES OR CASTES FROM WHICH AGRICULTURAL LABOUR IS DRAWN

Dublas are pre-eminently a class of agricultural labourers in the taluka and they account for about one fifth of the total population. They live on the outskirts of a village in small huts. As a rule, they own no land. The next class from which agricultural labour is drawn are the Kolis who, in some instances, have small plots of land not sufficient to maintain them. Although it is difficult to draw a hard and fast line, it may generally be said that in the outer or western zone of the taluka where the Koli population predominates, agricultural labour is mainly drawn from this class; in the eastern part, Dubla labourers hold the field. The entire absence of Dubla population in some of the Koli villages in the west of the taluka is explained by the fact that the Kolis are a labouring caste, besides being actual cultivators. The other classes which supply agricultural labour are the remaining sections of the Kaliparaj, (except Dublas, referred to already) which are quite unimportant in the taluka, the Kharwa and Bharwad females,

and such artisan and craftsman castes like the Dhed and, in some cases, even the Kumbhar who have turned to land because of the gradual decline of their traditional occupations. Like the Kolis, labourers of these castes either take a piece of land on lease or have a plot of their own. In the majority of cases, however, agricultural labourers do not own land.

These classes are, as it were, a stable element in the labour supply of the taluka. There is also another unstable element, which is seasonal in character, to which we shall have occasion to refer later.

NATURE OF THE PROBLEM OF AGRICULTURAL LABOUR

The problem of agricultural labour in the taluka, as in the rest of the district, is two-fold. It is the problem, firstly, of the free or casual labourer, and secondly, of the Hali labourer.

The casual or free labourer is an agricultural labourer working on the fields for a stipulated daily wage generally in money, but sometimes supplemented by that in kind. This type of field labourer includes such classes of agricultural labourers as the sower, the weeder, the reaper, and so on. He works at his own convenience and enjoys the fullest freedom of bargaining, in so far as it is possible in our rural areas. His position is simple and need not occupy us here any longer.

The other type of agricultural labourer, viz., the Hali, has been variously described. He has been called an indentured labourer, a free man *de jure* but serf or slave *de facto* and so on[1]. The Hali system is the backbone of the agricultural economy of the taluka and of the Surat district in general. Out of 84,302 Halis enumerated in the Bombay Presidency in 1921, 57,010, or about 67 per cent. of the total, were found in the Surat district alone[2].

The word 'Hali' literally means one who drives the plough, not on his own land or land taken on lease by him. Nor does he resemble the 'Hari' of Sind, the term 'Hari' probably having the same etymological connotation as Hali. The 'Hari' is more of a traditional and sometimes compulsory tenant, who shares the produce of the land with the zamindar in certain proportions according to the mode of irrigation. The Hali in the taluka, as in the rest of the district, is a typical agricultural labourer. But he

1. Vide Bombay Census Report 1921 Part I pp. 220 and 223.
2. Ibid. p. 223.

differs from the first type of field labourer in this that whereas the former is free, the Hali is not.

The economic fetters of the Hali almost always follow as a necessary corollary to his marriage. The Dubla, Koli or Dhed agricultural labourer, when he comes of age, wishes to marry. He is on the threshold of life, just beginning to start his career as an adult labourer, and has not the means to maintain a family, and his poor parents do not have money enough to get him married. He, therefore, approaches a comparatively well-to-do agriculturist of the higher caste, and in the case of the Koli, sometimes of his own caste, who needs a sort of permanent labourer on his farm. He borrows from him an amount varying generally from Rs. 200 to Rs. 300 for celebrating his marriage ceremony. He has no security in the form of land, ornaments or a substantial house to offer. The only thing, and a very valuable thing indeed, is his own labour, and this he pledges, as it were, for the money borrowed. He enters into an oral, and sometimes, a written agreement to work on the fields of his lender, who now becomes his master, till the debt is paid off. And this is the beginning of his bondage which generally has no end. The debt goes on increasing and with it his bondage becomes stronger. We shall now see how the Hali is paid for his labour, and how it is that generally he is not able to buy back his freedom. It may be noted here that if the Hali feels annoyed, or otherwise dissatisfied with the original master-agriculturist, he can change him for another, provided the new master is prepared to pay off the outstanding debt of the Hali. In essence, however, this does not introduce any change in the system as described, for it only means changing masters.

To understand the relations of the Hali with his master, locally known as 'Dhaniama', we shall describe the two different types of relations of the Hali with the master subsisting in the taluka.

RELATIONS OF THE HALI WITH HIS MASTER

(i) The Dubla labourer who has taken an advance of money in return for service, serves his master or 'Dhaniama' throughout the year. He is fed and clothed by his master, but is not allowed any daily cash wage as in some parts of the district. Instead, he is allowed a monthly pay varying from Rs. 1½ to Rs. 2, which, in practice, is taken into consideration in making up the annual account of the Hali about the details of which he knows

very little. The amount of his pay is stipulated in advance when he enters into the agreement, for the most part oral, but as will be explained, is not regularly paid, either monthly or annually in a lump sum. It may be noted that the amount of monthly pay agreed upon generally varies with the amount of the initial advance, it being smaller if the advance is comparatively large, and *vice versa*. He usually gets three meals a day. However, he is not given a daily grain allowance as in some parts of the district.

The amount of money initially advanced is the Hali's debt, which theoretically is to be repaid by working for a sufficient period. Hence, the amount of the pay is not paid to him in cash ; he is credited with the amount of the pay annually in his running account maintained by the master against the initial amount of debt with which he is debited. It will be asked that he should be able to repay the amount of the advance by serving for a number of years, which may be from 10 to 12 years. It is, however, not the case, the reason being that the life even of a poor Dubla labourer has to meet other calls besides those of his own personal needs. The Hali has now become a married man. His responsibilities go on increasing, for, by the the time that he has put in about 3 to 5 years of service with the Dhaniama, he has probably added to his family a couple of children. His wife generally works as a free field labourer, but her employment is not of a permanent nature. There are intermittent periods of enforced idleness for her, when there is little work in the fields requiring the services of free hired labourers. Moreover, being a female, she is debarred from certain heavy agricultural work. From the period for which she can usually obtain work, deductions have to be made for sickness, periods of confinements, and for want of employment during periods of slack agricultural work. And yet, during all this period she has to maintain herself and her children. Help is then naturally sought of the husband, who has no other source but his Dhaniama. He obtains an advance in kind, and sometimes in money, to tide over the above mentioned period of unemployment or underemployment for his wife, and to meet the social and domestic calls. The Dhaniama has not undertaken by the terms of the agreement to supply him these needs. In consideration, however, of the stipulated pay of the Hali which is kept outstanding, and of the Dhaniama's need for the labour of the Hali, which, he thinks, he cannot dispense with, he makes further advances in

grain and cash. And more often than not, these advances exceed by the end of the year the amount of the annual pay. The Hali's account is debited with these advances in cash and kind. The net result is that when the Dhaniama makes up the Hali's account at the end of the year, if the advances throughout the year can be set off against the amount of annual pay, the amount of initial advance will still be outstanding on the Hali's name; if the advances exceed the pay, and we are told that they generally do, the Hali's debt will swell to that extent. The Hali, thus, generally commences a new year either with the initial debt still hanging round his neck, or with an amount of debt which exceeds the initial amount. And thus the Hali goes on drudging from year to year. He effects an escape from the drudgery either by death, or by running away to a distant place far away from his village.

(ii) We shall now consider the second variant of the types of relations that subsist between the Hali and his master. Here also, a member of the Dubla or other labouring classes enters into an agreement to serve his master for a loan of money. In this case, however, the amount of advance is generally smaller and varies from Rs. 100 to Rs. 200. The purpose for which he obtains the advance in this case may not necessarily be the performance of his own marriage. It may be marriage or any other social or domestic need. The master agriculturist of this class generally occupies a position slightly lower in the economic scale than the master of the former type. The chief distinction is that the master of this second category does some manual work like looking after the cattle, and is not in need of a full-time servant all the year, as is the case with the master of the first type. The Dubla Hali enters into an agreement to serve this type of agriculturist in return for money advanced, the terms of the agreement differing from the first type. He has to work at his master's house or on his farms only when the master requires the services of the Hali. When he so works, he gets generally two meals, and a small quantity of tobacco daily. No other allowance in kind is given to him; nor is he supplied with clothes and a pair of shoes. However, in addition to the two meals a day, he receives a daily wage varying from annas 2 to 3. To put the distinction between the two types in a nutshell, it may be observed that, whereas the former type of Hali is both guaranteed his work as well as his requirements for the whole year, the latter is guaranteed neither. His master, however, is guaranteed the labour

of the Hali whenever he needs it. When the master has no work to give him, he is free to work for others. It is, however, very likely that in the busy period of agricultural work the master would require his services. His chances, therefore, of getting work when he is free, are not very great. The whole bargain in the second case appears like "heads I win, tails you lose". Anyway, the second type of Hali, who is engaged intermittently by his Dhaniama, finds himself as much unable to free himself from the bondage of his master as the former. He hardly gets in cash from day to day the stipulated daily money wage, which varies with the amount of the advance obtained from his master. The Hali's account with the master is settled at the end of the year. The same considerations which induce the first type of Hali to obtain occasional advances in kind and money during the course of the year apply also in this case. And the force of those considerations is perhaps greater for the simple reason that the second type of Hali is not guaranteed permanent employment. When the day of annual reckoning comes, he is allowed credit for the stipulated daily wages for the number of days he has worked for the master, as against the advances in cash and kind with which he is debited. Thus, the sum total of his debits would exceed his credits which may work out by the end of the year at a few rupees. In his case also the outstanding initial loan is, therefore, generally not redeemed even by working for his master for a life time. It perhaps goes on increasing year after year.

It will, therefore, be clear that whichever the type of relations that subsists between the Hali and the Dhaniama, the Hali labourer is not able to free himself from the yoke of the master.

It may be noted that in both the cases of the permanent as well as the temporary Hali, neither the wife nor the son of the Hali is in any way bound to serve the master, as in some other parts of the district[1]. Nor is the master bound to employ them in his service. If the wife of the Hali serves her husband's master, say, fetches water for the master's family, grinds corn, cleanses the cattle-shed and the cooking utensils ; or, if the Hali's son tends the Dhaniama's cattle, they are paid for the same partly in kind and partly in money. The members of the Hali's family are under no obligation to serve the Dhaniama and may refuse to work, if they choose to

1. cf. G. C. Mukhtyar's Life and Labour in a South Gujarat Village, p. 165.

serve any other man. We may note here that the first type of Hali is locally known as 'Chākar' or 'permanent' Hali in the taluka; the latter is known simply as a Hali, or a 'free', but more appropriately, 'temporary' Hali.

HOURS OF WORK

Our enquiries in the taluka have shown that a free labourer usually works from 9 *a. m.* to 12 *noon* and from 1 *p. m.* to 6 or 6-30 *p. m.* He thus works 8 to 8½ hours a day. A Hali on the other hand, usually works from 6 *a. m.* to 7 *p. m.*, and in some villages from 7 *a. m.* to 8 *p. m.* with an interval of one or one and a half hours. The hours of work in his case thus come to about 12 a day. We may note that a Hali can be made to join work even at 5 *a. m.* during days of heavy and pressing agricultural work.

NATURE OF WORK

The free labourers are generally employed for sowing, weeding, reaping, transplanting and harvesting. A Hali, besides doing this work, does all the heavy field-work of ploughing, harrowing and so on. He also does the miscellaneous work connected with agriculture like carting the produce. If he is a permanent Hali, the duties of looking after the cattle, except cleaning the cattle-shed, almost invariably devolve upon him. We have, therefore, no hesitation in saying that the permanent Hali, although a permanent farm-hand by position, is a *de facto* cultivator of his master's farms. The master, in fact has become a pure and simple manager of his farms.

RATES OF WAGES

It is desirable to consider the rates of wages of a free labourer and of a Hali labourer. In considering the rate of wages of a free labourer, it is necessary to bear in mind a few considerations about the mode of payment. In the first place, we may note that a daily cash wage is the rule in the taluka[1]. The mode of payment, however, varies with different agricultural operations. For certain

1. How conditions in this respect differ in different parts of the same district, will be obvious when it is remembered that Mr. Mukhtyar in his study of a South Gujarat village says that in the village he studied the labourer is usually paid in kind. Vide Mr. Mukhtyar's Life and Labour in a South Gujarat Village, p. 162.

agricultural operations like the picking of cotton or groundnut, a piece-wage is allowed, it being a certain number of annas per maund of cotton or groundnut picked by the labourer. Another point to be noted is that for certain kinds of work, over and above the piece-wage, the labourer gets a portion of the produce. This system prevails in the taluka especially in the harvesting of juwar, wheat etc.; the labourer is allowed to take away, over and above the stipulated piece-wage, a certain number of sheaves per 100 sheaves of the harvested crop. Another peculiarity to which we may draw attention is that although wages in kind are not the rule in the taluka, for certain kinds of work, e.g. for taking out manure from the manure pit, the labourer is allowed a meal or two a day by the employer in addition to the daily cash wage.

In view of the discussion of the different modes of paying wages prevalent in the taluka, it will be observed that the calculation of an average rate of wages of a free labourer in a particular village is a matter of some difficulty. However, as a cash wage for a free field labourer is the rule in the taluka, we have been able to obtain for the villages studied the rates of daily cash wages generally prevalent. The nominal daily cash wage in half the number of villages was 4 annas; in the other half, it was 5 annas. Only in one village the prevalent rate was given as 3 annas. As this appeared to be much below the mark and a very exceptional case, we made an attempt to calculate an average daily wage by taking into account the number of days for which a free labourer gets work for each agricultural operation, and the total amount of cash wages he could earn by working for the said number of days. We took into account the actual figures of piece-wages for those operations in which they were prevalent, and also supplementary wages in kind, whether they consisted of a meal or two, or a portion of the produce. We thus arrived at an average daily wage of 4 annas 6 pies. As for those villages in which the daily wage was given to be 5 annas, it was probably given after taking into consideration the wage in kind, which, in some instances, is added to the nominal daily money wage. We may therefore state that the nominal daily wage prevalent in the year 1930-31 was 4 annas; however, if the above considerations as also a seasonal rise in wages are taken into account, the average daily wage of a free labourer in the taluka can be put, without fear of contradiction, at 5 annas per day.

We now proceed to consider the rate of wages of a Hali. For the sake of convenience, we shall discuss this aspect of the problem, firstly, with reference to the permanent Hali. The reader is by now aware that the permanent Hali gets wages in kind. He usually gets three meals a day. In the morning and in the evening he gets loaves of juwar and a small quantity of 'kathol'[1]. At noon he gets rice and 'dal' with a small quantity of pickles or 'papad' or an onion, and very rarely some vegetable. Besides the three meals a day, he does not get any grain allowance. He also gets daily a small quantity of tobacco for smoking. In addition to this he obtains his annual requirements of clothes, which usually consist of a pair of dhotis and coats, a pair of shoes and, in some cases, a coarse cotton-sheet to cover his body in winter. Instead of a cap he usually gets a small dhoti to cover his head. He is also given about 4 annas each time on certain social festivals during the year to enjoy a drink of toddy. Besides these wages in kind, he is 'supposed to receive' an annual pay, which generally varies from Rs. 18 to 24. He is neither allowed the usufruct of a piece of his master's land, nor is he given any land by his master for building a cottage as in some other parts of the district[2]. We have deliberately used the phrase "supposed to receive" in connection with the annual money wage, for, as already explained, this is generally written off against the occasional advances in grain and money for which the Hali approaches his master throughout the year.

He is supposed to work all the year round for his master; in practice, however, he generally enjoys a month's holiday in the aggregate in the year for reasons of health or any other domestic or social needs. These holidays are allowed to him by a good master; in other cases, the Hali manages to snatch them from the unwilling hands of a harsh master. In calculating the wages of a Hali, however, it is better to assume that he works for all the days of the year, as he is supposed to do, or in fact, he may be required to do, and convert in money all the payments made to him.

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1. 'Kathol' is a preparation made of certain kinds of pulses, used as a substitute for fresh vegetables usually taken along with bread.

2. cf. G. C. Mukhtyar's Life and Labour in a South Gujarat Village, p. 165.

The annual receipts of a permanent Hali converted in cash will be as follows :—

		Rs.	as.	ps.
(a)	27 maunds of Juwar @ 4 loaves of Juwar daily, each loaf weighing about ¾ seer ...	27	0	0
(b)	9 maunds of rice @ 1 seer of rice per day...	18	0	0
(c)	2¼ maunds of Tur dal @ ¼ seer per day ...	6	12	0
(d)	3½ maunds of 'Kathol' given with loaves daily @ 3/8 of seer of pulses per day ...	7	8	0
(e)	Some pickles or papad given with rice and dal in the noon, and the condiments and spices used in dal and vegetables @ 1½ pies per day	2	8	0
(f)	Tobacco	10	0	0
(g)	Clothes and shoes	14	0	0
(h)	Occasional draught of toddy on festive or other occasions.	3	0	0
(i)	Annual pay @ Rs. 2 per month	24	0	0
	Total for the year Rs.	112	12	0

The above is what we consider to be the most representative estimate of the cost of maintaining a Hali and has been selected for presentation here out of several estimates we prepared in different villages during the course of our investigations. The above estimate does not include the price of medicines given to the Hali by his master in case of sickness. The treatment he gets in the form of medicines etc., during sickness depends upon the urgency of the master's need for the Hali's labour. If the master's work does not suffer in the event of the Hali's sickness, he may be allowed to rot in his cottage. On the principal amount borrowed by the Hali, no interest is charged. We have, therefore, not allowed anything by way of interest in our estimate. Leaving out of account these items, and taking Rs. 112-12-0 as the annual receipts by way of wages by the Hali, his rate of wages works out at 5 annas per day, which is the same as that of a free labourer.

These calculations show that the view, very often expressed before us by the masters of the Halis, that the maintenance of a Hali is a very expensive proposition, is not tenable at first sight. This view appears to have its origin in the following

considerations. In recent years the amount of the initial advance to be paid for engaging a Hali has become a comparatively heavy sum from the point of view of the master. Formerly, an amount varying from Rs. 50 to Rs. 100 could answer the purpose; during the period of high prices which followed the war the amount increased to Rs. 200 to Rs. 300 and even more. The high price which cotton, the staple commercial crop of the area, fetched, induced some cultivators who used to do without a Hali to engage his services. The period was also one of industrial boom for the country as a whole, and the prospects of the rural labouring classes, from which the Halis are drawn, seeking employment in urban areas were comparatively bright. All these factors favoured the Hali demanding a large initial advance which the masters competed in paying during the period of high prices.. The amount of initial advance required for engaging a Hali has not shown any appreciable fall. The masters who engage their services, on the other hand, are hard hit by the falling prices of their produce and the general agricultural depression. These facts, in our opinion, have been responsible for the complaint referred to above. There is also another consideration. In our calculation, we have left out the occasional advances in money and kind obtained by the Hali, which very often exceed the amount of the stipulated pay. The master must and in point of fact, does make these advances to the Hali throughout the year. These are not infrequently an eye-sore to the master. And to crown all, if the disgruntled Hali absconds to a distant place from where the master is not able to trace him, the master loses both the Hali and the amount of money advanced. Even if the master is able to trace his whereabouts, and is able to catch hold of him in a distant factory or a railway workshop, there is no legal remedy open to the master to recover the money. Considerations like these are responsible for the complaint on the part of the masters. It is not necessary to pursue this aspect of the question any further. If, however, all the above considerations are borne in mind, and also the fact of the loss of interest on the amount advanced to the Hali, which from the master's point of view is a burden, it would be clear that the labour of a Hali in fact is dearer than that of a free labourer.

As the wages of a permanent Hali consist mainly of receipts in kind, the calculation of the average rate of wages by converting those receipts into their money value is affected by the prevailing

market price of the articles in question. It may be noted that Dr. Mehta[1] estimated the cost of maintaining a Hali at Rs. 122, whereas Mr. Mukhtyar[2] estimated it at Rs. 150 for different parts of the same district at different periods. And it may be of special interest to note that in the course of our investigations in three villages of the taluka during the summer of 1930, we arrived at the figure of Rs. 140 as the cost of maintaining a Hali in the year 1929-30. The representative estimate for the year 1930-31 given above is a low figure because of a considerable fall in the price of juwar and rice which occurred since 1929-30, though the actual or real wages of the Hali in terms of the quantities that he annually receives, have remained unchanged. These remarks bring out another important feature of the problem, viz., that whereas the effects of a rise or fall in prices of articles consumed by the labouring classes are felt by free labourers who receive their wages in money, they are not felt by Halis as they are paid in kind.

We shall now consider the average rate of wages of the second type of Hali, viz., the 'temporary' Hali. The first point of difference is that the temporary Hali gets two meals a day instead of three, as is the case with the permanent Hali. He also gets his daily quantity of tobacco for smoking and a few annas for an occasional drink of toddy from the master. However, he does not get his annual requirements of clothes and shoes. Instead of a monthly or annual pay, he is given a daily cash wage varying from annas 2 to 3 for the number of days that he works for the master.

If the above differences are borne in mind, the calculation of an average rate of daily wage of a temporary Hali becomes easy. From the items of the cost of maintaining a permanent Hali detailed on a previous page, we have to take off the cost of the two items of clothes and shoes, and the annual pay which together account for Rs. 38. This would leave a balance of Rs. 74-12-0 or in round figure Rs. 75. Adopting, therefore, the figure of Rs. 75 as the annual receipts in kind of a Hali, we would arrive at 3 annas 4 pies as the daily wage. As the temporary Hali gets only two meals a day instead of three, the daily wage in his case would

1. Dr. Mehta's A Study of Rural Economy of Gujarat p. 127.

2. G. C. Mukhtyar's Life and Labour in a South Gujarat village, pp. 165-166.

come down to 2 annas and 2 pies. He, however, gets a daily cash wage. By adopting 3 annas as the representative figure of daily cash wage, the average daily wage of a temporary Hali works out at 5 annas and 2 pies or roughly 5 annas per day. Thus the average rate of daily wages of a temporary Hali works out approximately at the same figure as that of a permanent Hali ; there is, however, no compensating advantage in favour of the temporary Hali as against the absence of guarantee both of work and his daily requirements.

It may be of interest to note that we made an attempt to calculate the average rate of wages of a temporary Hali on the spot in one of the villages investigated. A Kanbi agriculturist cultivating about 22 acres of land engaged the services of a temporary Hali ; the total number of days for which his services were requisitioned during the year was 126, and the daily cash wage stipulated to be paid to the Hali was 2 annas. Taking all the items into account, and adopting 2 annas as the daily cash wage, we were able to arrive at the average daily wage of 4 annas 5 pies. This closely resembles the figure worked out on the previous page, in spite of the difference in daily cash wage. It may incidentally be noted that the number of days for which a temporary Hali gets employment generally varies from 100 to 125 days in the year. In the course of our investigations we were able to gather that in extreme cases the total number of days for which his services were engaged varied from 50 to 150 days, according as too little or too much reliance was placed on the Hali.

HAS THE CONDITION OF AGRICULTURAL LABOUR IMPROVED ?

We shall now discuss briefly the economic condition of agricultural labourers in the taluka in recent years. The present discussion, being based on published figures of average rates of daily wages will be applicable to free labourers. It will also be true of temporary Halis in so far as they are free to swell the ranks of free labourers during periods when their services are not required by the masters.

We give below the average rates of daily wages of a field labourer in the taluka for different dates.

TABLE SHOWING WAGES PER DIEM PER MAN

Year	*Rates of Daily Wages*	*Index number of Daily Wages*
	Rs. As. Ps.	
1903	0 2 6	100
Pre-war normal	0 4 8	187
1922-23	0 10 0	400
1928-29	0 8 0[1]	320

As compared with the year 1903, the pre-war normal wage shows a rise of 87 per cent. In 1922-23 the average daily wage was 300 per cent. higher than that in 1903. Even adopting the lower figure of 8 annas for 1928-29, the rise in the money wage as compared with 1903 was more than 200 per cent. That there was a marked and continuous increase in the average rate of money wages paid to field labourers during the last 25 years is evident from the above figures. But the real question is whether this increase in the money wages has also meant a rise in the real wages of the agricultural labourers. The answer will enable us to decide whether the economic condition of agricultural labourers has improved.

A satisfactory answer to the above query involves the preparation of the cost of living index numbers for the agricultural labourer of the taluka and their comparison with the index numbers of real wages. As it is not possible to prepare index numbers of the cost of living of the agricultural labourer of the taluka for various dates with the data available, we shall attempt to compare the index numbers of the money wages with the index numbers of prices of two important articles of food grains which figure prominently in the cost of living of the taluka agricultural labourer. This method is, in our opinion, not open to any serious objection, when it is remembered that a very large portion of the total expenditure of the labourer, estimated to vary from three-fourths to three-fifths of the total, is incurred for food [2]. The most important item of

1. The figures for the years 1903, 1922 and the pre-war normal are taken from the Statistical Atlas of Bombay Presidency. The figure for 1928-29 was taken by us from the administration report of Olpad taluka which gives the average rate as from 8 to 10 annas. We have adopted the lower figure of 8 annas.

2. Vide Report on an Enquiry into Agricultural Wages in the Bombay Presidency, 1922, p. 24.

food in the diet of the agricultural labourer of the taluka is juwar. In recent years, rice has to some extent entered in his diet. We give below the prices of these two important articles of food of the labourer for the different dates, as also the index numbers of prices of the same, taking again 1903 as the base year.

Year	*Price in lbs. per Rupee*		*Index Numbers of prices*		*Index Numbers of money wages.*
	Juwar	Rice	Juwar	Rice	
1903	39	17	100	100	100
Pre-war normal	22	14	177	127	187
1922-23	20	10	195	173	400
1928-29	16	10	244	173	320

The conclusion emerging from the above table is that although the price of juwar and rice shows a continuous increase throughout the period, the rise in the price of these articles has always been much smaller than the rise in the wages of the agricultural labourer. In other words, the rise in money wages has also meant a rise in real wages. The rise in the price of the chief articles of consumption has not been such as to nullify the effect of the rise in the money wages. This statistical evidence showing that there has been a rise in the real wages of the agricultural labourer should not lead one to think that this rise has been followed by a real improvement in his standard of living. The following considerations will be found sufficient to support this view.

That the agricultural labourer now possesses a few brass or cheap alluminium vessels and is able to afford a few trifles, which he did not have before, cannot be denied. In the course of our investigations, however, we scarcely came across a Dubla labourer who was able to purchase a plot of land, or was able to become either a cultivating owner or tenant. The general impression is that, if he was able to earn more, he also spent more on such occasions as marriage, or on his favourite drinks of toddy and liquor. The truth of these facts is not easy to question. The expenditure on marriage of a Dubla labourer has considerably gone up and has more than doubled within the last decade. Whereas formerly the marriage of a Dubla used to cost from Rs. 50 to Rs. 75, it now costs Rs. 200 or more. That the consumption of intoxicants

like toddy and liquor has considerably increased is borne out by the excise returns of the Surat District. They amounted to Rs. 1,150,000 in 1893-94; in 1921, they rose to Rs. 2,497,348. These figures need no comment. Thus, the increased wages, both nominal and real, within recent years have not materially improved the economic condition of the agricultural labourer.

MIGRATION OF LABOUR

There is no seasonal migration of labourers from this area to industrial centres as is the case in the Deccan, where the small owner cultivator, being unable to live on the produce of his small holding, supplements his income by migrating to industrial areas. Nor is there a big industrial centre in the vicinity of the taluka to which the agricultural labourer can migrate for a part of the year. There is, however, a constant and almost day to day migration of labour within the taluka itself. This migration takes place from a village which has an abundant supply of agricultural labourers to a village having a scarcity of labour. The Koli and other labourers, who sometimes cultivate small plots of land in their own village, used to migrate from the villages of Pinjarat and Damka to the neighbouring villages of Dihen and Ichhapore during the period of agricultural activity. Labourers of these and other western villages sometimes travel many miles to villages on the east of the taluka, which is principally a cotton-growing tract, during the cotton-picking season. This inter-village migration of labourers does not solve the problem of both underemployment and unemployment of agricultural labourers as of the actual cultivators during a part of the year. We shall refer to this in detail in a later chapter.

CO-OPERATIVE LABOUR

There is one feature of the labour problem which is of some interest, and this is what is locally known as 'Sondhal'. It is a form of co-operative exchange of labour. According to this, if a small cultivator's family consists, say, of three working members, they work without wages on the fields of another cultivator, who in return goes to work with members of his family on the farms of the former on similar conditions. This form of co-operative exchange of labour is very largely prevalent among the Koli cultivators of the taluka. It does away with the necessity of making payment of wages in cash of which the small cultivator has

little, and also secures efficiency of labour as against the labour of a daily wage earner. This system is perhaps an interesting and useful survival of the old time self-sufficiency of our villages.

INEFFICIENCY OF AGRICULTURAL LABOUR

The problem of inefficiency of labour will have to be considered firstly, in respect of free labour, and secondly, in respect of Hali labour. Whether there has been a growing inefficiency of the free labourer is difficult for us to say in view of the absence of reliable data of the output per day of a free labourer in the past. We did not receive any serious complaints on this subject in the course of our investigations. Although some of the agriculturist employers believe that an average labourer now puts forth less work per day than he used to do formerly, the reason for there being no serious complaint in respect of the inefficiency of free labour is probably this. For many agricultural operations the system of paying piece-wages is followed in the taluka; e.g. this system prevails in the picking of cotton and groundnut, in the cutting and binding of grass, in the digging of cotton stalks and juwar stubbles, in the harvesting of juwar, wheat and paddy, and sometimes even in weeding. Thus, although a daily cash wage prevails in the taluka, the system of paying piece-wages is so much in vogue that it largely does away with the complaint of inefficiency of free labour. What little complaint there exists may be attributed to the enormous rise in wages within recent years, which outstripped the rise in the price of the produce of the agriculturist, which in the past three years has shown a considerable and continuous fall.

As regards the complaint of inefficiency of the Hali labourer, which we heard in the taluka, it would be proper to examine critically the system, and suggest, if possible, remedies for the defects of the system.

MERITS AND DEMERITS OF THE HALI SYSTEM: ITS FUTURE

A Hali is guaranteed both his work and maintenance, whether he works efficiently or otherwise. The chief incentive to efficient work, which comes from the prospect of bettering one's position, is thus absent in his case. His future is sealed. By working better he knows that he is not going to earn more. He, therefore, naturally loses interest in his work. The main defect of the system, therefore, consists in this, that the system does away

with the chief incentive to efficient work, which comes from the atmosphere of freedom and the prospect of economically improving one's position in life. The question that arises is, why does the system which is found to be both inefficient and expensive in the long run persist ?

The second line of criticism is that it offends our sense of justice and fair play by doing away with the liberty of the individual. The system, as it works in practice, means life-long bondage of the Hali. It has been said that a state of perpetual service on bond differs little from *de facto* servitude[1]. The condition of the Hali is said to differ little from that of the slaves of the American plantations prior to the Civil War. The only difference between him and those slaves is that in his case the courts do not recognise the rights of the masters as absolute over his person and services. And yet, the public conscience is not roused on this aspect of the problem. Here is a field for the social worker, who will, of course, have to put up a strenuous fight against the powerful and callous self-interest of the employing landowners.

Let us now turn to consider if the system has any merits. The merit consists in this, that the system guarantees the Hali both his work and maintenance. But, then, it will be argued, and very justly, that it is the guarantee of the slave, who has lost all interest in his life and has become a beast of burden of his master. Another merit which is claimed for the system by the masters—and this is the reason why the inefficient and uneconomical system persists—is that it guarantees to the master a permanent and dependable supply of labour. The masters claim that as time is of the essence in the cultivation of land, they are not exposed to the mercies of free labourers who may demand a higher wage during the busy season. They would have either to submit to the dictates of the free labourer, or allow their cultivation to suffer which they would not like.

It remains to be examined whether there exists any dissatisfaction with the system on either side, and whether the system would die a natural death due to it, or whether any special remedies are called for to set matters right. To the first part of the above query our answer is that a certain amount of dissatisfaction does exist on both the sides. This is not to say

1. Vide Census of India 1921. Vol. VIII Part I. p. 220.

that all the masters and the Halis are in a perpetual state of warfare. Far from it, there is a large number of masters and Halis whose relations are harmonious and who are apparently satisfied with the system ; otherwise, the system would have died out long ago. We could observe, however, a certain amount of dissatisfaction with the system on the part of the masters, as the system is uneconomical in the long run. In view, however, of the danger of exposing their industry to the mercies of the free labourer the masters regard the system as a necessary evil.

During recent years two more causes have contributed to the dissatisfaction of the masters. One is that the prospects of getting work in urban centres have increased in recent years on account of the increased industrial activity in the big cities during and since the War. The possibility of getting employment in a factory, on the railways and in the cities as domestic servants have given an impetus to the run-away propensities of the Hali. At the slightest provocation the Hali could change his master, sometimes, even outside the taluka. In the event of the Hali's running away, the master has no remedy except trying to hunt him out ; if the master succeeds in his effort, the disgruntled Hali would return to his work in a half-hearted manner ; if the master fails, he would lose both the Hali and the money. If the master resorts to a court of law, the courts do not recognise his right over the person and services of the Hali. In case the master is able to establish his claim over the money advanced to the Hali, there is very little of his belongings, or nothing at all, from which to recover the money. Under these conditions there does exist a certain amount of dissatisfaction on the part of the master. The Hali thinks, and very rightly, that he is not a free being, that his master does not treat him properly. Craving for freedom is ingrained in human nature and even a well-fed and well-clothed slave feels his bondage ; much more does a Hali, who, even after working day in and day out for his master, is entitled just to the bare necessities of life. When we visualise the spectacle of a number of Halis, who in the course of our enquiry, came to us seeking for some means of deliverance from their state of bondage, it is difficult to deny the existence of dissatisfaction among the Halis. And yet, the system persists showing no signs of early disappearance.

The natural question will be : how is it that in spite of this dissatisfaction on both the sides the system persists ? The answer

is that on both the sides it is regarded as a necessary evil. We have already referred to the considerations which weigh with the masters in continuing the system as a necessary evil. On the side of the Hali, this is the only way which he sees for getting money either for marriage or any other social or domestic need, as he has nothing else to offer as security for loans. We, therefore, agree with the view expressed by Mr. S. H. Covernton, who observed as follows :—" So long, however, as the nature of the Bhils and 'Kaliparaj' remains what it is, it is not easy to see how they can refrain from accepting advances larger than they can work off in a few months. And so long as this advance system continues, the Hali system will remain ". We too have failed to observe any signs of the disappearance of the system, at least in the near future. If, however, the system is both uneconomical and inefficient, and is also pernicious in this that it militates against the fundamental conception of the liberty of the individual, it is but meet that we should examine in some detail the remedies, which, while doing away with its obnoxious and uneconomical features, would still safeguard the interests of the principal occupation of the taluka, viz., agriculture.

REMEDIES

Let us first consider if the abolition of the system by legislation will solve the problem. We believe that legislation, instead of solving the problem, will perhaps aggravate the difficulties of the transitional period. The agriculture of the taluka, as of many parts of the district, is so largely organised on this system that it will be futile to expect the landowners, who have hitherto been depending on the Halis, to resume field-work immediately. The whole agricultural economy of the taluka will be shaken to its very foundations. From the point of view of the Halis, the abolition of the system by a stroke of the pen may not improve their lot immediately. The view is sometimes taken that the American Negro freemen were not happier than the Negro slaves of an earlier period. Transitional stages are always difficult, and if the Hali is made free, both in fact as well as in law, he may not think himself to be as happy as before, for he will lose the guarantee of work as well as his requirements throughout the year which he enjoys at present. The period of transition may thus be of uneasiness and difficulty both for the Halis and the masters.

The remedy that is suggested by some is the introduction of what has been called the card system[1]. It means that a labourer who is in the service of one master cannot leave him unless he has settled with the original master. The labourer will not be engaged by another master unless he shows him the card of his original master, which is a sort of permit entitling him to seek other work. This remedy is suggested for safeguarding the interests of the employing cultivators. The card system, if adopted, however, will strengthen the hold of the master on the Hali. From the point of view of the Hali's slavery the system would perhaps aggravate the disease that it seeks to cure. A better way to improve the situation for the master will be to advance a smaller amount which the Hali can work off within a reasonably short period of service. The masters, however, who do not wish to dispense with the services of the Halis, do not grudge advancing a comparatively large sum, and thus contrive to see that the Hali is under their control. If the disgruntled Hali runs away with a large amount of money, which the master does not mind advancing him, it is not open to the master to turn round and complain about his loss.

The remedy that we would suggest consists in introducing a system of giving the Hali a certain share in the produce of the farms of his master. The Hali, should of course, be free to leave his master for another. This remedy, while doing away with the obnoxious and objectionable features of the present system, will guarantee to the cultivator a dependable supply of labour. The Hali will now be induced to stay in the village; his run-away propensities will be diminished, if not altogether removed. Being now a sharer in the produce of the farms on which he works, he will be made to take a real interest in his work. He will realise that his efficiency and care will have a direct bearing on his earnings. His virtual position under these conditions will change from that of a permanent farm-hand, with no real interest in the fortunes of his master, to that of a tenant who shares the produce with his master. The master will, of course, supply the bullocks and implements, and other requisites for the cultivation of land. The master's interests will be safeguarded in this, that he will have an efficient farm hand with whom his interests are identical. The

1. Vide Memorandum submitted by Rao Sahib B. M. Desai to the Royal Commission on Agriculture, Vol. II, Part II., pp. 577 and 601.

present dissatisfaction on either side will disappear and cultivation will be more efficient. The present Hali will then become a free agent, and if he is in need of money, he will be able to secure a loan on his personal credit which he will try to build up and maintain. He will no longer pledge his labour for the loan, which will now be advanced to him on the sole consideration of his capacity to repay. He will become a self-respecting and self-reliant member of the agricultural community and will learn to cut his coat according to his cloth, and not always be dependent for every single need on the master as at present. We have little doubt that this remedy will usher in an era of general agricultural advancement and contentment, and will sound the death-knell of the present bickerings on the part of both the masters and the Halis. As already said, there prevails a certain amount of dissatisfaction with the system on both sides. Meanwhile, the wants and domestic needs as also the petty luxuries of the Halis have increased, and this has made the maintenance of a Hali a more expensive proposition for the master. We hope, therefore, that before the present discontent on either side deepens and makes matters worse than they are at present, the problem will be thoroughly examined by all interested in the welfare of our agricultural classes, and remedies on the lines suggested by us be put into effect as early as possible to the benefit of all concerned.

CHAPTER VI

AGRICULTURAL CAPITAL

KINDS OF CAPITAL REQUIREMENTS

We are dealing here with the capital requirements of the farmer for financing the agricultural operations only, as distinct from the social and other activities, the financial aspect whereof will be dealt with in connection with the problem of agrarian indebtedness. The capital requirements of the agriculturist may be usefully distinguished into the following three categories : (i) fixed capital, (ii) intermediate capital, and (iii) capital for current needs.

The fixed capital requirements arise out of the necessity for such irrigation works as wells and tanks, and such works of land improvement like drainage, reclamation, fencing, etc., both of which involve investment of capital for long periods. Further, the cultivator needs occasional finance for the purchase of implements of a somewhat expensive character and of cattle. These and similar capital requirements of the cultivator fall under the second category of intermediate capital. Like any other industrialist, the agriculturist also needs, in addition to capital of the first two kinds, capital for current requirements of agriculture, like the purchase of seeds, manures, etc. The instances of capital requirements under each of the three categories given above are not, and are not intended to be, exhaustive, but are merely illustrative. They are, however, sufficient to bring out the differences in the nature of each.

IMPORTANT ITEMS OF AGRICULTURAL CAPITAL

The following are usually enumerated as some of the important items of the capital resources[1] of an agricultural community.

1. Land.
2. Wells.
3. Cattle.

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1. Vide G. C. Mukhtyar's Life and Labour in a South Gujarat Village, p. 126.

4. Implements.
5. Houses.
6. Utensils and other furniture.
7. Ornaments and cash, and
8. Investments.

Problems connected with land have been dealt with in a previous chapter, and the subject of wells has been treated exhaustively in the chapter on Physical Features of the taluka. The next two items in the list, viz., cattle and implements, are aids to agricultural production, and are, therefore, the only important items of agricultural capital left to be considered. The remaining four items have only an indirect bearing on the subject, and are, in reality, the results of agricultural production. For this reason, we leave them out of consideration. There is also another reason which persuades us to adopt this course: in discussing the latter four items, the utmost that can be done is to offer a few observations of a general nature. We have, therefore, narrowed down the scope of the present chapter to a consideration of the two important items of agricultural capital viz., cattle or live-stock and implements or dead-stock. It will be observed that both these items relate to what we have characterised as the requirements of a cultivator for intermediate capital.

SECTION I.

CATTLE OR LIVE-STOCK

The importance of cattle in the economy of the taluka lies in their employment as draught animals for the plough and the cart, and in the production of milk. They are not likely to be ousted from this important position for a long time to come. The religious veneration in which the cow is held by the Hindu population is well-known. This feeling of veneration is not difficult to understand when it is remembered that besides being a producer of milk, the cow is a breeder of the ox on whom the agriculturist depends both for tilling the land and transporting the produce. The ox is, thus, the most important item in the live-stock wealth of the agriculturist.

(I) QUANTITATIVE ASPECT

The following tables show the number of cattle of different kinds found in the taluka in different years.

I WORKING CATTLE

Year.	*For Plough*		*For Breeding*		*For other purposes*		*Total Working Cattle*
	Oxen	He Buffaloes	Bulls	Bull Buffaloes	Oxen	He Buffaloes	
1895-96	11,497	3	34	25	364	4	11,927
1900-01	9,559	7	35	23	282	4	9,910
1915-16	11,950	3	41	28	386	1	12,409
1919-20	12,033	3	41	29	386	1	12,493
1924-25	12,264	...	31	38	1,031	2	13,366
1929-30	12,738	...	24	38	154	2	12,956
Increase (+) or Decrease (-) in 1929-30 over							
(i) 1895-6	+1,241	-3	-10	+13	-210	-2	+1,029
(ii) 1915-6	+ 788	-3	-17	+10	-232	+1	+547

II MILCH CATTLE AND YOUNG STOCK

Year.	Cows	She Buffaloes	Calves	Buffalo-Calves	Total Milch Cattle and Young Stock
1895-96	5,466	8,117	6,907	6,234	26,724
1900-01	3,161	5,229	4,571	3,618	16,579
1915-16	5,850	5,078	9,084	6,114	28,126
1919-20	5,901	7,155	9,124	6,194	28,374
1924-25	4,400	6,911	6,370	6,173	23,854
1929-30	4,573	7,942	6,685	7,091	26,291
Increase (+) or Decrease (-) in 1929-30 over					
(i) 1895-96	-893	-175	-224	+857	-433
(ii) 1915-16	-1,277	+864	-2,399	+977	-1,835

III SUMMARY TABLE

Year	Working Cattle	Milch Cattle & Young Stock	Total Bovine Cattle
1895-96	11,927	26,724	38,651
1900-01	9,910	16,579	26,489
1915-16	12,409	28,126	40,535
1919-20	12,493	28,374	40,867
1924-25	13,366	23,854	37,220
1929-30	12,956	26,291	36,247
Increase (+) or Decrease (-) in 1929-30 over			
(i) 1895-96	+1,029	-433	+596
(ii) 1915-16	+547	-1,835	-1,288

The changes in the number of cattle from census to census may be summarised as under :—

(1) The number of cattle in the taluka declined in 1900-01 by about one-third of that in 1895-96.

(2) How long the cattle took to recover from the setback witnessed in 1900-1901 cannot be said with accuracy with the help of statistics given above. However, the cattle population of the taluka showed a marked recovery at the time of the 1915-16 census. It may be noted that all species of cattle shared almost uniformly in this recovery. As compared with 1900-01, the number of cattle increased by about 50 per cent. in 1915-16.

(3) The recovery witnessed in 1915-16 was more than maintained till 1919-20 which marked the culminating point of the period of recovery.

(4) The year 1924-25 showed again a slight setback in the number of cattle from which they recovered by the time the 1929-30 census was taken.

(5) Taking the whole period from 1895-96 to 1929-30, the cattle of the taluka increased in 1929-30 as compared with 1895-96 ; they, however, decreased by 1288 as compared with 1915-16 which may be taken as a normal year[1] for the present purpose.

It will be observed from the above that during the period of thirty-five years from 1895-96 to 1929-30, the cattle of the taluka declined twice, (i) in 1900-01, and (ii) in 1924-25. The setback in the number of cattle in 1900-01 was due to the Great Famine which took a heavy toll of cattle life in this area. The statistics reveal a decline in all kinds of cattle, whether plough or milch cattle, or young stock.

The cause of decline in 1924-25 was quite dissimilar. In this case, the decline was not shared uniformly by all species of cattle. Whereas the draught animals increased by 873 in 1924-25 over the previous census, the milch cattle and young stock declined by 4,520. A detailed examination of the statistics further shows

1. Apart from special causes which have an effect on the number of cattle, the comparison between 1915 and the years following is on equal terms ; the figures for the years 1895-96 and 1900-01, on the one hand, and the subsequent years, on the other, are affected by changes in the number of villages in the taluka as explained in Chapter I.

that even among milch cattle, it was the cow and her young stock who were mainly responsible for this decline, for, whereas the number of cows and their stock decreased by 1,501 and 2,574 respectively, the buffalo and her stock escaped with a negligible loss of 244 and 21 respectively. The setback suffered in 1924–25 is, therefore, important as marking a complete change in the quantitative composition of the different species of cattle, and as establishing a tendency for the cow to lose ground in the economy of the taluka. This tendency is unmistakable when it is seen that the buffalo and her stock more than made up the slight loss suffered in 1924–25 by the time the next census came to be taken in 1929–30, the cow and her stock lagged much behind. While the number of buffaloes and their young stock increased by 1,031 and 918 respectively in 1929–30 over the previous census, the cows and their stock increased by 173 and 315 only during the same period. Although the losses suffered by the cow and her stock were very severe, the recovery in their case was very slow. The conclusion from the above facts is that the cow has become unpopular in the economy of the taluka, and the ground lost by her is not likely to be regained in the near future. The buffalo, on the other hand, remains, *par excellence* the milch animal of this area.

Before we pass on to the next topic, it may be noted that with the exception of years of famine from whose onslaughts none of the species of cattle of the taluka escaped, the number of plough bullocks showed an increase from census to census.

RELATION BETWEEN CROPPED AREA AND PLOUGH CATTLE

(*a*) FOR THE TALUKA AS A WHOLE BASED ON OFFICIAL STATISTICS

The bullock is the animal which works the plough, the harrow and other implements of cultivation. The number of plough oxen, should, therefore, be determined by the amount of work, that is, by the area under crops. The following figures show this relation :—

Year.	*Cropped area per pair of plough cattle.* (acres)
1895–96	18·8
1900–01	21·2

Year.	*Cropped area per pair of plough cattle.* (acres)
1915-16	24·4
1919-20	20·8
1929-30	19·7

As might be expected, the plough cattle in relation to the area under cultivation declined in 1900–01 as compared with 1895–96. While the plough cattle increased by about 25 per cent. in 1915-16 over 1900-01, they actually showed a decline in relation to cropped area. In other words, the absolute increase in their number did not keep pace with the increase in cropped area. The plough cattle, both absolutely and in relation to cropped area, increased in 1919-20 over 1915-16, and in 1929-30 over 1919-20. The year 1929-30, therefore, enjoyed the most favourable position in respect of plough cattle during the present century. It may be noted that although the number of plough cattle showed an increase in 1929-30 as compared with 1895-96, the same showed an actual decline in the relative sense.

The present discussion incidentally shows how misleading the figures of absolute increase or decrease of plough cattle of a particular tract may be, and that the best method of examining these figures is to relate them to cropped area as is done here.

(*b*) FOR DIFFERENT PARTS OF THE TALUKA BASED ON FIRST-HAND INVESTIGATIONS

In order to obtain a more realistic picture of the situation in the taluka, we shall consider the question of the relation between plough cattle and cropped area on the basis of the following figures obtained during our house-to-house investigations in the villages[1].

1. A similar table based on the 1929 cattle census could be prepared. However, without trying to minimise the importance or accuracy of the official figures, we may point out that the data collected by us are of greater value for the present purpose. The reason is that, whereas we took care to make adjustments for the fact that cattle of one village are used for cultivating the land of another, the official figures do not take account of this factor.

Name of the Village and Group.	Area cultivated (in acres).	Number of draught bullocks.	Area cultivated per pair of plough bullocks (in acres).
Umra ...	479	60	15·96
Sandhier ...	557	54	20·63
Bhadol ...	783	102	15·37
Total—Gr. I ...	1819	216	16·85
Sonsak ...	533	52	20·46
Ichhapore ...	1313	111	23·85
Total—Gr. II ...	1846	163	22·51
Atodra ...	887	78	22·74
Mahmadpore ...	738	58	25·44
Pardi Koba ...	252	38	13·26
Total Gr. III ...	1877	174	21·57
Total Grs. I to III	5542	553	20·08
Karanj ...	267	42	12·71
Kuwad ...	486	61	15·20
Kasla ...	383	41	18·28
Total Gr. IV ...	1136	144	15·77
Bhagwa ...	23	6	7·33
Pinjarat ...	923	139	13·38
Damka ...	636	96	13·43
Total Gr. V ...	1582	241	13·17
Total Grs. IV & V.	2718	385	14·14
Grand Total of all Groups	8260	938	17·60

The table shows the following :—

(1) The area cultivated per pair of plough bullocks varies from 13 to 25 acres[1]; it is 17·6 acres for all the groups combined.

(2) In more than half the number of villages the area cultivated per pair of bullocks is much smaller than the average area of 17·6 acres.

In explaining the differences, it may be pointed out that with the exception of Umra, all the villages with an area smaller than the average area of 17·6 acres per pair of bullocks, are Koli villages of the eastern and western zones. This naturally leads us to inquire into the conditions under which the Koli cultivators carry on the

1. The village of Bhagwa, for reasons already given in another connection, is excluded from consideration.

agricultural occupation. It may be observed that they are essentially small cultivators. Moreover, in villages like Kuwad, Pinjarat and Damka, a small Koli cultivator with a holding of 2 to 3 acres has to maintain at least one plough bullock. In these and other coastal villages, the opportunity for a small Koli cultivator to obtain employment as a Hali with a comparatively big landholder are very few. In other villages, the Halis, having such tiny holdings, rely upon the customary generosity of their masters for performing tillage and similar operations with the aid of their master's implements and cattle. Similarly, a small Koli cultivator with a holding of 8 to 15 acres has to maintain a pair of plough cattle, for he cannot rely on obtaining the services of his neighbour's bullocks at proper times; and moreover, such reliance may render his chance of eking out a scanty living from his small holding absolutely uncertain. The conclusion, therefore, is that the smaller cultivated area per pair of bullocks in these villages discloses a very disquieting feature in their economic life, viz., the feature of over-stocking of plough cattle. From the strictly economic point of view, it amounts to a waste, because the different factors of production are not matched in their required proportions.

Of the remaining six villages, with a cropped area above the average, three villages are mainly inhabited by the Kanbis, one by Muhammadans, one by Rajputs, and the last by Kolis. It may be pointed out that the cultivators of the Koli village of Kasla of this class have the advantage of taking on lease extra land for cultivation from the neighbouring villages[1]. Does this mean that the non-Koli villages suffer from insufficiency of cattle ? An attempt to answer this is made in the following section.

ADEQUACY OF PLOUGH CATTLE

The question of sufficiency of plough cattle has another aspect besides that of number. An absolute increase or decrease of plough cattle can prove little, if anything. The increase may be the result of a multiplication of the inefficient, old and infirm cattle, and similarly the decrease, the result of a process of elimination of the unfit. In either case, the question of an 'effective' as distinct from

1. But for this, this village would have fallen in line with other Koli villages. To put the same thing in figures, the area of 18·28 acres per pair of bullocks given in the table dwindles down to 12 acres, if lands cultivated in the neighbouring villages are excluded.

a 'numerical' adequacy of cattle can hardly be decided. In the Season and Crop Report of this Presidency for the year 1919-20, Mr. G. F. Keatinge wrote the following significant remarks :—"In a country where there is no standard of efficiency either amongst the plough or milch cattle, little real information can be obtained from a mere recital of figures. It is quality that counts, not mere quantity." And yet it is almost impossible both for Government officers as well as for us to say anything that would furnish a statistical answer to the question of adequacy of plough cattle, by combining efficiency with numerical strength. Our inability to use this ideal measure of adequacy, however, need not cause us disappointment. There is another quite workable and fairly accurate method of deciding the question of adequacy. This consists in finding out the extent of land generally found in a tract, which a pair of plough cattle of the average quality can properly cultivate.

In the course of our investigations in the villages, the area of land that could be properly cultivated was generally given to be 18 acres. The estimates, however, varied from 14 to 21 acres. We, therefore, adopt for the present discussion 15 to 21 acres, as these limits would give a true picture of the situation in view of differences in local conditions of the villages.

If we examine the problem from this point of view, we find that six, or about one-half the number of villages studied, are more or less adequately provided with plough cattle. In four out of the remaining seven villages, the area cultivated per pair of plough bullocks varies from 12 to 15 acres ; these may, therefore, be regarded as distinctly wide of the mark. They are all Koli villages of the western zone. We have already referred in detail in the preceding section to the over-stocking of plough cattle in these villages, and the circumstances which account for this undesirable state of affairs. As regards the remaining three villages falling within the limits of 21 to 25 acres, one is the Rajput village of Mahamadpore, the other is the Mahomedan village of Atodra, and the third the Kanbi village of Ichhapore : all of them belong to the eastern zone. Can it be said that these villages suffer from inadequacy of plough cattle ? Although the average area per pair of plough cattle in their case is in excess of the standard limits laid down above, we are not inclined to the view that the supply of plough cattle in their case is inadequate. There are two redeeming features in their case.

(i) The spirit of mutual help and co-operation is in evidence among the cultivators of the two villages inhabited respectively in the main by Rajput and Mahomedan cultivators, who share the services of their plough cattle with their caste fellows. (ii) What appears as deficiency in quantity is more than made up by the better quality of plough cattle which the Kanbi, Rajput, Parsi and other cultivators of the eastern villages of the taluka maintain.

RELATION BETWEEN QUANTITATIVE AND QUALITATIVE ASPECTS OF THE PROBLEM

While considering the question of adequacy of plough cattle in different parts of the taluka, we said that what appears to have been lost in quantity in some villages of the taluka is made up in quality. Although it is not always possible to establish any relationship between the two aspects, viz., quantitative and qualitative, of the cattle problem of a particular tract, in the case of this taluka some sort of relationship between these two aspects is observable. In the eastern villages of the taluka generally, and in the non-Koli villages particularly, the number of plough cattle maintained by the agriculturists appears to be primarily governed by the number of animals required for work on the land; when, however, an attempt is made in some of these villages to cultivate more land than can ordinarily be worked by these cattle, this apparent deficiency in numbers is made good by careful management of the cattle kept. On the other hand, in the Koli villages of the western zone, the story is quite different. Here the poor small Koli cultivators maintain an excessive number of cattle. The Kolis are also engaged to a certain extent in the breeding and rearing of cattle. A sort of vicious circle, from which there appears no escape, seems to have been established here. As they are not in a position, economically speaking, to breed and maintain cattle of good quality, an attempt, as judged by the figures, is presumably made to gain in quantity what is lost in quality; and as the numbers increase, the worse become the conditions for rearing good cattle.

(II) QUALITATIVE ASPECT

THE BREEDS OF CATTLE

The cattle of the taluka can be divided into two breeds: (1) the Talabda, and (2) the Sindhia and other non-descript animals. The name 'Talabda' is given to the home-bred cattle of the taluka.

The breed of the well-known Kankereji cattle of North Gujarat which contains an admixture of foreign blood and is less carefully bred, is known as 'Gujarati'. On account of the care with which the 'Gujarati' cattle are bred in Olpad and some other parts of Surat district, and of the high reputation which they have acquired, the local cattle have been regarded as a separate breed[1]. Besides the local breed of Talabda cattle found all over the taluka, a large number of bullocks are purchased every year by the cultivators from the wandering Sindhis and Rabaris. These bullocks are known as 'Sindhia'. Within recent years the Rabaris of North Gujarat have been ousted from their business by the Sindhis. How far the 'Sindhia' bullocks represent a pure Sindhi breed is open to question. The Sindhi who comes down to the taluka with his herds of draught cattle is not a breeder like the Rabari ; he is merely a broker, or a cattle seller who makes profit out of selling cattle[2]. The cattle which pass on as 'Sindhia' belong mostly to the Malvi or Cross Malvi breed brought down by the Sindhis from Rajputana.

As regards the value attached by the people to the home-bred or Talabda cattle on the one hand, and the Sindhia and other non-descript cattle on the other, the following facts are illuminating. While a pair of good Talabda draught bullocks fetches Rs. 250 to Rs. 300, a pair of Sindhia bullocks costs from Rs. 125 to Rs. 200[3]. The working period in the life of a pair of Talabda bullocks is estimated at 10 to 15 years, and in the case of Sindhia bullocks from 5 to 7, and, sometimes, 9 years. The locally bred Talabda cattle, like their parent stock, the Kankereji, are tall, active but docile and substantial. They are valued both for the plough and the cart. The 'Sindhia' bullocks are rather long in body and strong in limbs, but are generally less tall than the Talabda cattle. The Talabda bullocks are preferred by the cultivators to other breeds imported in the taluka. As the Talabda cattle have been bred in the taluka for a long time, they have developed certain

1. Bulletin No. 85 of 1917 of the Department of Agriculture, Bombay Presidency, p. 19.

2. Vide Mr. Bruen's Evidence before the Royal Commission on Indian Agriculture, 1927, Vol. II, Part I, p. 436.

3. Before the present slump in prices of agricultural produce set in, a good pair of Talabda plough oxen used to cost from Rs. 300 to Rs. 400, and Rs. 500 in rare instances, and a Sindhia pair from Rs. 200 to Rs. 250.

characteristics which peculiarly fit them for local conditions. This seems to be so much the case that, according to our information, the Talabda plough oxen of the eastern part with its sticky black soil, are unsuited to the conditions of the loose sandy soil of the coastal villages in the west of the same taluka, and *vice versa*. The imported Sindhi and Malvi cattle, being bred and reared under altogether different conditions of soil and climate of Sind and Rajputana, naturally do not fare so well in the taluka as the locally bred cattle. Why, then, are a sufficient number of cattle not bred in the taluka itself? An attempt to answer this is made in the following discussion on cattle breeding.

CATTLE BREEDING LIMITATIONS.

(i) *Religious Prejudice against Castration:* To carry on the breeding of plough bullocks, the breeder must maintain one or more cows. The higher cultivating castes like the Anavil, the Kanbi, and the Rajput have religious objections against practising castration of young bulls with the result that they avoid, as far as possible, maintaining cows. On the other hand the Koli, Dhed and Bharwad cultivators, and sometimes, even Dubla agricultural labourers keep cows, primarily with a view to breed bullocks. These lower castes have no religious scruples in castrating their animals, and so cattle breeding in the taluka has fallen into their hands.

(ii) *Absence of Free or Cheap Extensive Grazing Lands:* Another limitation to cattle breeding is imposed by the absence of extensive free or cheap grazing areas. This is an important consideration in the case of the cultivator-breeders, for they do not resemble in their habits and manners the nomadic professional Rabari cattle breeders of North Gujarat, who migrate from place to place in search of 'pastures new'. The complaint about the scarcity of common grazing lands, or 'Gauchar' lands, as they are locally known, was common in almost all the villages. Not only that, but in some of them, we were informed that, the common grazing areas of the village were decreasing and showing signs of disappearance on account of the policy of Government, it was alleged, to give away by auction sales these lands for cultivation.

However that may be, Government should do their utmost to maintain, and if possible, increase the present extent of these lands

and to set apart such lands in those villages where they do not exist. The meagre extent of the common grazing lands which deserve to be called, in many cases, mere squatting ground for the village cattle, will be clear from the following table prepared from the respective village records.

TABLE SHOWING AREAS OF LAND AVAILABLE FOR GRAZING

Name of the Village and Group	Unoccupied assessed cultivable land	Unoccupied unassessed cultivable land	Uncultivable land (Pot kharaba etc.)	Land set apart as free pasture or cattle stand	Cropped area	Total Number of Bovine cattle
	A-G	A-G	A-G	A-G	A-G	
Urma	0-13	77-38	0-5	10-8	1006-0	303
Bhadol	34-21	46-21	42-32	10-33	1758-13	417
Total Gr. I	34-34	124-19	42-37	21-1	2764-13	720
Ichhapore	7-12	45-12	135-16	—	1908-7	768
Total Gr. II	7-12	45-12	135-16	—	1908-7	768
Atodra	—	—	4-36	16-23	1629-18	262
Mahmadpore	—	—	0-24	11-36	543-9	123
Pardikoba	10 30	—	50-21	—	422-38	126
Total Gr. III	10-30	—	56-1	28-19	2595-25	511
Total Grs. I to III	52-36	1691-31	234-14	49-20	7268-5	1999
Pinjarat	189-26	5424-21	148-22	53-8	2386-33	1679
Damka	8-26	1465-27	157-6	6-23	1718-14	1000
Total Gr. V	198-12	6890-8	305-28	59-31	4105-7	2679
Grand total of Grs. I, II, III & V	251-8	7059-39	540-2	109-11	11373	4678

It will be observed from the table that, of the land set apart for public purposes, that for free pasture or cattle stand is very small in extent in each village, and is non-existent in two villages. As regards the extent of land available for grazing, if all the land that is shown in columns 2, 3 and 4 is assumed to be available for grazing, the following results are obtained.

Names of Groups	Per 100 acres of cropped area. Grazing area available.	Number of Bovine cattle.
	acres.	
Groups I, II & III ...	6	26
Group V ...	180	65
Total of Groups I, II, III & V	69	41

How extremely inadequate the grazing land available to cattle is, will be clear when it is remembered that for the eastern groups of villages, for every 100 acres of cropped area there are about 6 acres of land available for grazing, and on this area the number of bovine cattle supported, not to speak of goats and sheep, is 26[1]. The position of the western zone seems much more favourable in this respect, the land available for grazing for 65 heads of cattle being 180 acres. However, the actual position is not the same as revealed by statistics. In these villages almost the whole of the uncultivable, and unassessed cultivable land is absolutely worthless for grazing, as the sea waters flow over it and no useful herbage can grow.

(iii) *Selection of the Breeding Bull:* The other important condition necessary for good breeding is selection in mating, which can be effected, on the one hand, by taking care in the selection of the sire. It can be achieved partly by castrating the entire male stock not designed for breeding purposes at an early age, so that the young and entire bulls can be prevented from mating indiscriminately with the cows of the village. Owing to the castration of the male stock at an early age, this danger is largely absent in the taluka. As, however, the male parent is chiefly relied upon for bringing about improvement in the breed, the bull should be chosen with due regard to the qualities intended to develop in the progeny. It is difficult for us to say as to the extent to which such conscious selection of the breeding bull is made in the taluka.

It may be noted in this connection that only two out of fourteen villages studied possessed breeding bulls. This

1. The Royal Commission on Indian Agriculture at page 181 of their Report estimated, after suitable deductions, that for the whole of India for every 100 acres of net cropped area, there were 92 acres of uncultivated land available for grazing for 67 heads of cattle On the basis of these figures they opined that this number of cattle was a heavy stock for the land to carry. In the present case, if the number of cattle rises from 26 to 67, and a proportionate increase is allowed for in the area available for grazing, we shall have 15 acres of grazing land for 67 heads of cattle for the eastern zone. How disappointing this figure is as compared with 92 acres estimated by the Commission is obvious. It should, moreover, be remembered that we have taken the whole area and not 1/4th of the uncultivable, and 3/4th of the cultivable land as available for grazing as done by the Commission.

is partly due to the almost complete absence of the breeding of cattle in the non-Koli villages of the eastern zone. The villages of this zone, mainly inhabited by Kolis and other non-Hindus, who do not have religious objection against the breeding of draught bullocks, also depend on the breeding bull of a neighbouring village[1]. This may not be a matter of great difficulty in this part where the villages are situated in close proximity with one another. The absence of good breeding bulls in the big Koli villages of Pinjarat and Damka of the western zone, however, is indeed deplorable. Both of them depend for the purpose on the village of Ichhapore. The two Koli villages of Karanj and Ichhapore of this zone have obtained breeding bulls of the Kankereji breed from the Athwa Agricultural Farm, Surat, presumably on the premium bull system adopted by Government cattle breeding farms for the issue of breeding bulls.

Regarding the other question of the elimination of the unfit among the females, we find that it bristles with enormous and almost insurmountable difficulties in the taluka, as in most rural parts of the country, due to religious scruples.

(iv) *Neglect of the cow:* Among all castes alike, whether it be high castes like the Anavil and the Kanbi or low castes as that of Kolis, Hindu sentiment is equally strong aagingst the killing of undesirable cows. We are of the opinion that this sentiment presents, among others, one of the most serious obstacles to the breeding of good cattle. The tragedy of the situation, however, is that the same sentiment of mercy does not prevent the Hindu cultivators from starving their cows to death. The general neglect of the cow and her female calf, both of whom are, so to speak, starved from birth to death, has a very deleterious effect on the breed of the cattle of the taluka. Although the draught animals and buffaloes are properly fed, the cow gets next to nothing of stall-feeding. She is expected to pick up her living on the bare fields after harvest, and on the village waste lands, which, as already seen, hardly exist in a number of villages, and even where they do, they produce little useful herbage. This continuous underfeeding naturally affects the breed. In this connection we

1. The villages of Bhadol and Atodra of the eastern zone are instances in point.

are reminded of the following passage from "Cow keeping in India" by Isa Tweed : 'In some parts of India cattle are fed on dreadful filth, etc.; not only this, but on night-soil also. The poor cows are made to eat all this abomination by cruelty and starvation[1].' The quotation vividly brings before our mind's eye the sight of innumerable cows dragging their precarious existence partly on night-soil, witnessed by us in the villages. Cows which are properly fed and cared for, will never eat anything filthy and rubbish, and can be sent out for grazing and exercise without the least misgiving as regards their picking up anything filthy or harmful. The actual experience of cultivators themselves, who send out the draught bullocks for grazing during certain seasons, testifies to this natural tendency of cattle.

LINES OF IMPROVEMENT OF LOCAL BREED OF CATTLE

(i) EVOLVING A DUAL PURPOSE BREED

It will be useful to find out the causes of the neglect of the cow and suggest remedies for the future. The explanation is to be found mainly in the fact that in this area the buffalo is the milch animal *par excellence*. The cow of the taluka is an irregular calver and a poor milker, so much so that it is not a paying proposition to feed her properly.[2] She is valued only as the producer of bulls. The cow is, therefore, so maintained as would cost little or nothing and bring in a little profit by the sale of the male calf. The result is her neglect leading to the deterioration of the breed. The solution of the problem lies in bringing about conditions which would make the maintenance of good cows an economic proposition. The improvement to be aimed at is to develop qualities that would bring about early maturity of the cow, regular calving and production of more and rich milk, without in any way sacrificing the qualities of producing good draught animals possessed by her at present. In other words, the reform most urgent in improving the live-stock wealth of the taluka is the breeding of dual purpose cows.

1. Isa Tweed's Cow-Keeping in India, p. 84.

2. It may be noted that during our investigations, in preparing a balance sheet for cow, the cultivators were disinclined to credit her with any income at all.

(ii) CROSS-BREEDING

From the point of view of the improvement of the local breed of cattle, the experiments made in some villages of crossing the taluka cows with bulls issued from the Government farm are of interest. If they result in breeding a type, which, while in no way inferior as a draught animal to the local Talabda bullock, brings us nearer the desired goal of the production of dual purpose cows, a campaign for replacing the taluka bulls by those bred on the Government farm ought to be vigorously pushed forward. If the cross-breeding does not yield the desired results, we should call a halt to further experimentation in this direction, and attempt to select bulls of the required type from the taluka itself.

IS CATTLE BREEDING AN ECONOMICALLY SOUND PROPOSITION ?

We have already discussed the limitations to the breeding of cattle in the taluka. It will be asked: if the cultivator can buy his cattle cheaper than he can breed them, is it possible to retard the operation of the free play of economic forces which have brought about this state of affairs ? There are, however, certain factors which have to be taken into account in dealing with this question. It is true that the cultivation of cotton has enormously increased in the taluka within recent years. The cultivator, however, generally does not put all his land under cotton; he continues to grow the cereal crops of juwar, bajri, wheat, and several pulse crops. He also puts a part of his land under grass to serve as food for cattle. The bye-products of these grain and pulse crops are a useful fodder for cattle. Moreover, the lower castes who maintain cows, castrate the young calves and sell them to the cultivators of higher castes, who rear them under favourable conditions. Thus, cattle breeding is carried on by a class, whose economic position is hardly favourable for bringing up good cattle, but who has no religious scruples in castrating animals; cattle rearing, on the other hand, is generally done by a class who is in a better position for this work. It is for this reason that the cow is not effaced from the taluka economy, and continues to breed good Talabda bullocks.

There are also certain special circumstances. With the extension of the area under cotton and the disappearance of common waste lands, the price of draught cattle has risen considerably[1].

1. It may be of interest to note that before the present depression set in, a good pair of Talabda oxen could be sold at as high a price as Rs. 500

This may be considered to have changed the situation, and a little out-of-pocket expense for rearing good cattle may be economically justified. Under these circumstances, the buyers of cattle may well turn themselves into breeders of cattle, or at least take to rearing of cattle with profit to themselves.

In all peasant countries the cultivators have realised the advantages of mixed farming, that is, of combining cattle breeding with farming. We, therefore, suggest that cattle breeding and cattle rearing should be undertaken as a subsidiary industry by the cultivators, who can command some free grazing, and kadbi and other bye-products of grain and pulse crops. With the disappearance of the prejudice against castration among high castes by education and propaganda and the evolution of a dual purpose cow, there is no doubt that the breeding and rearing of cattle, which even now is not an economically unsound proposition, will be placed on scientific and sound lines.

HOUSING AND FEEDING OF CATTLE

(i) HOUSING

The mistake is sometimes committed that for the breeding and rearing of good cattle, proper selection of the breeding stock is sufficient. A pure bred and good animal, if carelessly kept, would soon deteriorate. Proper food and careful management are very necessary in the breeding of good cattle. The cattle should be protected from the mid-day sun and the rain. The cattle-shed should therefore be a clean and properly ventilated place, well-fitted to shelter them against wind and weather. The cultivators of the taluka, as a rule, are careful to provide their cattle with a cattle-shed or a cattle-house, in some cases, at a short distance from the dwelling house. Sometimes, the cattle-shed is either attached to the front or back of the residential house, and merely consists of a thatched roof, or roof made of iron sheets erected on wooden posts. In the case of well-to-do cultivators, a separate house is used for the purpose. There are also some instances, especially of poor cultivators, or of villages where the residential houses are too closely huddled together, in which the cattle as well as the masters and their families are housed under the same roof. This is unhygienic from the point of the human inmates of the common house. This method of housing the cattle is also adopted during

a part of the year, when the cattle-house consisting merely of a thatched or other roof is unable to protect the animals from cold blasts or stormy rains.

In coastal villages, where the Koli cultivators reside for the greater part of the year in their cultivated fields, even the poorest among them were found to have provided their cattle with cattle-sheds made of thatched roof erected on wooden pillars or bamboos. It is not intended to convey that the construction of a cattle-house or a simple cattle-shed is the ideal; however, a genuine and almost universal attempt is made by the cultivators to provide the cattle with some sort of cattle-shed. For making the existing cattle-sheds ideal in construction, propaganda for improvement is necessary. If a really better method of construction is suggested, the cultivators, on realising the advantages of the improved method, will not be slow to adopt it. It may also be added in this connection that the cattle-sheds are generally cleansed daily by the housewife of an ordinary cultivator, and by a maid servant in the case of well-to-do cultivators of higher castes.

(ii) FEEDING OF CATTLE

Without making the discussion technical, it may be observed that the cattle feeds are generally classified into (i) the concentrates and (ii) the roughages. Food grains, brans, oil-seeds, oil cakes etc. are included under the first head. The concentrates are more nutritious and contain larger quantities of digestible matter than other feeds. Roughages include coarse and bulky feeding stuffs like fodders, hay, straw etc. They contain large quantities of fibre and have a low nutritive value. The working bullocks and milking animals should be given some concentrates to save waste of energy on digesting the roughages. Succulent food in the ration of farm animals has also the same beneficial effect on their bodies which green vegetables have on the human body. Besides being palatable to the animals, it acts as a laxative and stimulates digestion. The physical condition of a food-stuff should aslo be satisfactory. One of the important considerations in the feeding of animals is, therefore, to aim, as far as possible, at mixed foods, so that the deficiencies of one kind of feeding material can be made up by the presence of those essential ingredients in another.

The farmers of the taluka are, as a rule, very careful in the feeding of their plough bullocks. The feeding material of these

animals is, on the whole, rich and varied. This will be clear from the following description of the kind of food given to the working animals by careful farmers.

Season	*Description of the kind of food given*
Winter and Summer:	Dry grass or hay to which juwar kadbi is added from the month of February onwards, when it is ready; juwar kadbi, in some cases[1], is either replaced or supplemented by bajri stalks or straw of paddy[2]; straw of wheat, and the stems and leaves of leguminous crops such as tur, val and mag, or 'Gotar', as these substances are locally known, are added to the diet generally from February onwards[3]. A small quantity of guwar seed with a little salt[4] is also added to the basketful of 'Gotar.'
Monsoon:	Dry grass is continued till about the middle of July, when good grazing becomes available. From the second half of July to the end of October, *i. e.* for about 3½ to 4 months, the working bullocks are allowed to graze in fields[5] reserved for pasturage. During night[6], the bullocks are given green grass cut from the boundaries of fields. During periods of heavy work, flour of methi seed with tel (sweet oil) and 'gul' are also given. A boiled preparation, made of stimulating indigenous materials like *asalio*, *ajmo*, *gugal*, *dikamali*, and *saji*, to which are frequently

1. This is done in the western villages of the taluka which do not grow juwar.

2. In those cases of farmers who cultivate a plot of rice land, paddy straw is used.

3. 'Gotar', being generally limited in quantity, is sometimes preserved for use during the months of May (latter half), June and July (first half), when the bullocks are required to do heavy work in the fields, and when good grazing available from the latter half of July onwards can not be had.

4. The crushed 'guwar' seed is steeped in water to which a little salt is added before it is given to the cattle.

5. These fields are properly fenced and are locally known as "*Dawun.*"

6. During periods of work in the fields, green grass is given during the day, and at night the bullocks are allowed to graze in the private enclosed fields set apart for pasturage.

added *tel* (sweet oil) and gul[1], is also occasionally given to the working animals. Oil cakes made from sesamum are regularly given in small quantities throughout the year by some farmers, and especially during the winter months by others ; they are given regularly, and sometimes, in large quantities of 10 seers per pair at a time during periods of hard work in the monsoon by all farmers[2].

From the above description, the high degree of perfection reached by the empirical system of feeding animals, handed down to the farmers from their forefathers, will be clear. Leguminous seeds like 'guwar' given to the animals are rich in albuminoids; oil cakes are easily digestible and rich both in albuminoids and oil. The consumption of albuminoids, besides being useful in the formation of muscles, is also capable of producing heat and mechanical energy[3]. Salt is a great necessity for keeping the animals healthy and vigorous. Good farmers thus attempt to give to the animals such concentrated food-stuffs like oil, oil cakes, guwar seeds etc. This does not mean that the practice of feeding plough cattle described above is universally followed by the farmers. Poor farmers who are short of hay attempt to give more of such roughages as juwar kadbi and rice straw, which are less nutritious than the former. They give less of guwar seed, salt and oil cakes. Moreover, the cultivators who are not able to set apart a portion of their land for supplying green pasture to the animals during monsoon months, send them out to graze on the village commons, and give them a little of green grass cut from the boundaries of fields, and weedings brought from their own fields and those of others where they and their womenfolk go to work as daily labourers. These poor farmers know the advantages of

1. This is given during the monsoon with a view to counteract, it is said the excessive cooling effect of green grass, and to enable the animals to maintain proper heat and energy.

2. Besides, when the animals are averse to eating such roughages as juwar kadbi, oil cakes are given to induce the animals to partake more fully of the roughages.

3. Vide (i) Mehta P. R.'s Elements of the Agriculture of the Bombay Presidency, pp. 293-294.

(ii) Bulletin No. 161 of 1930 of the Department of Agriculture, Bombay, p. 19.

feeding concentrates and green grass to the cattle ; the crux of the problem lies in their financial inability to give such better class of feeds. This, in fact, is the position of a large number of small Koli cultivators[1], whose cattle are not so well fed as that of the Anavil, Kanbi, Parsi and such other cultivators.

The usual food of a milking buffalo consists of dry grass. Like plough bullocks, she is also allowed to graze green grass in private compounds reserved for the purpose, and given the same during the monsoon. In addition to her share of 'gotar', oil cakes and guwar seed[2], she is almost invariably given a good quantity of cottonseed during the period of lactation. Large quantities of cottonseed in the diet of milch animals, are regarded as increasing the percentage of fat in milk. In the taluka where buffaloes are primarily kept for the production of ghee, cottonseed is freely used. Juwar kadbi is not much given to milking buffaloes, as it is believed to militate against the production of milk. She is also given 'methi' seed occasionally. She is provided with a lot of concentrated food during the period of delivery.

The cow is the worst sufferer in respect of feeding. She gets almost nothing of what the buffalo gets. Whether in milk or dry, the cow is neglected, partly because she is kept by a class of people who can neither afford to stall-feed her, nor pay for the concentrates, but very largely because she is a poor milker who will not pay for her feed. If the owner of a cow happens also to maintain a buffalo, the cow will have the good or bad fortune of getting the grass discarded by the latter.

THE FODDER PROBLEM

The fodder problem in the taluka has two aspects: (i) the high cost of fodder, and (ii) the seasonal shortage of fodder supply.

1. The inability of the poor cultivators to feed their cattle properly also explains very largely why they prefer the purchase of the small statured 'Sindhia' bullocks to good Talabda cattle. The Sindhia bullocks are less costly to maintain, and can be purchased at a smaller price, to be paid in compratively easy instalments at the harvest time. It is on account of these reasons that the Sindhi wandering graziers and sellers of cattle are able to make a good business from selling cattle in the taluka.

2. Guwar seed is given only by those who do not convert milk into ghee, but sell fresh milk ; it is believed to increase the quantity of milk, but not the percentage of fat in it.

To take up the first aspect of the problem, even in normal years the stock of stored fodder of an average farmer, consisting of dry grass, juwar, kadbi etc., is not sufficient to maintain his cattle in good condition throughout the year. The taluka does not import dry grass or kadbi. If the price of hay goes up considerably on account of unfavourable season, the cultivators find it very difficult to make enough provision of fodder for the cattle. We tried to ascertain, if in seasons when the local supply falls short of the demand, the cultivators would not do well to import fodder from localities where it is abundant and cheap, *e.g.*, from talukas of the same district like Bulsar and Pardi, or from forests. The grass raised in Pardi and Bulsar is, however, considered to be of poorer quality than that produced locally, with the result that the cattle of this area do not partake of that grass freely and with relish.

There is also another aspect of the problem. During the last thirty years or so, the number of cattle in the taluka has increased, whereas the local supply of fodder has comparatively decreased, mainly due to the substitution of cotton for cereal crops. There is little wonder, then, if the price of fodder goes up and consequently the cost of maintaining cattle. This shortage of fodder results in the underfeeding of cattle, especially by poor farmers who have not the wherewithal to store an adequate supply.

The question of seasonal shortage of fodder represents only an accentuation of the difficulties of the former kind during certain seasons of the year, especially during the summer months. By this time the insufficient supplies of stored fodder become so much depeleted that the ration of the cattle of the poor farmers undergoes a serious diminution. Even in ordinary years, therefore, farmers feel the pinch in the months of May and June. It is a common sight during these months to see herds of cattle, including some plough bullocks, wandering about the village grazing grounds and licking the bare fields after harvest in the hope of picking up something to keep body and soul together. Needless to say, these grounds afford almost nothing in the way of grazing with the consequence that the cattle become emaciated. The seasonal shortage is felt by all classes of farmers, if the monsoon is delayed, because, even the richer farmers have no reserve of fodder. The remedy chiefly lies in so balancing the crops as to provide for a reasonable supply of fodder for cattle ; it lies, in other words, in diverting some lands which at present grow cotton to the raising of

such crops like juwar. We believe the present slump in the price of cotton has partly led to the desirable change in crops as indicated here.

DISEASES OF CATTLE AND THEIR TREATMENT

In view of the heavy losses of cattle due to various diseases, the problem of the prevention and treatment of cattle-diseases assumes a paramount importance in the economy of the taluka. Some of these are contagious and fatal, while others, though not fatal, cause a heavy pecuniary loss by incapacitating bullocks, rendering the milch animals dry, and by otherwise destroying or decreasing their efficiency.

By far the most common diseases in this area are rinderpest, foot and mouth disease, cough and diarrhœa. The traditional methods of treatment employed by the people mostly consist in the use of some indigenous leaves and drugs. Sometimes, it involves the taking of an oath or the worship of a diety believed to be the cause of the disease. Needless to say, very little success is achieved by the employment of these traditional remedies in combating fatal contagious diseases. To give one instance, rinderpest usually makes its appearance in the villages at the interval of every three or four years, or, sometimes, even less. The disease had taken hold of the cattle of the taluka in the summer of 1931 when we had an opportunity of witnessing its ravages. It took a heavy toll of cattle life, so much so that the cattle belonging to hardly any agriculturist of the village where it prevailed, escaped its infection. It was unfortunate to see that even the most elementary principle of separating the healthy from the infected animals was, in most cases, observed more in its breach than otherwise. This shows how necessary it is to impart to the people the knowledge of the best means of combating this and other diseases. As regards the veterinary aid available to the agriculturists, the assistance of the Veterinary Doctor at Olpad is, in theory, available, but in practice very little availed of.

The efficacy of the serum-simultaneous method of innoculation has been established by a wealth of experience in different countries[1]. If, therefore, the method has been adopted in the

1. Vide The Problem of Rinderpest in India, p. 12, (Bulletin No. 199 of 1930, of the Imperial Institute of Agricultural Research, Pusa.)

taluka, and has failed to give the desired results, as according to the people, the vaccination performed by the Veterinary Doctor has failed, the causes of this failure should be fully investigated. In view of the importance of this disease, and the problem of cattle diseases in general, those responsible for veterinary aid should do everything to popularise their methods of treatment and make their services easily available to the farmers. The Veterinary Dispensary at Olpad is evidently not within easy reach of the inhabitants of a village in the furthermost part of such a big taluka. This objection can be met to a large extent by increasing the staff of the dispensary, one of whom should be in constant attendance at the headquarters, and the rest should be touring the villages with a small box of drugs of common use. This will largely increase the utility of the presant dispensary.

III THE ANNUAL NET INCOME

Under this head we propose to give balance-sheets for the important animals. In preparing the balance-sheets, or statements of expenditure on and income from the animals, we have assumed that the farmer actually spends cash on every item of expenditure and sells off every product realised from the animal. With these preliminary observations we give below balance-sheets for a pair of bullocks, for a she-buffalo in milk and when dry, for a cow in milk and when dry, and for the young ones of the buffalo and the cow. Out of a number of balance-sheets prepared in different villages we give below what we regard as the most representative of taluka conditions.

(1) BALANCE-SHEET FOR A PAIR OF BULLOCKS

(a) *Expenses of maintenance per annum*

	Rs.	as.	ps.
1. 4000 bundles of dry grass (or hay) at about 15 bundles per day; for 8 to 9 months in a year, charged @ Rs. 25 per 1000.	100	0	0
2. 1000 bundles of Juwar kadbi at about 5 bundles per day; for 6 months in a year, charged, @ Rs. 3 per 100 bundles.	30	0	0
3. 1 cartload of chaff (*i. e.* Gotar) of mag, tur, wheat etc., @ Rs. 20 per cartload.	20	0	0

4.	Cost of grazing for three months in the monsoon; necessary area 1 Bigah i. e. 4/7ths of an acre which can be leased at Rs. 15 to Rs. 20.	15	0	0
5.	Cost of green grass given during night in the monsoon; necessary area 1 Bigah, @ Rs. 15 to Rs. 20.	15	0	0
6.	Cost of guar seed 7½ maunds, @ Rs. 1-14-0 per maund.	14	1	0
7.	1 maund of salt @ Re. 1 per maund.	1	0	0
8.	10 seers of sweet oil, @ Rs. 7½ per maund.	1	14	0
9.	5 maunds of oil cakes, @ Rs. 2 per maund.	10	0	0
10.	Cost of concentrated food like methi seed, treacle etc.,	5	0	0
11.	Cost of boiled preparation made out of *asalio, ajamo* etc.	2	12	0
	Total	Rs. 214	11	0

i. e. Rs. 210 in round figure

(b) *Gross receipts per annum*

		Rs.	as.	ps.
1.	Value of the work of a pair of bullocks calculated on the basis of 125 days for which it usually works on a holding of 20 acres, and the value of work @ Rs. 1-8-0 per day	187	8	0
2.	Price of 10 cartloads of manure, @ Re. 0-8-0 per cartload	5	0	0
	Total	Rs. 192	8	0

The gross receipts in this case are less than the total expenditure per annum. It may be asked as to why the cultivators should maintain bullocks if their maintenance is an uneconomic proposition. The obvious answer is that whether their maintenance is a paying or a losing proposition, the cultivator must maintain bullocks if he wants to carry on his occupation at all, and attend to the various operations of agriculture at the required time.

(ii) BALANCE-SHEET OF A SHE-BUFFALO IN MILK

N. B.—The average period of lactation is assumed to be 12 months.

(a) *Expenses of maintenance per annum*

		Rs.	as.	ps.
1.	2400 bundles of grass at 10 bundles per day for 8 months ; charged @ Rs. 25 per 1000.	60	0	0
2.	Cost of grazing in the monsoon.	15	0	0
3.	Cost of green grass given at night during the monsoon.	15	0	0
4.	Cost of concentrated food given as under during the period of lactation.			
	(i) 45 maunds of cottonseed at about 4 seers per day, charged @ Re. 1 per maund.	45	0	0
	(ii) 18 maunds of guar seed at about 2 seers per day, charged @ Rs. 1-8-0 per maund.	27	0	0
	(iii) 5 maunds of oil cakes @ Rs. 2 per maund.	10	0	0
5.	Cost of delivery.	15	0	0
	Total Rs.	187	0	0

(b) *Gross receipts per annum*

		Rs.	as.	ps.
1.	Price of ghee produced out of milk ; at 16 seers of milk per day, converted into 9 maunds of ghee, valued @ Rs. 32 per maund, ($2\frac{1}{2}$ seers of ghee is calculated for every maund of milk).	288	0	0
2.	5 cartloads of manure, @ Rs. 0-8-0 per cartload.	2	8	0
3.	Value of the young one born : Rs. 5, if female calf.	5	0	0
	Total Rs.	295	8	0

This leaves a net income of Rs. 108–8–0 from a she-buffalo in milk. The cost of maintaining the she-buffalo when dry may be taken at Rs. 45. She is given dry grass and juwar kadbi during night and taken out to graze during the day. No concentrated food is given to her during this period. The only income derived from her is that from manure which may be reckoned at Rs. 2. It means a net loss of Rs. 43. This loss is more than made good by her when in milk, and that is why she is maintained.

(iii) BALANCE-SHEET OF A COW (IN MILK)

N. B.—The average period of lactation is assumed to be 12 months.

(a) *Expenses of maintenance per annum*

		Rs.	as.	ps.
1.	1200 bundles of hay at 5 bundles per day, charged @ Rs. 25 per 1000 bundles.	30	0	0
2.	Cost of green grass.	5	0	0
3.	Cost of grazing in the monsoon.	7	0	0
4.	Cost of concentrated food.	12	0	0
5.	Cost of delivery.	7	0	0
	Total Rs.	61	0	0

(b) *Gross receipts per annum*

		Rs.	as.	ps.
1.	Price of ghee produced out of milk ; 36 maunds of milk per annum, at 4 seers of milk per day, converted in 72 seers (or 1 maund and 32 seers) of ghee, valued at Rs. 32 per maund on the average. (2 seers of ghee for every maund of milk).	57	0	0
2.	3 cartloads of manure, @ Rs. 0–8–0 per cartload.	1	8	0
3.	Price of the young one Rs. 10, if male calf ; Rs. 5, if female calf ; average, Rs. 7.	7	0	0
	Total Rs.	65	8	0

The above leaves a net income of Rs. 4–8–0 only from a cow in milk. It may be noted that the cow is not, as a rule, milked in the taluka ; the young one is allowed to suckle her. The income given above is the utmost that can be expected. Concentrated food is generally not given by Koli cultivators, who maintain cows, nor do they milk her. She is valued and maintained only for the breeding of bulls.

The cost of maintaining a cow when dry, would come to about Rs. 25. The receipts from manure would be about Re. 1. This will mean a net loss of Rs. 24.

In the case of young ones, whether of the cow or the she-buffalo, the expenses of maintenance would come to about Rs. 10. The income would be about 1 cartload of manure. This would leave a net loss of Rs. 9–8–0 or Rs. 9 as the case may be.

SECTION II

IMPLEMENTS

IMPLEMENTS AND TOOLS IN GENERAL USE

The implements and tools in common use in the taluka are simple in construction. They are made of babul wood by the village carpenter, who also repairs them at a small cost. The principal implements of cultivation are plough (hal), harrow (karab), bullock-hoe (karpi) and seed-drill (fadko or valkhel).

The taluka hal is a light plough generally used during the monsoon. It is used to break the land before sowing and also for the last interculturing of cotton and juwar. It is, however, important to note that in the taluka, which is a black soil tract, the plough is used only occasionally.

The principal implement of cultivation is the harrow. Its importance will be understood when it is remembered that very often a cultivator of small means keeps a harrow (karab), but chooses to do without a plough. The black clay soils are not tilled with the plough every year, for the harrow is capable of producing fine tilth in these areas. The harrow is put to various uses. It is used for preparatory tillage. Even when the land is ploughed, harrowing is resorted to for breaking the small clods and making the land level so as to form a good seed bed.

It eradicates the surface-weeds and loosens the soil. Harrowing produces a fine mulch of earth on the surface, which is necessary for the retention of moisture in the soil. The land used for the cultivation of Rabi crops like wheat is harrowed during the monsoon whenever the weather permits. It is also used for removing the stubbles of crops and the mixing of manure. Like the plough, the harrow is drawn by a pair of bullocks. A lighter and larger harrow is used for covering the seed after it is sown on a plot of land.

The bullock-hoe (karapi) which is used as an interculturing implement is, in reality, only a miniature harrow, the size of the implement depending on the distance between the rows of a particular crop. The hoes are, therefore, made of different sizes, varying according to the requirements of different crops. The interculturing implement, besides eradicating weeds between the rows of a standing crop, loosens the surface soil and makes a fine mulch. It has thus a beneficial effect on the crop by making possible the æration of the soil and conservation of the moisture. It may be noted that as the distance between the rows of the cotton plant has been increased of late years, the ordinary harrow has come into use in the taluka as an interculturing implement. The same harrow is now used both for preparatory tillage and for interculturing. The part that does effective work in loosening the soil etc., in the case of both these implements, *viz.*, the harrow and the bullock-hoe, is the horizontal iron blade whose length varies according to the size of the implement.

The other important implement is the seed-drill. The seed-drills are used for sowing seeds and are made of different sizes according to the requirements of different crops. Two-coultered drills are in universal use in the taluka. They go under two different names of fadko and valkhel. The former is used principally for sowing the seeds of juwar, wheat and bajri. A lighter variety of fadko or seed-drill is used for the sowing of such Kharif crops like juwar. The distance between the coulters varies from 18 to 24 inches. A specially heavy two-coultered drill, with a distance generally of 18 inches between the coulters, is used for the sowing of wheat and Rabi juwar. The use of the heavy implement for sowing the Rabi crops enables the seed to be dropped deep into the furrow where moisture is available. The latter type of seed-drill called valkhel

is used for sowing cotton. Formerly, cotton was sown with the same fadko (seed-drill), with coulters 24 inches apart, which was and is still used for juwar. In recent years, a larger two-coultered seed-drill, with coulters about 36 inches apart, is used for cotton. This longer implement is either known as 'valkhelia fadko' or simply 'valkhel'. It will now be understood that the harrows (karab) and the bullock-hoes (karapi), used for covering seed or interculturing the standing crops, are made of various sizes to suit the distances between the rows of different crops sown with the seed-drills of varying sizes.

Besides the above implements, the tools in general use in the taluka are sickle (datardu), scythe (dhariu), spade (kodali), axe (kuhadi) and shovel (pavdo). A few minor accessories like baskets (toplas), bamboo winnowing scoops (supdas) etc., are generally found with each cultivator. It may be noted in this connection that in the taluka a special indigenous machine locally known as 'Chakkar' is used for threshing wheat. It consists of a wooden frame on which a seat is erected for the man driving the machine. To the wooden frame are fixed three parallel axles on each of which are keyed three toothed discs made of iron. The machine is drawn round and round by a pair of bullocks yoked to the front piece of the frame. The machine is said to do the work of threshing quickly and effectively. It separates the seed from the husk, and also cuts up the straw into pieces. This machine is kept only by a few cultivators who hire it to others for a small charge per day. The cart being the most common means of transport, all cultivators with few exceptions keep the cart.

We give below a table giving a list of implements and tools in general use in the taluka. Besides giving details about the normal life in years of an implement and its use, two columns are reserved for repairing charges and the cost of the implement or tool. Slight differences in the cost were found in the different villages studied. The differences are mostly due to the kind of wood employed in the construction of the implement. If, for instance, the 'Tanach' variety of wood is used in making a plough, the implement will cost higher than if 'Babul' wood is used. On a study of the data collected in the different villages, we have given what we consider to be the most representative figures of cost etc.

LIST OF AGRICULTURAL IMPLEMENTS AND TOOLS IN GENERAL USE IN THE TALUKA.

Names of Impelments and Tools.	Cost Rs. as. ps.	Repairing Charges (annual) Rs. as. ps.	Life in years.	Use	Remarks.
I. Gadun (Cart)	100 0 0 to 125 0 0	5 0 0 to 8 0 0	15 to 20	Carrying agricultural produce, passengers etc.	
II. Hal. (Plough with a Yoke)	12 0 0 to 15 0 0	1 8 0	5 to 10	Ploughing and also for the last interculturing of cotton, juwar, etc.	
III. Karab (Harrow)	8 0 0 to 10 0 0	0 8 0 to 0 12 0	5	Ploughing, harrowing, interculturing, removing stubbles of previous crops etc.	
IV. Karpi (Bullock-hoe)	7 0 0 to 8 0 0	0 0 0	5	Interculturing, especially when the plants are young.	
V. Fadko (Seed-drill)					
(i) Valkhelia Fadko (used for cotton).	6 4 0 to 8 0 0	1 0 0 to 1 4 0	5 to 7	Sowing cotton seeds.	If the head-piece of the seed-drill is made of Babul wood it costs Rs. 6-4-0, if of Tanach wood it costs Rs. 8-0-0.

Names of Implements and Tools.	Cost Rs. as. ps.	Repairing Charges (annual) Rs. as. ps.	Life in years.	Use	Remarks.
(ii) Juwar Fadko	7 0 0 to 10 0 0	1 0 0	5 to 7	Sowing juwar and other seeds.	
(iii) Wheat Fadko	6 0 0 to 9 0 0	1 0 0	5 to 10 or 15 to 20	For sowing wheat.	The life in years varies according to the kind of wood used.
(iv) Bajri Fadko	5 0 0	1 0 0	5	Sowing bajri.	
VI. Orani or Nadichana (Seed-bowl with bamboo poles)	2 0 0 to 3 0 0	0 4 0	20	For sowing.	
VII. Kodali (Spade) (i) Big	1 0 0	0 4 0	10	Digging surface earth and shrubs.	
(ii) Small	0 10 0	0 4 0	5	Digging cotton stalks, groundnuts etc.	
VIII. Kuhadi (Axe) (i) Big	1 8 0 to 2 0 0	0 4 0	5	For cutting and splitting Babul and other wood.	
(ii) Small	0 10 0 to 1 0 0	0 2 0	10	For cutting shrubs, repairing small wooden parts of implements in emergencies etc.	
IX. Chanchvo (Pick-axe)	1 8 0 to 2 0 0	0 4 0	5 to 10	For digging earth and the deep-rooted weeds like 'Dabhdo' or 'Gundardo'	

Names of Implements and Tools.	Cost Rs. as. ps.	Repairing Charges (annual) Rs. as. ps.	Life in years.	Use	Remarks.
X. Pavdo. (Shovel)	1 0 0	0 4 0	5 to 10	Digging surface earth, filling baskets etc.	
XI. Datardu (Sickle)					
(i) Datardu (for cutting)	0 8 0	0 3 0	3	Cutting grass and reaping crops like Kharif juwar	In the eastern villages Datardu is used for weeding ; in the Western villages Dhariu is used for this purpose.
(ii) Datardi (for weeding)	0 4 0	0 2 0	5	Removing weeds growing in between the rows of maturing crops.	
XII. Dhariu (Scythe)					
(i) Big (for cutting thorns etc.)	1 0 0 to 1 4 0	0 4 0	5 to 7	Cutting branches of Babul trees etc.	
(ii) Small (for weeding)	0 8 0	0 2 0 to 0 3 0	3 to 4	For removing weeds when the crops are maturing	
XIII. Panjeti. (Wooden shovel)	0 4 0		5 to 7	For collecting cowdung in the cattle-shed etc.	
XIV. Naraj (Crow-bar)	0 6 0	0 1 0	20	For making holes in the ground and putting up a shrub-fence.	

LIST OF A FEW ACCESSORIES AND APPLIANCES FOR AGRICULTURAL PURPOSES USED IN THE TALUKA

Names of Accessories and Appliances.	Cost Rs. as. ps.	Life in years.	Use.
I. Parono-arti	0 4 0	1	A goading or driving stick for bullocks with mud scraper at the other end.
II. Nadi	1 0 0	1 to 1½	For tying the yoke to the cart.
III. Jotar	0 12 0	1 to 1½	For tying bullocks to the yoke.
IV. Jali	0 4 0	1 to 1½	Net for tying the mouth of a bullock.
V. Ras	1 4 0	1	Leather-rope for tying bullocks when at work in the fields during the monsoon.
VI. Topla	0 12 0	1 to 2	For winnowing etc.
VII. Supda	0 4 0	1 to 2	For winnowing etc.
VIII. Chopali	12 0 0	20	For lifting water out of tanks on to the Kyari lands.
IX. Chakkar	35 0 0	25	An indigenous machine for threshing wheat.
X. Athar (Thick cotton-chaddars).	20 0 0	30 to 40	For transporting produce from field to home and for covering seedcotton or 'Kapas' while carting it to a ginning factory.

It will be observed from the above list that the accessories, with the exception of the last three, are very small and cheap. A farmer having a pair of bullocks and a piece of land to cultivate will require them. No. 8 is useful to those who cultivate rice lands. Consequently, it will not be in general use. 'Chakkar' (for wheat) is possessed only by a few substantial cultivators. It is hired by them for a charge of about 8 annas per day to others for threshing wheat. Similarly, the crow-bar (naraj) and wooden shovel (panjeti) are small and less costly tools. In our house-to-house enquiry, therefore, we did not attempt enumeration of these small tools and accessories of agricultural use. We, however, did attempt an enumeration of the first thirteen implements and tools given in the previous list. From the data so obtained we have compiled statistics for the important implements in general use in the taluka *viz.*, plough, harrow and seed-drill. The cart, also being an important accessory, has been included in the table.

The following table gives the number of these important implements. We have reserved the last two columns for the number of cultivators embraced by our investigations and the area cultivated per plough worked out by us[1].

Name of village or group.	Number of carts.	Number of ploughs.	Number of harrows.	Number of seed-drills.	Number of cultivators.	Area cultivated per plough. acres
Umra	27	30	31	25	32	15·96
Sandhier	20	24	35	18	19	23·20
Bhadol	36	47	77	53	45	16·68
Total Gr. I.	83	101	143	96	96	18·01
Sonsak	19	28	37	20	28	19·00
Ichhapore	44	54	51	34	109	24·68
Total Gr. II.	63	82	88	54	137	22·51
Atodra	30	39	44	53	45	22·74
Mahmadpore	14	30	39	25	18	24·60
Pardikoba	16	18	23	23	25	14·00
Total Gr. III.	60	87	106	101	88	21·57
Total Grs. I to III.	206	270	337	251	321	20·52
Karanj	15	20	23	17	18	13·35
Kuwad	26	31	33	43	38	15·35
Kasla	13	20	21	25	23	19·20
Total Gr. IV.	54	71	77	85	79	16·00
Bhagwa	2	1	1	1	13	22·18
Pinjarat	65	65	36	48	118	14·20
Damka	41	41	36	37	68	15·48
Total Gr. V.	108	107	73	86	199	14·77
Total Grs. IV & V.	162	178	150	171	278	15·26
Grand Total of all Groups	368	448	487	422	599	18·43

1. It will be remembered that the quinquennial census of agricultural stock undertaken by Government gives figures of ploughs and carts only. We compiled these for each village and group studied. However, for the same reasons as given in the discussion of the area cultivated per pair of bullocks in Section I of this chapter, we consider these figures unsatisfactory for the present purpose. We have, therefore, omitted to give those figures here.

The following facts are revealed by the table :—

(i) Without going into the details of each village, the broad fact may be noticed that whereas the area cultivated per plough for the eastern zone is 20·52 acres, that for the western zone it is 15·26 acres. Does this mean that the eastern zone is, comparatively speaking, worse off in the matter of ploughs than the western. This, however, is not the case as it apparently seems to be. There are two factors explaining these differences. Firstly, the principal implement of cultivation is the harrow in the eastern zone of cotton and juwar growing villages. The position is somewhat reversed in the western zone where the plough assumes greater importance in villages like Damka and Pinjarat which grow bajri. These differences are evident from the figures of ploughs and harrows. Whereas the number of ploughs in the eastern zone is 270 as against 337 harrows, their respective numbers in the western zone are 178 ploughs as against 150 horrows. Secondly, there is a very large number of small Koli cultivators in the western villages of the taluka. They have to keep at least a plough, or, in the alternative, a harrow, although the plots of land they cultivate are very small. This is another reason why the western zone has comparatively speaking a larger number of ploughs than the eastern. Instead of being a matter of satisfaction, this shows a lack of adjustment between different factors of production in their required proportions.

(ii) The second important conclusion that emerges from a comparision of the number of different important implements with the number of cultivators is this. It will be seen that, with the exception of harrows, in the groups of the eastern zone the number of other implements to the number of cultivators works out at less than one. In other words, each cultivator does not possess at least one implement of each kind. When it is remembered that the harrows are of various sizes and that the number of harrows given in the table is the sum total of harrows of all these sizes, the apparent favourable position of the eastern zone also disappears. The main reason for this deficiency is that a poor cultivator does not keep all these implements. He keeps either a harrow or a plough; for the seed-drill he almost always depends on others.

SONDHAL OR CO-OPERATIVE EXCHANGE OF IMPLEMENTS

The deficiency of implements is made good by the cultivators in the following ways.

(i) A poor cultivator relies on the goodness of a well-to-do neighbour to allow him the use of the implements for ploughing or sowing his small plot of land. He would either keep a plough or a harrow according to his requirements, and obtain free of charge the other two for occasional use.

(ii) A sort of mutual co-operation is established between two poor cultivators, each of whom would keep one important implement, which he would exchange for another implement possessed by the other. This is known as '*Sondhal*'. The same practice is followed even by a comparatively well-to-do cultivator of the eastern zone. Here, for instance, in the sowing of cotton, the seed-drill is followed by two harrows for covering the seed. A cultivator, who has only one harrow, arranges to get another implement free of charge during the sowing time from another cultivator, on the condition of allowing the latter a similar use of his own implement. The practice of giving implements on hire is not much prevalent in the taluka.

QUALITY OF IMPLEMENTS

The implements are on the whole well-adapted to the capacity of the working animals, and to local conditions of soil, rainfall and climate. The main advantages of the indigenous implements in use in this area are that they are comparatively inexpensive, can be made and repaired with ease and are constructed out of materials which are easily obtainable. How well the implements are adapted to local conditions will be clear from the following illustration.

It is very often said that the indigenous plough merely stirs and does not invert the soil like the Western plough. It is, however, often forgotten that under certain conditions of soil, inversion of the soil is not only unnecessary, but perhaps, is positively harmful. The black soil found over most of the taluka is an instance in point. This soil is well-known for its power of contraction during the hot weather when it is traversed by deep and wide cracks. This is regarded by the people to be a great advantage. With the first advent of the rains the loose crumbled surface soil is washed into the cracks. The soil then expands and becomes capable of being worked into fine tilth by the local harrow. As a fresh layer is being brought to the surface, the soil

is thus renovated every year. It is fof lhis reason that the black soil is said to plough itself. Moreover, the Western implements, being made of iron, cannot be put into the fields during the rains as quickly as the wooden plough or harrow, as the wet earth sticks to iron more tenaciously than to wood. Timely ploughing and sowing being of the essence in cultivation, the above is an important consideration[1].

THE QUESTION OF IMPROVING THE EXISTING IMPLEMENTS AND TOOLS

The above should not be construed to imply that there is no scope for making improvements in the implements and tools in use at present. What we would here urge is that instead of concentrating attention on the introduction of new types of implements, the efforts of the manufacturers and those responsible for the engineering section of the Agricultural Department should be directed towards studying the local conditions of soil, climate and crops, evolving types of implements suited to these conditions and effecting suitable improvements in the existing implements and tools.

According to the census of agricultural stock taken in 1929 there was only one tractor in the taluka. This implement, we were told, can be effectively used only when virgin soil, or that which grows grass, is brought under the plough for the cultivation of some crops. It is, however, useless for the vast areas that are already put under crops. Such an implement, therefore, cannot come into widespread use in the taluka. Hence the propriety of the consideration urged above. A discussion of the possibility of introducing power-driven machinery under the conditions of the soil of the taluka with its population of small cultivators, therefore, appears under present conditions only of theoretical importance.

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1. Cf. "On account of this power of expansion and contraction the black soils do not stand in need of frequent ploughings, nor is it necessary to invert the soil with the help of an English plough. Nature performs this work effectually for the Indian cultivator" P. R. Mehta :— 'The Elements of the Agriculture of the Bombay Presidency', p. 27.

CHAPTER VII

AGRICULTURAL WEALTH

AREA UNDER CULTIVATION

CULTIVATED AND UNCULTIVATED AREA IN ACRES

Gross Area of the Taluka	Uncultivated area								Cultivated area
	Cultivable			Not available for cultivation				Total uncultivated area	Total cultivated or occupied and assessed land
	Assessed	Unassessed	Total	Uncultivable	Assigned for special and public purposes including forest	Used for buildings and other non-agricultural purposes	Total		
1,99,791	2,940	54,384	57,324	6,623	9,130	60	15,813	73,137	1,26,654

It will be observed from the above table that out of the gross area of 1,99,791 acres of the taluka, only 1,26,654 acres are under actual cultivation ; the rest, that is, 36 per cent. of the total area is uncultivated either because it is not available for cultivation, or is not taken up for cultivation for some reason by the people. In other words, about 64 per cent. of the gross area is cultivated.

POSSIBILITIES OF EXTENDING AREA UNDER CULTIVATION

The statistics given above naturally raise the question as to why more than one-third of the gross area remains uncultivated ? In attempting an answer to this query we shall look more closely into the figures given above and try to determine the extent of land which is really cultivable and yet is not brought under the plough. A detailed study of the figures shows that out of 73,137

1. The figures for 1928-29 were taken from the Mamlatdar's office at Olpad. The area under cultivation has not increased since 1898-99 when the last Revenue Settlement was made.

acres of uncultivated land, 9,190 acres account for land assigned for special and public purposes and for building and other non-agricultural uses. This, evidently, cannot be used for extending cultivation. In the foregoing table 57,324 acres of land are classed as cultivable, whereas in the year 1922-23, out of the total uncultivated area of 73,202 acres, only 2,966 acres of land were classed as available for cultivation and 70,236 acres as not available for cultivation[1]. This apparent discrepancy seems to be due to some administrative orders regarding changes in classification of cultivable and uncultivable land. What has actually happened is this. Large areas of land impregnated with salt, mainly found in the coastal villages, formerly appeared as 'uncultivable' in the main class called 'land not available for cultivation'; these are now classed as 'cultivable land' and appear as 'unassessed cultivable land'. The large area, therefore, which now appears as 'unassessed cultivable land' is in reality 'uncultivable'. This point became very clear to us by looking into the records of the villages studied. A comparative study of the figures of area of each village classified according to the purpose for which it is used, for the years 1900-01, 1910-11, 1920-21 and 1930-31 yields very interesting results. For a clear understanding of these figures, it is necessary to have some idea of the scheme of classification adopted in the village records. There are three main heads as under :—

(A) 'Land for cultivation' under which there are two sub-heads of (i) assessed, and (ii) unassessed land.

(B) 'Land not available for cultivation' which includes the sub-heads : (i) 'uncultivable land' mostly accounted for by pot-kharab, rivers and nalas and khar-kharabo (salt waste), and (ii) 'land assigned for special and public purposes' such as area occupied by village site, tanks, roads, etc., and

(C) Land granted or leased out of survey numbers for non-agricultural uses.

The important change which has come about within recent years is that large areas of land formerly included under the head (B) as 'uncultivable land', mostly represented by khar-kharabo

1. The figures for 1922-23 are taken from the Statistical Atlas of the Bombay Presidency, 3rd. Edition., 1925.

(salt waste), have now been transferred to the class, 'land for cultivation', and appear as 'unassessed cultivable land' [1].

We shall now examine the figures of cultivated and uncultivated land for the taluka given in the table in the light of this modification. Out of the total 'uncultivated land' of 73,137 acres, land assigned for special or public purposes or for building and other non-agricultural uses cannot be brought under cultivation. In view of the transfer of large areas from the head of 'uncultivable' to 'unassessed cultivable', only 6,623 acres of land which now appear as 'uncultivable' can be regarded as so unfit for cultivation that they cannot be brought under the plough. For reasons given already, the large area

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1. The point we are making here will be clear from three illustrations taken from the villages studied. Firstly, take the village of Pinjarat of group V. In this village 511 acres were classed as 'unassessed cultivable land' in 1910-11, whereas 5076 acres were classed as 'uncultivable' due to khar-kharabo etc.; on the other hand, in 1930-31, 'unassessed cultivable land' was 5425 acres, no area appearing as 'uncultivable' on account of khar-kharabo. Obviously the increase in the cultivable, unassessed land has been due to the transfer to it of a large area of land previously classed as 'uncultivable' on account of khar-kharabo. Another, illustration is provided by the village of Damka of group V. There was no 'unassessed cultivable' area in 1910-11, whereas there were 1495 acres of 'uncultivable land', due to khar-kharabo in the same year. In 1930-31 as many as 1465 acres of land were classed as 'unassessed cultivable', no area being classed as 'uncultivable land' due to khar-kharabo. The position in 1930-31 was thus almost reversed. Obviously, the land classed as 'cultivable unassessed' in 1930-31 was the result of a mere transfer to this head of the land formerly classed as 'uncultivable due to khar-kharabo. Let us take one more illustration. In the village of Kuwad of group IV, in 1910-11 there was no 'unassessed cultivable land', whereas there were 542 acres of 'uncultivable land' due to khar (salt). In 1930-31 the position was exactly reversed; 542 acres of land were classed as 'unassessed cultivable' no area having been classed as 'uncultivable' due to khar (salt).—a mere transfer of 542 acres from the class of 'uncultivable' to 'cultivable' land. Instances can be multiplied by making reference to comparative statistics on the above lines for other coastal villages of the taluka. The above illustrations, however, are sufficient to make the point clear: viz., that the figures now appearing under the head of 'cultivable unassessed land' are in reality figures of 'uncultivable land' which in recent years have been transferred from the head of 'uncultivable' to that of 'unassessed cultivable land'.

of 54,384 acres now classed as 'unassessed cultivable' is in reality 'uncultivable'. Of the total 'uncultivated area' of 73,137 acres, we are therefore left with only 2,940 acres of 'assessed cultivable land' which can possibly be brought under the plough and this represents only 4 per cent. of the total area uncultivated at present, and about 1·4 per cent. of the gross area of the taluka. The couclusion, therefore, is that the possibility of extension of cultivation in the taluka under present circumstances is only limited or almost non-existent.

RECLAMATION OF SALT LANDS

It is possible that a part at least of the large areas of khar-kharabo (salt wastes) which at present are uncultivable can be brought under cultivation if a systematic attempt at reclamation of these salt lands is made. It is not suggested here that lands to the extreme west of the taluka, which are regularly flown over by the waters of the sea and are permanent salt marshes, can be reclaimed and made fit for cultivation. What is here suggested is that lands which are much further away from the sea and over which the sea-waters flow only at the time of high tides are capable of being so treated. In the village of Kuwad (group IV), out of the gross area of 1,157 acres, 542 acres are uncultivated because of the sea tide. These lands, being far away from the sea, are subject to the influence of sea water only during high tides which leave behind a very thin layer of water. If a suitable bund were constructed, a large part of the uncultivated land could possibly be reclaimed and made fit for cultivation.

The village of Pinjarat has on its records two such interesting attempts at reclamation of salt lands made by private individuals. Mr. Dhirajlal Umedram, a former District Deputy Collector, had undertaken to reclaim 328 acres of salt lands of which 17 acres have become fit for cultivation. Permission for relinquishing the rest of this area was granted to him by Government. Similarly, since 1888, 164 acres of salt lands were granted jointly to Mr. Lallubhai Kunverji of Rander and Mr. Khandubhai Khusalbhai, Police Patel of Pinjarat, for the same purpose. The latter of them relinquished the said lands and this was accepted by Government. Do these two attempts, for the most part unsuccessful, point to the impossibility of reclamation of salt lands in the taluka? Our inquiries in this connection showed that a fairly successful attempt

was made in this direction by persons referred to above by the construction of bunds, and that the areas taken on lease by them from Government for reclamation were made fit for cultivation and were converted into Kyari or rice beds. The bunds, however, were *kacha* and gave way before a high tide of rather unusual force with the result that the reclaimed lands were rendered unfit. These attempts, therefore, show the obvious limitations of private enterprise in such big schemes, which, to be successful, require a large outlay of capital. We would, therefore, suggest that the possibilities of reclaiming salt lands of the taluka, both from the engineering and economic points of view, should be fully explored by Government, who are the only competent agency to undertake such big schemes of reclamation. It may be that possibilities such as these might have led Government to pass orders for transferring large areas of these lands from the class of 'uncultivable' to that of 'cultivable'.

SOME ASPECTS OF AGRICULTURAL PRACTICE

(i) ROTATION OF CROPS

The cultivators know the advantages of rotation of crops. If the same crop is grown in the same field year after year, the soil would become deficient in those plant-foods which the crop particularly requires for its growth. The most common rotation practised by the cultivators in the taluka is cotton followed by juwar. The cotton-juwar rotation answers well its purpose, as these crops differ in the character of their root systems. Juwar has fibrous roots and is a shallow feeder, that is to say, it feeds chiefly on the surface layers of the soil. Cotton has a long tap root, its roots penetrating deep into the subsoil, and is a deep feeder. By alternating deep-rooted and shallow-rooted plants the whole body of the soil is made to contribute to the nourishment of plants. In the western zone of villages of the fourth study group, where wheat is usually grown, wheat takes the place of juwar, and the system of rotation is a two-year-rotation of wheat and cotton. Wheat is also occasionally grown as a cleaning crop for the third year on the fields which follow the cotton-juwar rotation. Wheat, in this area, is sown as a Rabi crop which allows the land to be thoroughly ploughed and cleaned during the monsoon. The wheat land is left practically free of weeds and the soil is left in a clean

and friable condition at the end of the year. Wheat is sometimes grown as a matter of necessity if the early rains have not come. Similarly, if the land has become foul the usual two-year cotton-juwar rotation is extended with tal and tur as a third-year crop. Tur is considered a renovating crop. It is a leguminous crop, and leguminous crops are known to fix nitrogen in the soil and thus leave the soil richer in this important plant-food. Moreover, it sheds a mass of leaves on the surface soil which is thus replenished by the store of foods gathered from the deep layers to which its roots travel. The leaves are regarded a good manure. We were told that the occasional growing of wheat, or tal and tur, as cleaning crops on the fields on which the cotton-juwar rotation is practised serves the same purpose as keeping the fields fallow. In fact the local term 'Vasel', used for bare-following in some parts of Gujarat, is used by the cultivators of the taluka with reference to the growing of these cleaning crops. This is consistent with expert opinion that the practice of occasionally keeping the land bare fallow should be avoided as far as possible, if the same object can be achieved by occasional cultivation of cleaning crops[1].

It will be remembered that the suitability of soil, climate and irrigation facilities are some of the factors which modify the rotation of crops. For instance, the tracts of retentive black soil in the taluka which are subject to waterlogging grow only the Rabi crops of juwar or wheat year after year. No rotation is possible on such lands. However, an attempt is made during the earlier part of the season to grow cotton even on these lands. If this attempt fails, as it often does, the cultivator has no course open but to grow the usual Rabi crops on them. Similarly, on the light sandy soils of the coastal villages, bajri is raised on the same fields in successive years as the soil cannot grow cotton or juwar. 'Kyaris' or rice beds are another instance in point. They grow only paddy, for none of the other farm crops, if grown in rice beds, would pay so well as this semi-acquatic plant. Val is taken as a second crop in the Kyaris and this serves the purpose of rotation. In costal villages, where the land is impregnated with salt, an attempt to take a second crop of val brings salt to the surface, which makes it impossible to grow rice in the same beds in the

1. Cf. William Somerville's Agriculture, p. 196.

succeeding year. Here, no attempt, therefore, is made to take a second crop of val. Two points may be noted in this connection. Some of the cultivators of the taluka, quite familiar with the advantages accruing from the practice of the cotton-juwar rotation, were tempted to grow cotton on the same field for the second year during the period of high prices fetched by this crop. Secondly, this system of rotation is not strictly adhered to by tenants who have no scruples in taking out the cotton crop on the same field in successive years. Having no personal interest in the soil, which a proprietor cultivating his own plot of land has, a tenant, who may be replaced by another the next year, tries to make the best of the bargain, even if it results in the deterioration of the soil. A tenancy for a comparatively long period of five to ten years can help in checking this evil to some extent.

(ii) MIXTURES

The system of growing mixed crops partly serves the same purpose as that of rotation of crops. The crops subordinate to juwar are tur and mag. With cotton there is a slight sprinkling of tilseed (sesamum), and with wheat of rai (mustard seed). It may be noted that of late years, there is a tendency to grow cotton alone. This was due to the high price of cotton for some years since the war. With bajri a number of pulses are mixed as subordinate crops. The pulses and seeds generally mixed with the principal crop of bajri are tur, val, choli, math, and guwar. The subordinate mixture is made up according to the inclination of the cultivator. The advantages of growing mixed crops are: (i) The practice serves as a sort of insurance against the total failure of the produce; if the cereals fail, the pulses would yield some crops and *vice versa*. We were told that in the year when the juwar crop does not fare well, mag and tur give a good yield and *vice versa*. (ii) A sprinkling of pulses enables the cultivator to have a variety of fresh vegetables for his household. It must be confessed that the system is, in part, a heritage of the old self-sufficient economy of our villages (iii) It enables the farmer to make a more economic use of his time, for all the crops do not ripen and become ready for harvest at the same time (iv) And the most important advantage is that the cereals are improved by the subordinate pulses. These latter, being leguminous crops, fix nitrogen in the soil which is useful for cereals.

(iii) MANURES

The next important question in agricultural practice is that of manure. If a field, howsoever fertile, is cropped year after year without manuring, it will become exhausted in course of time, and cease to yield an economically profitable return. Manures are applied with a view to provide plants with plant-food materials in a form in which they are not naturally present in sufficient quantity in the land.

The most commonly used manure and, in fact, the only manure used in the taluka is the farm-yard manure. It has to be remembered that this is the only manure readily available to the cultivator. There is nothing to be said against the use of this manure because of its obvious advantages. It is a general manure, that is to say, it is capable of supplying all the plant-food materials necessary for the growth of crops. It is rich in nitrogen, a very valuable plant-food, and its effect is durable. It also supplies organic matter to the soil which enables it to absorb and retain moisture. The quality of this cheap manure, however, depends very much on the method of preservation and storage adopted by the cultivator. Farm-yard manure is collected in the taluka, either in pits or heaps, of which the former method is preferred. The pits are near the house of the farmer. This method adds to the insanitary condition of the village. Although the farmers are careful in collecting the solid excreta of the animals, urine, which is richer than dung in manurial constituents, is almost always wasted. Except for the little urine which inevitably gets mixed up with dung, no effort is made to collect it. We did not come across a single instance in which an attempt was made to collect and utilise this important source of manure richer in nitrogen than dung. There are also other ways in which this important source of manure is wasted to some extent. The farmers generally use a portion of the cattle dung for making dung cakes, which they use as fuel. It is also used for plastering the floors of houses. Good farmers understand the importance of farm-yard manure, and generally do not use dung for making cakes. In all cases, only a small part, and not the whole of the dung is put to the non-manurial uses noted above. The cultivators generally use cotton stalks and stalks of tur as fuel, and make a very sparing use of dung cakes. However, we noticed that

there is a certain amount of preference for this form of fuel, it being a slow-burning fuel. On account of this quailty, even when alternative sources of fuel in the form of cotton and tur stalks are available, the use of dung cakes to a certain extent is resorted to by the farmers.

Regarding the quantity of manure used, we were informed that the peasants cannot manure their fields to the extent they would like to. About 10 cartloads of farm-yard manure are considered adequate for one 'bigha' of land, in practice, only 5 to 6 cartloads or even less are used. The reason is that the supply of each peasant is strictly limited by the number of cattle maintained by him. As every cultivator needs this manure as much for himself as the other, it is not possible to purchase it. There is another limitation to its use imposed not by the peasant's unwillingness, but by natural conditions. We have seen that the taluka is a tract solely dependent on rainfall, and the uncertainty of rainfall in dry crop tracts imposes a limitation to the use of manures, including farm-yard manure. Heavy manuring, to be advantageous, must be accompanied by a large quantity of water, if the crops, as they locally call it, are not to 'burn off'. This phenomenon of 'burning off' of the crops is the result of excessive soil heat generated by manure. If the rainfall is not up to the requirements, a heavily manured field yields less than a lightly manured or unmanured field. On the other hand, if the farmer does not manure it at all, the soil gets exhausted and yields a poor crop. The cultivator of this area, therefore, does not put all his eggs in one basket, meaning thereby that he does not heavily manure only one plot, but prefers distributing his stock of manure over two or three plots.

Another method of manuring the fields adopted by the farmers in this area is this. Sheep and goats belonging to shepherds are folded in the fields at night during the summer months. We were told that for manuring one bigah of land, 1000 goats have to be folded for one night which would cost Rs. 5. This method is employed only by a few well-to-do farmers. In a coastal village like Damka this method of manuring gives a very good crop of val.

It may be of some interest to note that in the coastal villages, earth dug out from tanks or from Kyari or rice beds is spread

to serve as manure over the loose sandy soil prevalent in these villages. This process of adding clay to the sandy soil, technically known as 'mixing', is well-known for improving the physical properties of sandy soils. At the same time the rice beds, being deepened, are greatly improved.

The system of green manure is scarcely practised in the taluka. San (or hemp) is sometimes grown by a big cultivator for being ploughed into the soil. This form of manuring, however, is tried only as an experiment. The small cultivator cannot afford the luxury of such an experiment. The mixing of leguminous crops with the main crop serves his purpose quite well. The economics of the cultivation of green manure crops from the point of view of the small cultivator have still to be worked out by the Agricultural Department[1].

Chemical manures, and bone and fish manures were tried by a very few of the enterprising farmers. They, however, told us that their efforts in this direction failed owing to insufficiency of water. These manures require a good deal of water, and are successfully used only in irrigation tracts. In the taluka which is a Jarayat (dry-crop) tract, and where the water supply is limited to the annual rains, these manures are not likely to prove successful. No useful purpose can be served by the use of chemical manures in the absence of the knowledge of the requirements of the soil. Moreover, it has been found that artificial fertilisers do not benefit crops which depend only on rains for the supply of water. Such is the case of the taluka under study. It is for this reason that the Royal Commission on Indian Agriculture have specially commended to the attention of the Agricultural Departments the importance of manurial experiments on unirrigated lands[2]. In such tracts the need of advice in these matters to a cultivator of limited resources, who is always in danger of losing his crop in an unfavourable season, is very great.

The prejudice against the use of night soil as manure is so strong that under present conditions we do not see the feasibility of its adoption as a manure. Education and propaganda may help to overcome the prejudice.

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1. Vide Report of the Royal Commission on Indian Agriculture, p. 86.
2. Report of the Royal Commission on Indian Agriculture, p. 82.

(iv) SELECTION OF SEED

Next in importance to the use of manure comes the proper selection of seed. Our inquiries have showed that in the case of crops like juwar, bajri, wheat and paddy, the cultivators generally preserve part of the previous year's produce for seed. They usually set apart the best portion of the grains for this purpose. Some of the poor Koli cultivators have sometimes to resort to the village Bania for seed.

In the case of cotton, some good work is done by the cotton sale societies which supply their members and even outsiders with pure seed. Villages which are not served by the cotton sale societies, generally use the indigenous seed locally called 'Desi' as against the 'Farm-seed' distributed by the societies. The reason given by those who are not members of sale societies for using the 'Desi' seed is that the yield of seed cotton in this case is higher than in that of the seed supplied by the Government Farm. No doubt, the seed cotton produced from the farm-seed known as '*selection 1a*' has a higher ginning percentage. In the case of non-members, who sell their seed cotton to the owners of ginneries the benefit of higher ginning percentage is derived by the merchant. In the case of members of sale societies, this advantage ultimately accrues to the members, as the society enters the market and sells lint cotton. The chief concern of a non-member is a higher outturn of seed cotton, for he does not sell lint cotton; hence his preference for indigenous seed called 'Desi'.

It may be noted in this connection that the Agricultural Department has till now mainly concentrated its attention on producing an improved seed of cotton. Juwar, bajri, wheat etc. have received litttle attention at their hands, although efforts are being made within recent years to produce an improved seed of juwar on the Surat Government Farm. This Farm is reported to have produced an improved variety of juwar called 'Budh Perio'. Attempts are being made to distribute this improved variety in some villages of the adjoining taluka of Chorasi by its Taluka Development Association. Its existence, however. is not known in the taluka under study. It may be noted in this connection that in a group of black soil villages to the north-east of Olpad, juwar of excellent quality is produced. It may be possible by the

process of selection to evolve an improved seed from the produce of these villages.

The limitations of individual attempts in the selection of seed of crops other than cotton are obvious. These are confined to winnowing and sieving. The success of cotton sale societies in introducing the improved variety of cotton shows that it is possible to introduce improved seed in the case of other crops through the Co-operative agency. If an economically profitable improved variety is given to the cultivators of the taluka, he will not be slow to take up its cultivation.

(v) INTRODUCTION OF NEW CROPS

The only new crop introduced in this area during the last 35 years or so, is that of groundnut. When the Revision Survey Report of the taluka was written in 1896, this crop was non-existent. In 1903-04 only one acre was put under this crop. In 1918-19 the area occupied by this crop was 29 acres, which increased to 68 acres in 1922-23. In 1928-29 groundnuts occupied 441 acres of the cropped area of the taluka. The introduction of this new crop, and the continuous increase in the area occupied by it, is a change in the right direction, and shows that the cultivator is not conservative in adopting a new crop if found profitable.

Groundnut is chiefly cultivated in a few villages on the extreme east of the taluka, where it thrives well in the light black soil. The cultivators of this crop, as will be seen later, have also started a co-operative society for the sale of their produce. The preference for this crop is partly due to the fact that, being a leguminous crop, it has the power of introducing nitrogen in the soil. Moreover, some seeds of this crop are inevitably left in the ground, and these seeds are well-known for their manurial value. The cultivators find that when cotton is grown the next year in the field occupied by groundnut, a good yield of cotton is obtained. In this part of the taluka, therefore, this crop has become an attractive rotation crop with cotton. The crop also shows signs of spreading in the eastern villages of the taluka in general wherever conditions for its growth are favourable. Besides being a useful commercial crop, its leaves and stems are useful as fodder for cattle.

(vi) FENCING

The fields in the taluka are generally unfenced. It is only the grass fields that are fenced by thorny branches of Babul trees. However, a departure from this practice is observable in the costal villages where the cultivators, as a rule, erect a strong fence of 'Thuer' round their fields. The reason for this seems to be that in these villages a number of pulses are grown mixed with the principal crop of bajri. The subordinate pulse crops are liable to be damaged by stray cattle. An additional reason is also to be found in the fact that these villages are often visited by swarms of pigs which damage the standing crops. This danger is largely absent in the eastern part of the taluka. Wire fencing is not resorted to by any cultivator. It hardly needs to be said that fragmentation imposes a great obstacle to fencing in the costal villages.

The eastern villages do without fences, chiefly because the sense of corporate responsibility handed down from antiquity prevents the farmer from turning out his cattle for grazing and wandering as they like so long as the crops are standing in the fields.

(vii) A DEPARTURE IN THE PRACTICE OF COTTON CULTIVATION

An important improvement has been effected in the taluka in the cultivation of cotton in recent years. Formerly, cotton was sown with the same seed-drill called 'Fadko' with which juwar was sown, the distance between the coulters being 18 to 21 inches. For the last 15 years this practice has been almost entirely given up. The distance between the rows of the cotton plants has been increased by the adoption of a lighter and longer seed-drill called Valkhel (or Valkhelia Fadko), the distance between the coulters in this case being 36 to 42 inches. This system has almost entirely superseded the old system. Not only this, but a few cultivators go still further and adopt the above system in a somewhat modified form, by which the distance between the two rows of the cotton plants is increased to 72 or 84 inches by the simple expedient of leaving out one furrow unsown.

The following are the main advantages claimed by the farmers for this improved method of cotton cultivation.

(i) It economises labour.

(ii) It economises expenditure on weeding and similar operations.

(iii) It secures a better yield. Even when the distance is increased to 72 or 84 inches, the yield is not adversely affected, and

(iv) The exhaustion of the soil is less as the space available to a plant for drawing plant-food for its growth is much greater. In effect, it secures the same advantages as by leaving the land fallow.

It is both gratifying and interesting to note that the much talked of conservatism of the farmer is only a myth as can be seen from the universal adoption of this improved method of cotton culture. If the farmer is convinced that a particular method, however new, is profitable, he is not slow in adopting it.

(viii) INTRODUCTION OF A NEW METHOD OF COTTON CULTIVATION IN RELATION TO THE PROBLEM OF WATERLOGGING

One of the most pressing problems in the agricultural economy of the taluka is that of waterlogging. It will be remembered that for this reason we have formed our first study group in such a manner as to include more than twenty villages whose areas are subject to waterlogging. At the time of the Revision Survey Settlement of the taluka, out of the total occupied area of 1,01,938 acres as many as 12,536 acres, or about 12 per cent., were found, subject to repeated floods and consequent waterlogging.

On account of waterlogging to which lands of these villages as also of a few others are subject, cultivation has become risky. The usual remedy for this would be under-drainage. Under-drainage with tiles becomes impossible in black soil. The soil completely dries up during part of the year and the cracking of the soil tears apart the tiles which then cease to act as a drain. As regards open drains, it is difficult to keep them open owing to the treacly character of the black soil. Further, owing to the great

retentive power of this soil, drainage from lands liable to water-logging is very slow; this would require an unusually large number of drains. The result is that cultivation without drains is still continued.

It was found on the Surat Government Farm that the limitations imposed by waterlogging were the dominant factor in the yield of cotton and juwar, the staple crops of this area. With a view to increase the yield of these crops, various methods like deeper and more perfect cultivation, introduction of leguminous crops like tur and groundnut, and judicious use of cattle manure and artificial manures were tried on the Government Farm for about 18 years from 1902 to 1920 with little or disappointing results. The limiting factor imposed by waterlogging was found out in 1920–21. Since then, yields of crops obtained by adopting the universal method of growing them on the flat followed by the agriculturists in this part were compared with results obtained on plots on which cultivation on high ridges was undertaken. After a series of experiments carried out by that Farm, the superiority of what is now known as 'ridge cultivation' has been firmly established. Not only does the adoption of this method prevent the land from being partially waterlogged, but the yield of crops can also be raised. The yield of cotton, it is reported, can be raised by an average of 23 to 25 per cent. and that of juwar by an average of 23 per cent. of grain and 5 to 10 per cent. of fodder[1]. The adoption of this improved method of tillage will go a long way in solving this most serious problem of waterlogging in the economy of the taluka.

This, however, does not preclude a thorough examination by Government of the problem of waterlogging from the engineering point of view and the feasibility of constructing a suitable system of drainage for the worst affected areas of the taluka. The seriousness of the problem is sufficient to establish a claim for such an investigation.

AGRICULTURAL TECHNIQUE AND PROPAGANDA

In this taluka, as in several other parts of Gujarat, the technique of agriculture and the methods of cultivation followed by the

1. Vide Bulletin No. 123 of 1925 of the Department of Agriculture, Bombay, p. 28.

farmers, empirical as they are, have become fairly systematised. The system of cultivation handed down from the past, and perfected through a process of trial and error by the accumulated experience of ages, is certainly not easy to change[1]. It will, however, be seen from the discussion of the improved method of tillage known as 'ridge cultivation' that improvements in existing methods of cultivation are possible. The efforts of the Department have enabled them to devise an improved method whose advantages have been tried and established on the Government Farm. The tragedy of the situation, however, lies in the fact that the average agriculturist of the taluka is unfortunately ignorant of this method. The important task at present, therefore, is to bring home to the cultivator the knowledge and experience gained and tested on the Government Farm. The ultimate value of these improved methods lies in their adoption by the farmers. This important work of agricultural propaganda with a view to acquaint the cultivator with the work of the Department and induce him to adopt the improved method is largely neglected. The necessity for this is too obvious to need any special emphasis.

The Taluka Development Associations are doing some useful work in this direction in some parts. These associations, if properly manned, are an agency holding out good promise of success. One such Association is functioning in the neighbouring taluka of Chorasi. It would be financially desirable to have only one Association for two talukas.

AGRICULTURAL SEASONS

The two important agricultural seasons in this part of the country are the Kharif and the Rabi. The Kharif crops are generally sown in June and July and are dependent on the volume and distribution of rainfall. The Rabi crops are generally sown in October, and being dependent on the moisture retained in the soil, require rains in September. The Rabi crops of the taluka are not irrigated. The important staple crops are the Kharif crops of cotton, juwar and bajri. The only important Rabi crop of this area is wheat.

1. Cf. Evidence given by Rao Bahadur G. H. Desai before the Royal Commission on Indian Agriculture. Vol. II, Part II, p. 178.

CROPS RAISED IN THE TALUKA : AREA UNDER DIFFERENT CROPS

The relative importance of the different crops in the taluka is shown by the following table.

Crops.	Areas.	Percentage of total.
	Acres.	
Juwar	17069	16·83
Bajri	3523	3·47
Rice	1392	1·37
Wheat	8349	8·23
Total Cereals ...	30333	29·90
Tur	2227	2·19
Gram	374	0·37
Mag	415	0·41
Other pulses (mainly Val, Chola and Math.)	1820	1·80
Total Pulses ...	4836	4·77
Orchard and garden produce ...	1349	1·33
Drugs and Narcotics (mainly tobacco)	197	0·20
Condiments and spices (mainly chillies)	134	0·13
Sugars (Khajuri)	64	0·06
Sesamum	329	0·32
Groundnuts	441	0·44
Other Oilseeds (mainly Castor-seed)	392	0·39
Total Oilseeds ...	1162	1·15
Cotton	63349	62·46
Total Fibres ...	63350	62·46
Grand Total (exclusive of grass)...	101425	100

It will be seen from the foregoing table that the most important staple crops of the taluka are cotton and juwar. Among cereals, wheat comes next in importance to juwar. Bajri and rice follow at a comparatively long distance. The pulse crops of tur and mag are mixed with juwar ; other pulses like val, chola,

math etc. are grown as subsidiary crops to bajri. The cultivation of bajri is confined to a few coastal villages of the taluka whose sandy soil cannot grow any other crop. Groundnut is of some interest, as its cultivation is finding favour with the people in recent years. It will be seen from the table that the area occupied by other crops is very small and calls for no special observation. The area under cotton diminishes in proportion in the coastal villages, and that under bajri does not find place in the black soil villages of the eastern part of the taluka. Owing to the suitability of the black soil of the eastern zone for the cultivation of cotton, this crop is chiefly concentrated in that part. But more interesting than the present position occupied by different crops in the economy of the taluka are the changes in their position at different dates.

CHANGES IN THE AREA UNDER DIFFERENT CROPS

The following table is prepared to bring out the changes in the area under different crops in the taluka at different dates.

Names of Crops	Area occupied by the crops in			
	1903-04	1918-19	1922-23	1928-29
	Acres	Acres	Acres	Acres
Juwar	24087	33561	22862	17069
Bajri	6009	4583	4287	3523
Paddy	3395	181	2993	1392
Wheat	29121	464	16779	8349
Other Cereals	1	...	...	...
Total of Cereals	62613	38789	46921	30333
Total of Pulses	5529	4272	5261	4836
Total of Orchard and Garden produce	318	412	2174	1349
Total of Drugs and Nacrotics	215	33	177	197
Total of Condiments and Spices	312	88	169	134
Total under Sugars (Sugarcanes)	...	...	169	64
Total of Oilseeds	4069	346	1157	1162
Cotton	28676	52055	45828	63349
Total of Fibres (Mainly Cotton)	28679	52057	45835	63350
Miscellaneous	...	24657	23941	...
Gross Cropped Area	101735	120654	125804	101425

A word or two explaining the presentation of statistics given in the above table are necessary. The gross cropped area for the year 1918 and 1922 in the above table is much in excess of similar figures for 1903-04 and 1928-29. It is due to the inclusion under those figures of a large area classed as Miscellaneous. The area under this head almost exclusively consists of grass lands. Grass was not considered a crop prior to 1915 for the purposes of these statistics. The areas occupied by it were formerly shown as fallows. According to instructions contained in the Revised Manual of Revenue Accounts, the area under grass has been included under fodder crops. To make the comparison useful we shall take into account the cropped area exclusive of grass.

It will be seen that the area under cultivation of different crops has undergone a very striking change during the last 30 years. The total area under cereals decreased in 1928 by less than half of that in 1903. It decreased from 62,613 acres in 1903, to 30,333 acres in 1928. The areas occupied by all the principal cereal crops have suffered diminution, but the most striking decline has been caused in the cultivation of juwar, bajri and wheat. On the other hand, the area under cotton has correspondingly increased. It increased from 28,676 acres in 1903 to 63,349 acres in 1928. Cotton thus occupies more than double the area occupied by it in 1903. There has thus been going on in the taluka during the last 30 years a tendency to substitute the commercial crop of cotton for food crops. This tendency is better illustrated by the following table:—

PERCENTAGE OF GROSS CROPPED AREA

(*Exclusive of grass in each case*).

	1903-04	1918-19	1922-23	1928-29
Area under Cereals	62	40	46	29
Area under Cotton	28	54	45	62

It will be observed that with the exception of the year 1922-23 when the area under cereals and cotton was almost equal, the area under cereals shows a steady and continuous diminution. The explanation for the year 1922-23 is furnished by the nature of the

season. In this year the wheat crop occupied a considerable area, and this had the effect of increasing the area under cereals. It will be remembered that when rains are untimely and excessive, and the cultivation of cotton is not possible, the area intended for the cultivation of cotton is put under wheat. It is this fact which explains the almost equal extent of area under cereals and cotton in 1922-23. It is interesting to note that as compared with 1903, the position occupied by cereals and cotton in 1928 has been completely reversed. The increased area under cotton has been due to the better price fetched by this crop for which the soil of the taluka is particularly suitable. The high price which it fetched especially during and since the war provided a great impetus to the extension of the cultivation of this crop. The commercialisation of agriculture as evidenced by this change points to the passing of the taluka from the self-sufficing to the commercial stage of economy.

There are a few writers who view the substitution of commercial crops for food crops with alarm. Under normal circumstances, however, there is no reason why such a change should be viewed with anxiety. It must be understood that the farmer pursues his occupation as much for profit as any other industrialist. And if he can buy his food cheaper than he can produce it on his farm, there is no reason why he should not do so. If the sale of cotton brings more money to the farmer and thus adds to his purchasing power, there cannot be anything wrong in his doing so. Moreover, those who have seen the life of the cultivators at close quarters know that their demand for money with which they can buy their requirements for articles other than food has been increasing within recent years. They are, therefore, naturally inclined to put their lands under a crop which brings them a cash return.

ECONOMICS OF CROPS

Having thus studied various factors connected with the production of wealth in the taluka we shall consider in brief the economics of each crop. For the purpose, we have specially investigated the income from and expenditure on each important crop. The following is a summary of the investigation:—

BALANCE-SHEET OF COTTON (*1 Bigha*)

	Expenditure	*With hired labour*			*With cultivator's own labour*		
I.	Labour Cost. (animals and men)	Rs.	as.	ps.	Rs.	as.	ps.
	(a) Two horrowings in the hot weather	2	0	0	1	0	0
	(b) Collecting and burning the stubbles of the previous juwar crop.	0	4	0	0	4	0
	(c) Manuring (mixing by two harrowings)	3	4	0	1	15	0
	(d) Digging the head-lands and removing shrubs	0	1	3	0	0	0
	(e) Ploughing after the first rains (more often harrowing). ...	1	8	0	0	12	0
	(f) Sowing the seed	1	2	0	0	3	0
	(g) Weeding (thrice) ...	2	13	0	2	13	0
	(h) Thinning the plants ...	0	3	0	0	3	0
	(i) Interculturing (four times at intervals)	3	0	0	1	8	0
	(j) Picking cotton	1	14	0	1	14	0
II.	Cost of Manure, 10 cartloads at Re. 0-8-0 per cartload once in 4 years; (evaluated for one year).	1	4	0	1	4	0
III.	Cost of Seed, 6 seers per Bigha...	0	6	0	0	6	0
IV.	Land Revenue	3	8	0	3	8	0
	Total Rs. ...	21	3	3	15	10	0

INCOME:—

	Value of Seed Cotton at 5 maunds on the average per Bhiga charged at Rs. 4-8-0 per maund on the average (Price per Bhar varied from Rs. 105 to Rs. 115: we have therefore adopted Rs. 108 as the average price per Bhar of seed cotton)	Rs.	22	8	0		
	Net profit to the Capitalistic Cultivator ...	Rs.	1	4	9		
	Net profit to the Self-working Cultivator ...	Rs.	6	14	0		

BALANCE-SHEET OF JUWAR (*1 Bigha*)

Expenditure	*With hired labour*	*With cultivator's own labour*
	Rs. as. ps.	Rs. as. ps.
I. Labour Cost (animals and men).		
(a) Digging and collecting cotton stalks of the previous crop ...	0 8 0	0 8 0
(b) 2 harrowings in the hot weather	2 0 0	1 0 0
(c) Ploughing once either with the plough or harrowing with Karab (harrow) after the rains ...	1 8 0	0 12 0
(d) Digging corners and head-lands	0 4 0	0 0 0
(e) Sowing and covering the seed ...	1 2 0	0 3 6
(f) Hand weeding (twice) ...	0 10 0	0 10 0
(g) Thinning plants ...	0 4 0	0 4 0
(h) Interculturing (twice) ...	1 8 0	0 12 0
(i) Ploughing between the rows of plants in September ...	1 8 0	0 12 0
(j) Watching (November-December about 1½ months) ...	1 8 0	0 0 0
(k) Harvesting, tying bundles and stacking in the field ...	1 2 0	1 2 0
(l) Cutting heads of grains and carting them to the threshing floor and stacking the bundles again...	0 10 0	0 10 0
(m) Threshing and winnowing ...	0 12 0	0 8 0
(n) Harvesting and threshing Tur and Mag (mixture) ...	0 12 0	0 8 0
II. Cost of Seed.		
4 seers of Juwar ... 0 2 0		
2 seers of Tur ... 0 2 0		
⅓ seer of Mug ... 0 0 6	0 4 6	0 4 6
III. Land Revenue ...	3 8 0	3 8 0
Total Rs. ...	17 12 0	11 6 0

INCOME :—

		Rs.	as.	ps.
(i)	Value of 10 maunds of Juwar per Bigha, charged at Rs. 30 per Galli of 30 maunds ...	10	0	0
(ii)	2 maunds of Tur charged at Rs. 2 per maund...	4	0	0
(iii)	¼ maunds of Mag charged at Rs. 3 per maund	0	12	0
(iv)	200 bundles of Juwar Kadbi at Rs. 1-8-0 per 100	3	0	0
(v)	2½ maunds of Juwar Bhusa or chaff charged at Re. 0-4-0 per maund	0	10	0
(vi)	2 maunds of Tur and Mag Bhusa or chaff at Re. 0-8-0 per maund	1	0	0
	Total Rs. ...	19	6	0
	Net profit to the Capitalistic Cultivator ...	1	10	0
	Net profit to the Self-working Cultivator	8	0	0

BALANCE-SHEET OF WHEAT (*1 Bigha*)

Expenditure	*With hired labour*			*With cultivator's own labour*		
	Rs.	as.	ps.	Rs.	as.	ps.
I. Labour Cost (animals and men).						
(a) One harrowing in the hot weather	0	12	0	0	6	0
(b) 6 harrowings on the average at intervals (weather permitting) during the monsoon ...	4	8	0	2	4	0
(c) Levelling and sowing ...	1	2	6	0	10	6
(d) Harvesting, (by uprooting the plants), tying and stacking ...	0	15	0	0	8	0
(e) Threshing (by means of Chakkar), winnowing etc. ...	2	9	0	1	4	6
II. Cost of Seed, 30 seers at Rs. 2 per maund	1	8	0	1	8	0
III. Land Revenue	2	8	0	2	8	0
Total Rs. ...	13	14	6	9	1	0

INCOME :—

	Rs.	as.	ps.
Value of			
(i) 7 maunds of wheat grain at Rs. 1-8-0 per maund	10	8	0
(ii) 7 maunds of wheat chaff at 2½ maunds per rupee	2	12	9
Total Rs. ...	13	4	9
Net loss to the Capitalistic Cultivator ...	0	9	9
Net profit to the Self-working Cultivator.	4	3	9

BALANCE-SHEET OF BAJRI MIXTURE (*1 Bigha*)

Expenditure				*With hired labour*			*With cultivator's own labour*		
I. Labour Cost (animal and men).				Rs.	as.	ps.	Rs.	as.	ps.
(a) Cleaning the field by digging stubbles ; two horrowings, collecting and burning stubbles etc.				2	4	0	0	12	0
(b) Two ploughings ; one ploughing and one harrowing after the rains				3	0	0	1	8	0
(c) Sowing and covering the seed...				1	13	0	0	12	0
(d) Hand weeding (twice) ...				3	12	0	1	14	0
(e) Thinning the plants ...				0	10	0	0	5	0
(f) Bullock-hoeing or ploughing between the rows of bajri plants.				0	12	0	0	6	0
(g) Watching				0	12	0	0	0	0
(h) Harvesting, threshing and winnowing various crops ...				4	0	0	2	2	0
II. Cost of Seed.									
(i) 5 seers of Bajri ...	0	2	6						
(ii) 3 seers of Gaur seed.	0	2	3						
(iii) 2 seers of Val ...	0	1	6						
(iv) ¼ seer of Math and ¼ seer of Choli ...	0	0	6						
	0	6	9	0	6	9	0	6	9
III. Land Revenue				1	0	0	1	0	0
Total Rs. ...				18	5	9	9	1	9

INCOME :

		Rs.	as.	ps.
Value of—				
(i)	6 maunds of Bajri at Rs. 1-4 per maund...	7	8	0
(ii)	1 maund of Guar seed at Rs. 1-8 per maund	1	8	0
(iii)	½ maund of Val at Rs. 1-8 per maund ...	0	12	0
(iv)	½ maund of Math and Choli at Rs. 1-4 per maund	0	10	0
(v)	300 bundles of Bajri stalks at Re. 1 per 100 bundles...	3	0	0
(vi)	2 maunds Bhusa or chaff of the various crops at Re. 0-8-0 per maund ...	1	0	0
	Total Rs. ...	14	6	9
	Net loss to the Capitalistic Cultivator ...	3	15	0
	Net profit to the Self-working Cultivator	5	4	3

BALANCE-SHEET FOR GRASS (*1 Bigha*)

	Expenditure	*With hired labour*			*With cultivator's own labour*		
		Rs.	as.	ps.	Rs.	as.	ps.
I.	Lobour Cost						
	Cutting	3	2	0	2	8	0
	Binding and stacking ...	2	0	0	1	8	0
II.	Land Revenue ...	3	8	0	3	8	0
	Total Rs. ...	8	10	0	7	8	0

INCOME :

	Rs.	as.	ps.
800 bundles of Grass at Rs. 25 per 1000 ...	20	0	0
Net profit to the Capitalistic Cultivator ...	11	6	0
Net profit to the Self-working Cultivator ...	12	8	0

CHAPTER VIII

Transport and Marketing

RELATION BETWEEN TRANSPORT AND MARKETING

The problem of marketing has now assumed importance for the cultivator of the taluka as of other parts of the country. So long as the cultivator of the taluka lived in a state of self-sufficing economy the problem of marketing did not arise. With the development of modern means of transport, the situation underwent a complete change. The construction of railways put the cultivator in touch with more distant markets within the country, and the steamship extended the scope of his markets to different parts of the globe. This brought about a veritable revolution in the agricultural economy of this area. The cultivator of the taluka now no longer produces merely his own requirements. Although he still produces partly for his own consumption he is devoting more and more attention to the production of such commodities as cotton. The old self-sufficient village economy is thus disappearing and agriculture is getting more and more commercialised.

RAILWAY MILEAGE

The B. B. & C. I. Railway covers about fourteen miles in the taluka. There are two railway stations, viz., Kim and Sayan. As, however, it runs through the extreme east of the taluka close to its boundary, and as the principal market towns are more conveniently accessible by roads, the railway is of little importance in the internal economy of the taluka. Although it had had great effect in commercialising the agriculture of this area in common with other parts of the country, as a means of transport in the marketing of produce within the taluka it is not so important. According to local information the possibility of constructing a feeder line passing through the heart of the taluka was at one time considered. The idea, however, seems to have been given up. In considering the facilities of transport we have, therefore, to consider the mileage of roads available in the taluka.

EXTENT OF ROADS

In our presidency the roads are divided into two classes: (i) Provincial Roads, looked after by the Public Works Department,

and (ii) Local Roads, maintained by the local authorities i.e., the Local Board.

In the taluka there is only one Provincial Road, its mileage being approximately 18 miles[1]. This road joins Surat and Broach districts and covers about 18 miles from the north of Rander to the northern boundary of the taluka. It is a metalled road and is maintained in good condition. The mileage of Local Board Roads in the taluka is about 41; of this, about 15 miles are metalled and the remaining 26 miles unmetalled.

The following statement gives details of Local Board Roads in the taluka[2].

LOCAL BOARD ROADS MILEAGE

Metalled.			*Unmetalled.*		
Name of Road.	*Miles.*	*Feet.*	*Name of Road.*	*Miles.*	*Feet.*
Sayan-Olpad ...	9	...	Olpad-Karanj ...	7	1848
Sayan-Kathor ...	0	4620	Ichhapore-Sunwali ...	3	...
Batha-Ichhapore ...	1	2640	Rander-Kudiana ...	9	...
Ichhapore-Sunwali ...	3	2640	Rander-Bhesan ...	3	500
Total ...	14	4620	Bhesan-Barbodhan ...	2	4740
			Mora Parsi Tower of Silence	0	4620
			Total ...	26	1148

TOTAL ROAD MILEAGE
(all kinds)

	Miles	*Feet*
Total Metalled ... (Local Board)	14	4620
Total Unmetalled ... Local Board	26	1148
Total Local Board ... Roads	41	488
Total P. W. D. Roads ...	17	4620
Total Road Mileage ... in the taluka	58	5108

i. e. 59 miles (approximately).

1. The details were obtained from the Civil Engineer at Surat in charge of Olpad-Ankleshwar Division.

2. The details were taken from the Office of the District Local Board, Surat.

It will be clear that there are about 33 miles of metalled roads in the taluka of which about 18 miles are in charge of the Public Works Department and about 15 miles under the Local Board. There are, in addition, about 26 miles of unmetalled roads maintained by the Local Board. The total area of the taluka, it will be remembered, is 312 square miles. The taluka has thus 10·58 miles of metalled and 8·33 miles of unmetalled roads for every 100 square miles. If we are to judge from these statistics the taluka does not suffer in comparison with Gujarat or the Presidency as a whole in the provision of metalled roads. As regards unmetalled roads, the position is not much dissimilar from Gujarat, but suffers in comparison with the Presidency as a whole[1]. The same tendency is revealed by examining the figures from another standpoint. On the basis of the population figures of 1931, the taluka has 55 miles of metalled roads and 43·3 miles of unmetalled roads for every 1,00,000 of the population, whereas similar figures for the Presidency worked out by the Provincial Banking Enquiry Committee were 48 miles and 105 miles respectively.

CONDITION OF ROADS

As regards the condition of these roads, the metalled road in charge of the P. W. D. is generally in a good condition. The metalled roads under the Local Board are not maintained in an equally good condition. The unmetalled roads are merely fair weather tracks.

On the whole, however, the taluka is fairly well provided with roads ; the eastern villages can have access to the railway stations of Kim and Sayan and to the market towns of Olpad, Rander and Surat by the Kim-Vadoli Road, Sayan-Olpad Road and Rander-Hansot Road the last of which passes through Olpad. The western villages

1. This will be clear from the following figures of mileage of roads per 100 square miles.

Olpad Taluka		Gujarat		Bombay Presidency	
Metalled	Unmetalled	Metalled	Unmetalled	Metalled	Unmetalled
10·58	8·33	6·97	8·0	7·43	16·45

The figures for Gujarat are worked out from the figures given by Dr. Mehta in his Rural Economy of Gujarat, p. 206. The figures for Bombay Presidency are taken from the Report of the Bombay Provincial Banking Enquiry Committee, p. 22.

can get access to the market towns by the Ichhapore-Sunwali Road, Rander-Kudiana Road and Karanj-Olpad Road.

INTER-VILLAGE COMMUNICATION

The state of inter-village communication, however, leaves much to be desired. There are many villages which are entirely cut off from the outside world during the monsoon for lack of suitable roads. Communication from village to village becomes difficult and sometimes impossible. The distance between the village and a good road may be two or three miles, but even this distance presents insurmountable difficulties. What is required therefore is a network of good village roads. For this work the local authority has no resources to spare. A systematic policy for the development of rural roads is called for. The difficulty experienced by villages on the coast is great. The village of Damka, for instance, is badly in need of a good road. The small Koli cultivators daily go to Surat with their headloads of vegetables. Their difficulties in reaching the market for lack of a good road are enormous.

MOTOR TRANSPORT

In recent years motor transport has assumed importance in the taluka. The motor buses generally carry passengers, and the motor lorries carry goods for the merchants at Olpad and other places. They are not used by the agriculturists for transporting the produce. On the other hand, the motor buses and lorries have made the condition of roads particularly bad and have deprived a number of cultivators of their subsidiary earnings from cart hire. This complaint was received by us in Olpad and the village of Pinjarat. The fact of motor lorries thus displacing bullock carts is regarded with satisfaction by some people[1]. There is, however, another side also. It adds to the pangs of the period of transition through which the rural economy is passing. On the one hand we introduce modern methods of machinery etc., but, on the other, do not see our way to find something else to fill the gap thus created[2].

MARKETING TYPES: GENERAL

The problem of marketing has two aspects, viz., (i) the marketing of different crops in which the farmer enters the

1. Report of the Indian Taxation Enquiry Committee, p. 207.
2. Cf. J. C. Kumarappa's 'Matar Survey', p. 57.

field as the seller and (ii) the marketing of the necessaries of life in which he enters the market as the purchaser.

Before we discuss the problem in its two-fold aspect, we shall consider in general the different types of marketing prevailing in the taluka. Marketing is generally divided into (i) direct and (ii) indirect[1]. By direct marketing is meant the marketing from the producer to the consumer; this is effected without the intervention of an intermediary or a middleman. In actual practice, as direct marketing depends on the place at which marketing is done, it is divided into the following sub-heads:—

(*a*) At the home of the producer.

(*b*) At the home of the consumer.

(*c*) At the market place.

(*d*) Transactions between buyers and sellers at a long distance through the medium of the post, the rail or the telegraph which keep the parties to the transaction in touch with each other.

Indirect marketing is usually divided into the following two groups:

(*a*) Sale to a middleman, and

(*b*) Sale through a middleman.

The first type of direct marketing is confined to a few articles like milk and ghee. A cultivator who dose not maintain a buffalo or a cow, or when his milch animal is dry, usually purchases milk or ghee from a neighbour. Sometimes, those who require large quantities of ghee for some social festival go to villages for purchasing ghee direct from the cultivator. As there is no market for milk in the village, it is converted into ghee, which for the most part is not sold direct to the consumer but is taken to such market towns as Olpad, Sayan, Rander and Surat for sale. Only a small part of the total ghee production is thus directly disposed of. Another illustration of the first type of direct marketing is provided by a small portion of the total production of juwar, which is thus sold. The Kharwas of the costal villages of Bhagwa and Dandi, who are not agriculturists by profession generally go from village to village for purchasing their annual requirements of juwar from cultivators of the black soil villages.

1. Vide Hibbard's Marketing of Agricultural Products, pp. 20-21.

A woman carrying a headload of vegetables, a Borah with his bangles, a Bhaiya with his grams, a hawker with his biscuits and petty trifles and a vegetable dealer of Olpad going from village to village and house to house with his potatoes, onions etc., are some instances of the second type of direct marketing.

The third way of effecting direct sales at the market place is a common feature of those tracts in which 'Hats', i. e. weekly or periodical bazars, are held. Here producers and consumers meet and direct marketing is done. This is conspicuous by its absence in the taluka. These weekly bazars are not held in any village.

The fourth method of effecting direct sales between buyers and sellers through the agency of the post, the telegraph and the telephone is too modern to be in use in the taluka. It can be ignored for all practical purposes.

INDIRECT MARKETING

Most of the agricultural produce, under the present stage of commercial agriculture on which the taluka has entered, consists of bulky commodities produced at a great distance from places where they are ultimately consumed. The discussion that follows will apply, unless otherwise stated, to indirect marketing, which is in vogue both for the sale of agricultural produce and the purchase of necessaries of life by the agriculturist.

MARKETING OF PRINCIPAL CROPS

(I) *Cotton*

Two methods of selling cotton are in vogue in the taluka. On the one hand, there are the cotton sale societies, which pool the seed cotton of their members and sell it after getting it ginned. We shall deal with these societies fully in the chapter on Co-operation to which reference should be made for the Co-operative method of sale of cotton in the taluka. Cultivators, who are not members of the sale societies, sell the seed cotton to the owners of one of the ginning factories at Elav in the north, Olpad in the centre, Sayan and Kim on the eastern boundary, and Rander and Surat in the south. Where to sell and when to sell his seed cotton (kapas) depends on his convenience, and much more on the price offered at one of these centres. If a cultivator of the northern villages thinks that a better price can be secured at Rander and Surat to the extreme south of the taluka than at Elav, which is convenient

to him, he would go with his cartload a distance of 15 to 18 miles to Rander or Surat. The grower in this part of the country is not obliged to sell his produce to the Sowkar to clear an outstanding account. Cotton merchants or ginning factory owners and their agents or 'dalals' go about from village to village during the cotton season for the purchase of cotton. There is a keen competition among the purchasers and, therefore, when the cultivator thinks that a good price is offered to him, he sells his cotton to an agent. The agent is a paid servant, but more often a commission agent, who is usually paid Re. 1 per every Bhar[1] purchased. He is not paid anything by the cultivator. What the agent generally does is this. He goes to a village, meets the cultivators, examines a sample and offers a price at which he is instructed by the owner of the ginnery to purchase seed cotton. The price offered varies from time to time and sometimes from day to day according to the fluctuations in the Cotton Market in Bombay. If the cultivator thinks that the price offered is favourable, a bargain is struck between him and the agent; if he thinks that the price is not good, he waits in anticipation of a better price.

When the bargain is struck at the village, the cultivator may or may not have the whole quantity ready for sale. Some of it may be ready; a part of the produce may still be in the fields waiting to be picked up. He takes his seed cotton, as and when it is ready, to the ginning factory in his own cart packed in thick cloth chaddars. No transport charges are paid by the purchaser. The weighment is done at the ginning factory on the weighbridge or the platform weighing machine. The cultivator however weighs the produce before carying it to the factory. Payment is made after the cotton is weighed and delivered at the ginning factory. No deductions by way of brokerage etc. are usually made. Motor lorries are not used for transporting the produce. The moment the seed cotton leaves the hands of the agriculturist, to all intents and purposes, the process of marketing, so far as as he is concerned, is complete; with the later stages he is not concerned. Such, in brief, is the method of marketing cotton in the taluka. It is not sold direct to the millowner or the ultimate consumer, but to the merchant or his agent, and, therefore, falls within the category of indirect marketing. The sale of cotton is thus almost invariably effected at the

1. One Bhar = 24 maunds. This is the unit of transaction for cotton in the taluka.

village because of the obvious advantage that the cultivator is able to wait and not obliged to part with the produce at once. If he goes to the market place (ginnery) he has to dispose it of at once, for otherwise he has to reload the cart and go back to the village. This he does not like to do.

In this connection it may be noted that in some instances a group of agriculturists in the taluka, without organising themselves into a co-operative cotton sale society, pool and sell their cotton after getting it ginned. We were informed of this in the two villages of Umra and Sandhier. The ginnery owner makes advances to this group of agriculturists on the security of seed cotton deposited in his ginnery. On the whole, however, this method is open to risk and abuse, and the better method is for these groups always to get themselves registered under the Co-operative Societies Act. What is needed here is education and propaganda.

(II) *Food Crops*

Among other crops that are marketed is wheat which is not an important crop in this area. After meeting the needs of his family the remainder of the produce is sold by the cultivator. It is not the staple food crop of this area, and hence the farmer's needs are confined to its use on a few religious and social festivals during the year. The other food crops are juwar and bajri, occupying respectively 16·8 and 4·3 per cent. of the cropped area. Juwar is the staple food crop of this area, and very little remains for sale after the cultivator's needs are satisfied. Bajri is the staple food crop of Kolis of the western villages where it is raised. Some of it, however, finds its way to the market. Paddy is not an important crop, the area under it being 1·3 per cent. of the cropped area. The same considerations apply to the pulse crops of tur, gram, mag etc., which are cultivated as mixed crops with the cereals of juwar and bajri, and are for the most part retained for household consumption. For the surplus of these crops which is sold, the method of marketing is important to the cultivator.

The most important market towns to which these crops are taken for sale are Rander and Surat, the latter of which is more important; a small portion is sold in Olpad and Sayan according to the convenience of the cultivator. There are two important differences in the marketing of these crops :—(i) A part of the produce is sold direct to the non-cultivating classes, if the

price prevalent in the market towns of Rander and Surat is offered to the cultivator in his or a neighbouring village. The bulk of the produce, however, is taken to Surat. (ii) Unlike cotton, which is sold at the door of the cultivator, these crops are almost always taken to the market towns, the reason being that, as in the case of cotton, there are no merchants or their agents going from village to village and creating a demand for these crops. The result is that the cultivator carries the surplus produce in his cart to Surat.

The unit adopted in the sale of these crops is usually a Galli of 30 local maunds. The cultivator does not grade his produce. In the market, the produce is sold through the agency of 'dalals' or brokers. These latter take out samples and show them to the prospective buyers or merchants. According to their mysterious way of settling terms by silent and secret arrangements, which take the form of manipulations of fingers concealed under a piece of cloth, the price is fixed between the agent or dalal and the merchant. The cultivator knows nothing about the manner in which the price is fixed. The cultivator on agreeing to sell for the price offered, which he more often does, the bargain is settled and the produce is weighed and delivered. Payment is made by the dalal after deducting his commission. We ascertained the usual deductions incidental to marketing from the gross returns of the farmer for different crops. The details of these deductions for different crops are given below :—

(i) Juwar (1 galli of 30 maunds—the average price per galli of 30 maunds during the 1931 season was Rs. 30-0-0)

Deduct by way of :	Rs.	As.	Ps.
(i) Brokerage (dalali)	1	0	0
(ii) Discount (Vatav) (for cash payment) at the rate of 2 pice per rupee worth of produce	0	15	0
(iii) Municipal duty on grain before entering Surat City at 2 pice per maund.	0	15	0
Total	2	14	0
(iv) Road-toll charges (varying with the situation of the village)	0	10 to 1	0 0
Grand Total	3	8 to 4	0 0

(ii) Bajri (1 galli of 30 maunds—average price Rs. 37/- per galli).

Deduct by way of :	Rs.	As.	Ps.
(i) Brokerage (Dalali)	1	0	0
(ii) Discount (Vatav) at the rate of 2 pice per rupee worth of produce	1	2	6
(iii) Municipal duty on corn	0	15	0
Total	3	1	6
(iv) Road-toll charges (according to the situation of the village :	0	5	0
	to		
	0	7	0
(Less charges on this account because bajri is grown in the western villages from which toll charges for reaching Surat are less)			
Grand total	3	6	6
	to		
	3	8	6

(iii) Wheat (1 galli of 30 maunds—average price Rs. 45 per galli)

(i) Deduct by way of :	Rs.	As.	Ps.
Brokerage (Dalali)	1	0	0
	to		
	1	4	0
(ii) Discount (Vatav) ; no discount is charged in case of wheat.	...	...	...
(iii) Municipal Duty	0	15	0
	1	15	0
Total	to		
	2	3	0
(iv) Road-toll charges (according to the situation of the village).	0	7	0
	to		
	1	8	0
Grand Total	2	6	0
	or		
	3	7	0
	to		
	2	10	0
	or		
	3	11	0

Vegetables which are raised in a village or two on the coast are free from municipal duty. A very heavy brokerage of annas two per rupee worth of vegetables, is, however, charged by the 'Pastagias[1]. The growers of vegetables always complain about some sort of secret understanding between the broker and the vegetable merchant between whom secret negotiations for fixing price take place[2].

MARKETING OF THE NECESSARIES OF AGRICULTURAL AND DAILY REQUIREMENTS

As regards the marketing of the necessaries of agriculture, the seed is usually preserved from the harvest of the previous year, manure is never purchased and the implements of agriculture are simple and made by the village carpenter and blacksmith. In case the farmer has to purchase guar seed or cotton seed for his cattle, the method adopted is the same as in the purchase of necessaries of daily life.

Juwar and bajri are raised on the farm by the cultivator and retained for his consumption; other necessaries of daily life are purchased from a middleman. Every big village has a shop which deals in corn, tea, sugar, sesamum oil and petty commodities of daily use. The cultivator either purchases his necessaries from the village shopkeepers or goes to the market towns.

Goods are almost always purchased on credit, cash payments being the exceptions rather than the rule. Cultivators generally do not keep accounts, and the Koli and such low caste cultivators often do not know the amounts of their purchases. The word of the village or the town dealer is law unto the farmer. The cultivators know that in making purchases on credit they are cheated in weight and charged a higher price than on cash purchases. Moreover, on the outstanding dues which are not cleared by the next 'Divali', interest at the rate of 9 to 12 per cent. is charged by the shopkeeper. The disadvantages of making purchases on credit are well-known to them; and yet, either because the cultivator is generally short of cash, or because of the force of habit, he continues in his uneconomic way of making credit purchases.

1. The brokers in the vegetable market are locally called "Pastagias".

2. Over and above these deductions, about 2 seers of grain have to be given in each case by way of Dharmada (charity) for the maintenance of Pinjrapole etc.

SOME SUGGESTIONS

It will be observed that the cultivator is obliged to part with the produce on the day he goes to the market for sale. No storage facilities are available. The method of sale by inspection persists and fair and unfair deductions are made from the price realised by the agriculturist. As the cultivators sell their produce in small quantities, no grading of the produce is possible. In Denmark and the U. S. A. the farmers have set up excellent Co-operative organisations for the sale of their produce. Much of the success of Danish agriculture is due to these organisations. We believe that the Co-operative method of sale is capable of doing away with the difficulties experienced at present by the agriculturist in marketing the produce. The middleman's charges now paid will be reduced, and the agriculturist will be benefited. We therefore suggest that the Co-operative method is the best method for the sale of the produce of the agriculturist. This is very important from another point of view also. The success in the introduction of improved seed will much depend on the price the cultivator will be able to realise for the produce. The co-operative agency, by pooling the produce of the members, and selling it in sufficiently large quantities will enable the cultivator to obtain a premium for the better quality of his produce. The success of cotton sale societies which have been able to secure Rs. 5 to Rs. 10 more per Bhar for the members, and the premium in price which the members earned by selling their groundnuts co-operatively, are sufficient proofs of this.

It may also be suggested that regulated markets on the lines of one established at Dhulia for cotton may be established to do away with the unfair deductions and abuses prevalent in the present markets. The same method may be adopted for the sale of all agricultural produce.

Co-operative purchase of necessaries by the agriculturist either on the indent system through the sale societies, supervising unions or co-operative stores would similarly benefit him a good deal by doing away with the unfair methods of the shopkeepers. The cultivator's habit of purchasing on credit is however an obstacle in the organisation of stores, and ways will have to be found by Co-operators for overcoming this difficulty.

CHAPTER IX

AGRARIAN INDEBTEDNESS

EXTENT OF INDEBTEDNESS

Of the total number of 793 families for which house to house enquiry was undertaken, 603 families were found to be in debt. The total amount of debt is Rs. 4,60,411. The average debt per indebted family, therefore, works out at Rs. 763. The average debt per indebted family, however, varies from village to village and group to group. This will be clear from the following table :—

TABLE SHOWING AVERAGE DEBT PER INDEBTED FAMILY

Name of the village, group and zone	*Total number of indebted families*	*Total amount of debt*	*Average debt per indebted family*
		Rs.	Rs.
Umra	38	76,393	2,010
Sandhier	19	31,425	1,654
Bhadol	51	41,093	806
Total Gr. I ...	108	1,48,911	1,379
Sonsak	34	27,360	841
Ichhapore	94	52,159	555
Total Gr. II ...	128	79,519	621
Atodra	44	30,359	665
Mahmadpore ...	24	31,110	1,296
Pardi koba	24	15,528	647
Total Gr. III ...	92	76,997	836
Total Grs. I to III (Eastern zone) ...	328	3,05,427	934
Karanj	27	30,735	1,138
Kuwad	33	13,484	409
Kalsa	21	16,409	781
Total Gr. IV ...	81	60,628	748
Bhagwa	32	15,160	474
Pinjarat	93	34,728	373
Damka	69	44,468	644
Total Gr. V ...	194	94,356	486
Total Grs. IV to V (Western zone) ...	275	1,54,984	563
Grand Total of all Groups ...	603	4,60,411	763

The tendencies revealed by the foregoing table are:— (i) The amount of average debt per indebted family varies from Rs. 2010 for Umra to Rs. 373 for Pinjarat. (ii) The average debt per family for the eastern zone of the taluka is Rs. 934 as against Rs. 563 for the western zone.

The above facts show that the inland tract of the taluka is more heavily indebted than the coastal tract[1]. This is because the villages of the western zone are inhabited mostly by the Kolis, who are a class of petty landowners, small cultivators and agricultural labourers, and as such command little credit. This comparison brings out that debt follows credit[2]. A Koli cultivator of small means will not be given big loans of over a thousand rupees or more by the Sowkar. This point is forcibly brought out by a close examination of the statistics given in the previous table. It will be observed that there are four villages in which the average debt per familiy exceeds Rs. 1000. They are: Umra, Sandhier, Mahmadpore and Karanj. A few observations on the circumstances explaining the existence of such a big amount of debt per family for these villages will not be out of place. As regards Umra, two typical instances will suffice. Among the indebted families of this village, one is an Anavil Brahmin family involved in debt to the extent of about Rs. 12,000; the other is a Kanbi family whose debt amounts to Rs. 10,000. In addition to these, out of the 19 indebted families of the Kanbi caste of this village, as many as 11 are indebted to the extent of more than Rs. 1,000 each. It is the heavy indebtedness of these Kanbi agriculturists, who generally own more than 25 acres of land, and of the Anavil agriculturists that explains the highest amount of average debt per indebted family in the case of Umra. The case of Sandhier is not dissimilar. In this case two Brahmin families account for Rs. 9,000 of the total debt. Out of

1. This shows how generalisations even for the whole of Gujarat are to be taken with the utmost caution. The Bombay Provincial Banking Enquiry Committee on page 44 of their Report say "The coastal tract of the Broach District—and this probably is true of the rest of Gujarat—is more heavily indebted than the inland tract." Our investigations, it will be observed, prove that just the reverse is the case in the taluka.

2. Cf. M. L. Darling's The Punjab Peasant in Prosperity and Debt, p. 15.

the nine Kanbi families of this village, four are indebted to the extent of more than Rs. 2,000 each, and the debt of one of them amounts to more than Rs. 1,000. All these heavily indebted families represent comparatively big landowners and agriculturists, and they go to swell the average amount of debt per indebted family in this village. Next in the list comes Mahmadpore. The Rajput families of this village are heavily indebted. Fifteen indebted families of this caste account for the debt of about Rs. 28,000. Two typical families of this caste will be sufficient for the purpose ; one is indebted to the extent of more than Rs. 9,000 and the other, more than Rs. 5,000. Both these families are big landholders of the village ; the former owns more than 100 acres, and the latter, more than 175 acres of land. There are two other families of the same caste holding more than 40 acres of land each, which are in debt, amounting to more than Rs. 1,000 and Rs. 3,000 respectively. It may be of particular interest with reference to this village that a large amount of debt, or as much as one-half of the total debt of these Rajput families, is represented by loans from the co-operative credit society of the village. The present village was selected for experimenting with the scheme of debt-redemption launched by the Co-operative Department in this area. With this view, large sums were lent to the cultivators of the village by that agency. The same tale of heavy indebtedness of the Anavil, Kanbi and Rajput families of the eastern zone of the taluka is repeated with reference to Parsi families of Karanj of the western zone. In this case, only 10 Parsi families account for more than Rs. 21,000 of the total debt. If the average debt per family of this village is much smaller than the average debt of a Parsi indebted family, it is because the Koli and other cultivators, being small proprietors, are much less heavily indebted than the Parsis. The remaining villages do not call for any detailed observations. It is sufficient to note that the average debt per indebted family in the case of the Koli villages of Ichhapore and Pardikoba of the eastern zone corresponds to the Koli villages of the western zone. The average debt for the remaining villages varies from Rs. 373 to Rs. 841.

It will be observed from the above that large landowners in the taluka are more heavily involved in debt than the small. As Mr. Darling has aptly put it, "No one but a fool or a philanthropist will lend to a pauper." And the moneylender in the taluka

evidently is neither. The present discussion should not conceal the important fact revealed by the figures of average debt per indebted family, namely, the seriousness of the extent of agricultural indebtedness in the taluka. When it is recalled that the average size of the holding as worked out either officially or by us is less than 10 acres, an average debt of Rs. 763 per indebted family for all the study groups combined, or of Rs. 934 and Rs. 563 for the eastern and the western zones respectively, is very considerable. This will be clear when it is remembered that the average debt per family for South Gujarat in which the taluka is situated as worked out by the Bombay Provincial Banking Enquiry Committee was Rs. 551[1]. Whatever be the causes which explain the very high average debt per indebted family in some of the villages investigated by us, the fact of the disparity between the average debt of Rs. 763 per indebted family in this taluka and of Rs. 551 for South Gujarat remains. It shows the extent of the seriousness of the problem in the taluka[2].

INCIDENCE OF DEBT PER OWNED AND CULTIVATED LAND

There is another way of looking at the extent of indebtedness, and that is to determine the incidence of debt per acre of owned and of cultivated land. The following table is

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1. Vide Report of the Bombay Provincial Banking Enquiry Committee, p. 42.

2. It may be of interest to note that the average debt per indebted family as worked by Mr. Mukhtyar for the village of Atgam in South Gujarat (1926-27) was Rs. 291, and as worked out for Pimpla Soudagar (1917) by Dr. Mann was Rs. 225. Even allowing for variations in the conditions of these villages, and in time when the investigations were undertaken, the figure of average debt of Rs. 791 per indebted family worked out by us compares very unfavourably with either of the figures mentioned here.

prepared to make this point clear.

Name of the Village and Group	Total amount of debt	Total area owned as between the indebted families	Total area cultivated as between the indebted families	Average debt per acre	
				Owned	Cultivated
	Rs.	Acres.	Acres.	Rs.	Rs.
Umra ...	76,393	306	433	250	176
Sandhier ...	31,425	253	383	124	82
Bhadol ...	41,093	299	606	137	68
Total Gr. I	1,48,911	858	1422	173	105
Sonsak ...	27,360	236	395	112	69
Ichhapore ...	52,159	582	994	90	52
Total Gr. II ...	79,519	818	1389	97	57
Atodra ...	30,359	327	845	93	36
Mahmadpore ...	31,110	528	720	60	43
Pardikoba ...	15,528	113	222	137	70
Total Gr. III ...	76,997	968	1787	79	43
Total Grs. I to III.	3,05,427	2644	4598	115	66
Karanj ...	30,735	406	264	76	116
Kuwad ...	13,484	217	431	61	31
Kasla ...	16,409	113	323	145	50
Total Gr. IV ...	60,628	736	1018	82	60
Bhagwa ...	15,160	8	11	1,893	1,378
Pinjarat ...	34,728	462	682	75	51
Damka ...	44,468	357	519	125	86
Total Gr. V ...	94,356	827	1212	114	78
Total Grs. IV & V.	1,54,984	1563	2230	99	69
Grand total of all Groups ...	4,60,411	4207	6828	109	67

It will be observed that the incidence of debt per acre of cultivated land is, in almost all cases, less than that per acre of owned land. This is due to the attempt on the part of the agriculturist to cultivate holdings larger than those owned by taking extra land on lease. The indebtedness per acre of cultivated land is Rs. 66 for the eastern zone, and Rs. 69 for the western zone of the taluka; it is Rs. 67 for all the groups combined. It may be noted that the average debt per cultivated acre is thus higher than that for South Gujarat for which the Provincial Banking Enquiry Committee worked out the figure of Rs. 52.

An examination of the problem from both the standpoints

shows that, although the average debt per indebted family is less in the western than in the eastern zone, the incidence of debt per cultivated acre is slightly higher in the west than in the east of the taluka. In other words, the average debt per indebted family is higher among the Anavil, Kanbi and Rajput cultivators than among the Kolis; the incidence of debt per cultivated acre, on the other hand, is greater among the latter than the former classes of cultivators. In any case, therefore, the small Koli agriculturists are as heavily involved in debt as other agriculturists.

FAMILIES FREE FROM DEBT

We give below the percentages of families free from debt to the total number of families examined for each village.:

TABLE SHOWING THE PERCENTAGE OF FAMILIES FREE FROM DEBT

Name of the Village and Group	Total No. of families examined	Number of indebted families	Number of families free from debt	P.C. of families free from debt to the total number of families examined
Umra ...	49	38	11	22·4
Sandhier ...	25	19	6	24·0
Bhadol ...	61	51	10	16·3
Total Gr. I ...	135	108	27	20·0
Sonsak ...	45	34	11	24·4
Ichhapore ...	135	94	41	30·3
Total Gr. II ...	180	128	52	28·8
Atodra ...	53	44	9	16·9
Mahmadpore ...	26	24	2	7·6
Pardikoba ...	27	24	3	11·1
Total Gr. III ...	106	92	14	13·2
Total Grs. I to III (Eastern zone)	421	328	93	21·1
Karanj ...	37	27	10	27·0
Kuwad ...	37	33	4	10·9
Kasla ...	26	21	5	19·2
Total Gr. IV. ...	100	81	19	19·0
Bhagwa ...	54	32	22	40·7
Pinjarat ...	134	93	41	30·5
Damka ...	84	69	15	27·4
Total Gr. V ...	272	194	78	28·6
Total Grs. IV & V (Western zone)	372	275	97	26·0
Grand total of all Groups ...	793	603	190	23·9.

It will be observed that the percentage of families free from debt to the total number of families examined varies from village to village. It varies from 7·6 per cent. for Mahmadpore to 30·5 per cent. for Pinjarat. It is 21·1 per cent. for the eastern zone, and 26 per cent. for the western zone. The percentage for all the groups combined is 23·9. It is interesting to note that this figure closely approximates to the similar figure for South Gujarat[1].

DISTRIBUTION OF DEBT

With a view to have an exact idea of the distribution of debt the following statement is given:—

Families in debt	*No. of families of the eastern zone (Grs. I to III)*	*No. of families of the western zone (Grs. IV to V)*	*Total No. of families (Grand total of all groups)*
Below Rs. 50	41	16	30
From Rs. 51 to 100	19	16	35
„ „ 101 „ 200	37	60	97
„ „ 201 „ 300	52	29	81
„ „ 301 „ 400	32	31	63
„ „ 401 „ 500	23	33	56
„ „ 501 „ 600	15	15	30
„ „ 601 „ 700	15	15	30
„ „ 701 „ 800	16	10	26
„ „ 801 „ 900	14	4	18
„ „ 901 „ 1000	9	10	19
„ „ 1001 „ 1500	27	19	46
„ „ 1501 „ 2000	16	9	25
„ „ 2001 „ 3000	17	5	22
„ „ 3001 „ 4000	11	...	11
„ „ 4001 „ 5000	5	...	5
Above Rs. 5000	6	3	9
Total	328	275	603

It will be observed that in more than 80 per cent. of the families the debt amounts to less than Rs. 1,000. And even here,

1. Vide Report of the Bombay Provincial Banking Enquiry Committee, p. 46.

the most common frequency groups in which the indebted families fall are from Rs. 100 to Rs. 500. Without going into details, it may be stated that in the Koli villages of small cultivators, the number of families with a debt of more than Rs. 1,000 is negligible.

SOURCES OF LOANS

The following are the four sources from which the agriculturist usually obtains loans: (i) the moneylender, (ii) the co-operative credit societies, (iii) the Government tagavi loans, and (iv) other agencies like friends and relatives. We shall discuss here the part played by the first, third and fourth sources in financing the agriculturist of the taluka; a detailed discussion of the second source, viz., the co-operative credit societies, has been deferred to the following chapter on Co-operation.

TAGAVI LOANS

The third source, namely, the tagavi loans granted by the Government under the Land Improvement Loans Act XIX of 1883 and the Agriculturists' Loans Act XII of 1884, is the least important in the taluka. The following figures of tagavi advances and receipts for Olpad taluka for six years from 1926-27 to 1931-32 are instructive.

TAGAVI ADVANCES AND RECEIPTS

Year	*Amount advanced*	*Amount recoverd*	*Balance*
	Rs.	Rs.	Rs.
1926-27	879	75	824
1927-28	...	200	624
1928-29	...	275	349
1929-30	2,265	629	1,985
1930-31	...	1195	790
1931-32	...	423	367

The policy followed by Government seems to be to recover what little amount is advanced by way of tagavi and not to lend any more loans. The balance of Rs. 367 of tagavi loans for the year 1931–32 for the taluka is less than half the amount of average debt per indebted family. The questions of procedure adopted in advancing tagavi loans to the peasants and recovering them, and of the defects usually alleged to be associated with this system are, therefore, only of theoretical interest and have little practical importance. It may, however, be noted that the policy adopted by

Government since 1924 is to withdraw as far as possible from the field of agricultural finance and to leave the task of meeting the current financial needs of the cultivators, under normal conditions, to the Co-operative agency[1]. The main reason for this policy was that Government grants of tagavi for the purchase of seed and bullocks under ordinary circumstances only helped to add to the debt of the agriculturist. Moreover, it had never been the policy of Government in granting these loans to compete with any of the existing financing agencies. Whatever be the defence of the present policy of Government, the following considerations lead us to conclude that so far as the taluka is concerned, the policy is anything but liberal.

At present about two-thirds of the total number of villages of this area do not have a co-operative credit society. In these villages the Sowkar is the only source from which the cultivator can obtain loans. The figures of tagavi advances show that in spite of this, the grants of tagavi have been small and inadequate not only in normal times, but even in abnormal circumstances. The year 1929–30, when there was widespread calamity due to the devastation caused by the frost wave which swept over the taluka, provides an illustration. Even during such a year fresh advances for the whole of the taluka amounted to less than Rs. 2000. Moreover, we were informed that in the village of Sandhier, which has no co-operative credit society, although the cultivators were willing to take the advantage of tagavi loans, and, in fact, did make applications in the year 1929–30 for the purpose, their applications were turned down by Government. We therefore urge that the tagavi policy of Government should be made more liberal than at present[2], at any rate during abnormal periods, and with reference to villages not served by co-operative credit societies.

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1. Report of the Bombay Provincial Banking Enquiry Committee, p. 65.

2. The following quotation from page 71 of the Report of the Bombay Banking Enquiry Committee bears out the force of our remarks "We find that during the last 20 years, the amount of Tagavi distributed was comparatively small. Nor has the progress of the Co-operative movement been very rapid. It seems that it will take many years before it can cover most of the ground. There are several areas where the only credit agency is the money lender. We therefore, suggest that the Tagavi policy should be liberalised and that Government should advance loans in places where the Co-operative movement has not made much progress."

Having thus discussed the share of Government in the agricultural finance of the taluka we shall proceed to consider the role played by other agencies. The actual figures in rupees of borrowings from different sources are given in Appendix I of this chapter. The following table[1] gives the necessary information :—

TABLE SHOWING PERCENTAGES OF FINANCE PROVIDED BY DIFFERENT AGENCIES

Name of the Village and Group	Percentage of total debt due to			
	Sowkar	Co-operative Credit Societies	Other Agencies (friends & relatives)	Total
Umra ...	87·3	11·9	0·8	100
Sandhier ...	100	...	...	100
Bhadol ...	91·9	6·8	1·3	100
Total Group I	91·2	8·0	0·8	100
Sonsak ...	84·2	14·5	1·3	100
Ichhapore ...	90·2	5·2	4·6	100
Total Group II	88·0	8·4	3·6	100
Atodra ...	62·3	...	37·7	100
Mahmadpore ...	44·9	45·6	9·5	100
Pardi koba ...	77·3	10·5	12·2	100
Total Group III	67·6	20·5	11·9	100
Total Groups I to III (Eastern zone) ...	82·1	11·3	6·6	100
Karanj ...	86·3	7·7	6·0	100
Kuwad ...	99·6	...	0·4	100
Kasla ...	87·7	12·3	...	100
Total Group IV	89·6	7·3	3·1	100
Bhagwa ...	68·7	...	31·3	100
Pinjarat ...	94·0	...	6·0	100
Damka ...	97·9	...	2·1	100
Total Group V	91·8	...	8·2	100
Total Groups IV & V (Western zone)	90·9	2·8	6·3	100
Grand total of all Groups	85·1	8·4	6·5	100

1. As none of the families in the villages investigated by us had borrowed tagavi loans from Government, a separate column for Government tagavi is not provided in the table.

THE SOWKAR

In the economic literature of our country, no one is perhaps more criticised than the village Bania or the Sowkar. And yet, the most outstanding fact established by the foregoing table is that the Sowkar is the most important source of loans for the agriculturist of the taluka. The percentages of loans provided by the Sowkar are 82·1 for the eastern zone, 90·9 for the western zone and 85·1 for all groups combined. The smaller proportion of loans borrowed from the Sowkar in the eastern zone is due to the fact that this part of the taluka is better served by co-operative credit societies than the western. The following statement compares the share of the Sowkar in the provision of agricultural finance in the villages served by co-operative credit societies with those not so served.

Villages served by a co-operative society		*Villages not served by a co-operative society*	
Names of Villages	P. C. of loans provided by the Sowkar	Names of Villages	P. C. of loans provided by the Sowkar
Umra	87·3	Sandhier	100·0
Bhadol	91·9	Atodra	62·3
Ichhapore	90·2	Kuwad	99·6
Sonsak	84·2	Pinjarat	94·0
Mahmadpore	44·9	Damka	97·9
Pardikoba	77·3		
Karanj	86·3		
Kasla	87·7		

In the villages which do not have co-operative credit societies the proportion of loans provided by the Sowkar varies from 94 to 100 per cent of the borrowings[1]; in the villages having co-operative credit societies, except the village of Mahmadpore, the similar percentage varies from 77 to 91. The circumstances under

1. The Mahomedan village of Atodra is excluded here; the lower percentage in its case is explained later.

which large sums were lent by the co-operative society in Máhmadpore have already been referred to. It is interesting to note that even in Sonsak with its best managed society in the taluka, as much as 84 per cent. of the loans are provided by the Sowkar. Villages not served by co-operative societies almost entirely depend on the Sowkar for the supply of agricultural finance.

We conclude that (i) the Sowkar is almost the only source of loans in the non-society villages of the taluka ; and (ii) that even in villages having co-operative societies the Sowkar remains by far the most important, if not the only, source of loans for the agriculturist, supplying as he does in their case from 80 to 90 per cent of the loans.

THE CO-OPERATIVE CREDIT SOCIETIES

The agency next in importance is the co-operative society. Its role in financing the agriculturist will be dealt with at length in the following chapter. Here, it is sufficient to note that barring the village of Mahmadpore, the percentage of loans supplied through its agency varies from 7·7 to 10·5 from village to village. The percentage works out at 11·3 for the eastern zone, 2·8 for the western zone and 8·4 for all the groups combined. It will thus be observed that the co-operative credit societies supply but a small portion of the agricultural finance of the taluka.

OTHER AGENCIES

The percentage of finance provided by other agencies, under which are included loans from friends and relatives, varies from 0·8 to 37·7. The imposing percentages of 37 and 31 under this head in the two villages of Atodra and Bhagwa respectively are probably due to the sense of fellow-feeling and solidarity resulting from the localisation of Mahomedans in the former village and of Kharwas in the latter. On the whole, it may be said that the finance provided through this agency is comparatively insignificant as compared with that supplied by the Sowkar.

RATES OF INTEREST

We give below a table showing for each village the amounts of debt borrowed at different rates of interest. For the sake of clearness, we have classified the figures of debt into suitable frequency groups.

TABLE SHOWING AMOUNTS OF DEBT AT DIFFERENT RATES OF INTEREST

Amounts of debt at the specified Rates of Interest

Name of the village and Group	Below 6 p. c.	From 6 and upto 9 p. c.	From 9 and upto 12 p. c.	From 12 and upto 15 p. c.	From 15 and upto 25 p. c.	Non-interest bearing	Total Debt
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Umra	...	20,460	47,728	6,525	...	1,680	76,393
Sandhier	...	16,700	14,675	...	...	50	31,425
Bhadol	...	5,500	5,833	21,370	5,240	3,150	41,093
Total Gr. I	...	42,660	68,236	27,895	5,240	4,880	1,48,911
Sonsak	...	18,370	4,450	600	...	3,940	27,360
Ichhapore	...	12,050	31,913	5,296	550	2,350	52,159
Total Gr. II	...	30,420	36,363	5,896	550	6,290	79,519
Atodra	...	62	1,700	15,720	1,425	11,452	30,359
Mahmadpore	...	2,600	25,310	1,425	...	1,775	31,110
Pardi koba	...	...	3,039	8,735	1,745	2,009	15,528
Total Gr. III	...	2,662	30,049	25,880	3,170	15,236	76,995
Total Grs. I to III	...	75,742	1,34,648	59,671	8,960	26,406	3,05,427
Karanj	...	4,400	9,443	13,450	200	3,242	30,735
Kuwad	...	...	7,988	5,496	...	...	13,484
Kasla	...	...	9,169	6,625	415	200	16,409
Total Gr. IV	...	4,400	26,600	25,571	615	3,442	60,628
Bhagwa	...	...	...	10,410	...	4,750	15,160
Pinjarat ...	1,000	7,760	6,250	16,508	1,025	2,185	34,728
Damka	...	11,225	10,540	21,953	...	750	44,468
Total Gr. V ...	1,000	18,985	16,790	48,871	1,025	7,685	94,356
Total Grs. IV & V ...	1,000	23,385	43,390	74,442	1,640	11,127	1,54,984
Grand Total of all Grs. ...	1,000	99,127	1,78,038	1,34,113	10,600	37,533	4,60,411
P. C. to the Total ...	0·2	21·5	38·7	29·1	3·3	8·2	100

Note:—From 6 and upto 9 p. c. includes amounts of debt at 6 p. c., but does not include those at 9 p. c.
From 9 and upto 12 p.c. includes amounts of debt at 9 p. c., but does not include those at 12 p. c. and so on.

In the foregoing table the loans borrowed from co-operative credit societies have been lumped together with those borrowed from the Sowkar. For a clear understanding of the rates of interest charged by the Sowkar, it is, however, necessary to know the rates of interest charged by, and the amounts of loans borrowed at different rates from, co-operative societies. The most usual rate of interest charged by the co-operative societies in this area is 9·4 p. c. In the case of some good societies, this rate is lowered to 7·8 p.c.; likewise, in some backward societies the rate is raised to 10·9 p.c.[1]. The following figures show the rates charged by the co-operative societies against the amounts bearing that rate of interest.

Rates of interest charged by the co-operative societies	*Amounts of loans at the specified rate*	*Village where this rate is charged*
	Rs.	
7·8 per cent	3,970	Sonsak
9·4 per cent	33,277	All the villages except Sonsak and Pardikoba
10·9 per cent	1,639	Pardikoba
	Total Rs. 38,886	

It will be seen that out of the total loans amounting to Rs. 38,886 borrowed from the societies, the sum of Rs. 33,277 bears the usual rate of 9·4 per cent. It may be noted with advantage that out of 38·7 per cent of the total loans, shown in the table as bearing 9 to 12 per cent, as much as 7·6 per cent of the total is represented by loans from co-operative societies. The percentage of loans at these rates of interest for which the Sowkar is responsible, therefore, comes to about 31.

1. The actual rates of interest charged in the case of co-operative societies, are 1¼ pies, 1½ pies and 1¾ pies per rupee per month, that is, Rs. 7-13 Rs. 9-6, and Rs. 10-15 per year per hundred rupees ; in terms of percentages, these work out, approximately, at 7·8, 9·4 and 10·9 respectively.

In the light of the above discussion the following conclusions may therefore be summarised: (i) The rate of interest below 6 per cent. is of little consequence as only 0·2 per cent. of the total loans bears this rate. (ii) About 21 per cent of the loans bear 6 to 9 per cent. Of this about half the amount is charged at 6 per cent. (iii) Of about 38 per cent of the loans shown as bearing 9 to 12 per cent, 31 per cent represent finance provided by the Sowkar. The bulk of this debt carries the rate of 9 per cent, the actual proportion of loans at this rate being 27 per cent. (iv) About 29 per cent of the loans are charged at 12 to 15 per cent. Almost the whole of this consists of loans bearing 12 per cent, the actual proportion of loans at this rate being 28·5 per cent. (v) The percentage of loans bearing 15 to 25 per cent. is very insignificant, namely, 2·3. More than two-thirds of loans in this group bear the rate of 18 or 18·75 per cent.

The above analysis shows that the rates of interest commonly charged by the Sowkar in this area are 6, 9, and 12 per cent, and that about the same proportion of loans bears the interest rate of 9 and 12 per cent. It may be asked, if it is possible with the help of the detailed figures of each village, to explain the difference in the rates of interest charged by the Sowkar by differences in local conditions of these villages.

A close study of the statistics of each of the frequency groups reveals the following tendencies. (i) The bulk of the debt bearing 6 to 9 per cent. is accounted for by the eastern zone of the taluka. And even here, the figures for the villages of Umra, Sandhier, Sonsak and Ichhapore are the most important in determining the total figure of this zone. In the western zone the villages of Karanj, Pinjarat and Damka have some debts at these rates of interest. This shows that the debt of the big Anavil, Kanbi and Parsi landowners of these villages bears the comparatively low rate of interest varying from 6 to 9 per cent. (ii) The contrast presented by the figures of debt carrying 9 to 12 p. c. and 12 to 15 p. c. is interesting as clearly establishing the tendency noticed above. Whereas about three-fourths of the total debt with 9 to 12 per cent. is represented by the eastern zone of the taluka, only one-fourth is represented by the western. Just the reverse is the case with regard to the rates of 12 to 15 per cent. Here the

greater part of the debt is accounted for by the western zone, it being Rs. 74,000 and Rs. 59,000 for the western and the eastern zones repectively. It will be seen that the largest portion of debt ranging from 80 to 100 per cent of the total in the villages of Umra, Sandheir, Sonsak, Ichhapore and Mahmadpore of the eastern zone consists of loans below 12 per cent. including non-interest bearing loans ; in the predominantly Koli villages of Bhadol, Pardikoba, Karanj, Kuwad, Pinjarat, and Damka, and in the Mahomedan village of Atodra a very large portion of the loans is charged at or about 12 per cent.

The general conclusion may therefore be thus stated. The rate of interest charged by the Sowkar to the comparatively well-to-do Anavil, Kanbi, Rajput, and Parsi agriculturists is generally 9 per cent, although in a few cases it falls below it; the rate of interest charged to the small Koli cultivators is generally 12 per cent, and in a few cases it goes upto 18 per cent. As the western part of the taluka is chiefly populated by Kolis, the statistics show that there is a tendency for the rate of interest to rise as one passes from the east to the west of the taluka ; the Koli villages of the eastern zone, however, fall in line with those of the western zone in this respect. The variations are thus due to the credit of the borrowers.

SECURITY

The following table gives figures of debt classified according to the different kinds of securities offered by the borrowers for the loans advanced.

TABLE SHOWING AMOUNTS OF DEBT ACCORDING TO DIFFERENT KINDS OF SECURITIES

Name of village and group	Personal	Land	House	Bullocks	Ornaments	Land & House	Live stock, Cart & Silver ornaments	Total Debt		Total
								Secured	Unsecured	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Umra ...	55,480	17,663	500	...	150	2,600	...	20,913	55,480	76,393
Sandhier ...	30,825	...	600	...	...	...	...	600	30,825	31,425
Bhadol ...	35,363	3,775	1,850	...	...	...	105	5,730	35,363	41,093
Total Gr. I. ...	1,21,668	21,438	2,950	...	150	2,600	105	27,243	1,21,668	1,48,911
Sonsak ...	13,210	10,000	2,150	...	...	2,000	...	14,150	13,210	27,360
Ichhapore ...	45,584	5,750	425	...	400	...	...	6,575	45,584	52,159
Total Gr. II. ...	58,794	15,750	2,575	...	400	2,000	...	20,725	58,794	79,519
Atodra ...	13,068	14,915	550	372	654	800	...	17,291	13,068	30,359
Mahmadpore ...	16,231	12,479	...	...	...	2,400	...	14,879	16,231	31,110
Pardikoba ...	9,033	6,075	150	...	270	...	...	6,495	9,033	15,528
Total Gr. III. ...	38,332	33,469	700	372	924	3,200	...	38,665	38,332	76,997
Karanj ...	20,085	7,750	200	400	1,800*	...	500	10,650	20,085	30,735
Kuwad ...	9,628	3,006	850	...	...	...	...	3,856	9,628	13,484
Kasla ...	6,784	9,325	...	...	100	200	...	9,625	6,784	16,409
Total Gr. IV. ...	36,497	20,081	1,050	400	1,900	200	500	24,131	36,497	60,628
Bhagwa ...	15,160	...	...	...	...	...	...	...	15,160	15,160
Pinjarat ...	25,028	9,325	300	75	...	...	...	9,700	25,028	34,728
Damka ...	28,980	14,688	...	...	800	...	...	15,488	28,980	44,468
Total Gr. V. ...	69,168	24,013	300	75	800	...	...	25,188	69,168	94,356
Grand Total of all Groups ...	3,24,459	1,14,751	7,575	847	4,174	8,000	605	1,35,952	3,24,459	4,60,411
P. C. of Total ...	70·47	24·92	1·65	0·18	0·91	1·14	0·13	29·53	70·47	100

* This sum refers to Government Paper.

The foregoing table shows that only 29·5 per cent. of the total debt is secured, while the remaining 70·8 per cent. is unsecured[1]. These figures remove the general impression now prevalent that most of the loans are advanced to the agriculturists on the security of property. This low percentage of secured debt is due to the fact that a large number of debtors is represented by those with a debt of Rs. 100 to Rs. 500, and these small debtors of limited means generally borrow small loans on personal security. This also seems to be borne out by a closer examination of the proportion of secured to unsecured debt for the different villages.

The percentage of secured debt to total is about 50 in the villages of Sonsak, Atodra, Mahmadpore and Kasla. The analysis of indebted families into groups according to the extent of debt shows that in each of these villages there is a fairly large number of families having debt of about a thousand rupees; and these large amounts are generally lent on the security of property, and preferably of property in land.

As regards secured debts, the greater part of it is secured by land, it being preferred by the Sowkars to other kinds of security. Out of 29·53 per cent of secured debt, as much as 24·92 per cent is borrowed on the security of land. It is interesting to note that the Sowkar in the taluka now insists on the debtor agriculturist to make a sale deed of his land, the oral agreement between the Sowkar and the debtor being that the land is to be returned to the agriculturist on the repayment of the amount. This practice has been preferred to giving loans on the mortgage of land since the passing of the Deccan Agriculturists' Relief Act. The agriculturist continues to cultivate the land as tenant: the rent charged is in reality the interest on the loans advanced. The percentage of debt borrowed on the security of house, ornaments etc. is very small. House, ornaments, bullocks etc. are given as security for loans only when the debtor has no land to offer as security. A poor Koli cultivator would sometimes pledge even his bullocks and cart as security. A higher percentage, generally from 12 to 18, is charged for debt secured by means other than land.

1. It is interesting to note that the Bombay Provincial Banking Enquiry Committee arrived at the figure of 27·7 per cent of secured debt to the total for South Gujarat. Our similar percentage of 29·5 seems to make a close approximation to this figure.

OBJECTS OF LOANS

The classification of loans according to objects for which they are borrowed is one of the most difficult tasks for a student of this problem. The main difficulty arises out of the fact that the objects of loans borrowed by the agriculturist are as varied as the requirements of life itself. The following are the three main classes in which the various objects have been grouped by us: (i) *Agricultural*, (ii) *Non-agricultural*, and (iii) *Mixed*.

It is necessary to understand properly the reasons for giving this rather unusual class of 'mixed' objects with a host of headings. It is now fairly well-known that the agriculturist as a rule never keeps accounts; and the loan he borrows, is not always spent on one particular object. He borrows a loan, say, of Rs. 300, from a Sowkar and spends a part of it for defraying domestic and household expenditure, another part for the payment of current agricultural expenses and still another for the payment of land revenue and so on. It is certainly desirable for the purposes of such study to try to find out the different amounts spent on each of these objects. An investigator of this problem attempts to do this by subjecting the debtor to a good deal of cross-examination which sometimes provokes and irritates the agriculturist. This attempt, however, has to be given up at a particular stage, for, in spite of a large number of questions put to the debtor, the illiterate cultivator is not able to separate the exact amounts of loans which he spent on different objects. All that he can do is to give a number of objects, some agricultural and some non-agricultural, on which the whole amount was spent. It is this fact which explains the existence of a 'mixed' class in our scheme of classification. We have not tried to apply an arbitrary scale and allocate a part of this lump sum spent on a variety of objects to this object and another part to that. Whatever be the theoretical value of having such 'mixed' class, it has, in our opinion, the merit of being true to facts of life.

The following statement of the percentages of loans to total[1]

1. The figure of total debt given here differs slightly from that given in a previous connection, because we have excluded from consideration in this case debt incurred for such avowedly non-agricultural objects as moneylending and investment in business or shop.

spent on each of the three main classes of objects will help us in getting a general idea of the problem.

Name of class	*Amounts of loans*	*P. C. of loans spent on this class of objects to the total*
	Rs.	
Agricultural ...	80,402	19·74
Non-agricultural ...	2,59,855	63·81
'Mixed'	67,002	16·45
Total Rs. ...	4,07,259	100·00

The most outstanding fact revealed by the above statement is that the amount of non-agricultural or 'unproductive' debt is more than three times the agricultural or 'productive' debt. If the precentage of debt for mixed objects, both productive and unproductive, be split up into the above proportion of 1 to 3, the percentages of productive and unproductive debt would increase to about 24 and 76 respectively. It can never be emphasised too much that it is not so much the fact of the indebtedness of the agriculturist of the taluka that is of any serious concern as its largely unproductive character. This will be obvious from the detailed analysis of each class of debt given below :

I. AGRICULTURAL OBJECTS

Objects	*Amount of debt*	*Percentage of total debt*
Purchase of live stock	Rs.	
(i) Bullocks.	11,418	2·80
(ii) Buffaloes	6,456	1·58
Current agricultural expenses ...	13,223	3·25
Payment of land revenue	1,443	0·35
Payment for agricultural labour ...	2,092	0·51
Payment of rent	12,285	3·01
Purchase of land	31,950	7·85
Purchase of implements	535	0·13
Land improvement (sinking of well)...	1,000	0·26
Total Rs.	80,402	19·74

The most important item in the above list of objects is purchase of land. It represents more than one-third of the amount classed as 'agricultural'. The comparatively large amount invested in land has an interesting history. Land is one of the favourite forms of investment to the agriculturist of the taluka. Possession of more land is believed to raise the agriculturist in the estimation of others. The taluka is mainly a cotton growing area. During the period of high prices which cotton fetched, a number of agriculturists purchased land even by having recourse to borrowing. In some instances, the land thus purchased was itself delivered as security for the loans borrowed. Then followed a period of slump in agricultural prices which still continues. The amount of loans with the addition of interest fallen in arrears, began to increase. The result was that not only could the encumbered land be not freed but the ancestral land of the agriculturist had also to be given up in mortgage to cover the additional burden of debt. We came across instances in which in addition to the newly purchased land, some of the ancestral land had also to be sold for repaying the loans borrowed for the purchase of land. The debt under this head is largely a legacy of the period of high prices of cotton. This seems to be borne out by the fact that more than three-fourths of the loans under this head is accounted for by the villages of the eastern zone, which is the principal cotton producing tract of the taluka. Next in order of importance come the items of purchase of livestock, current agricultural expenses, and payment of rent. Loans under each of them represent 3 to 4 per cent of the total debt. Payment of rent by tenants, has become difficult since 1929. On the heels of the frost of that year followed an unparalleled fall in the prices of agricultural produce. The figures under this object do not represent cash loans, but are arrears of rent due to the landlords. Loans for current agricultural needs are not very considerable, as one would have expected, mainly because most of the labour is supplied by the agriculturist and members of his family ; seed is preserved from the produce of the previous year, and manure is never purchased. Small sums are borrowed for such operations as weeding and picking of cotton, when outside labour has to be employed and cash payments made. Loans for land improvement are almost conspicuous by their absence. Only one agriculturist of Umra borrowed Rs. 1,000 for the construction of an irrigation

well. The implements of cultivation are cheap and primitive, and hence the negligible amount borrowed for the purpose. The percentage of loans taken for the payment of land revenue is only 0·35. It does not figure prominently in the list. This seems to show that payment of land revenue is not the cause of debt. One thing, however, may be noted. The average agriculturist knows that land revenue is the first charge on his income, and that the Government demand cannot be evaded without the loss of land which is his only means of subsistence. The consequence is that his first care on getting cash by the sale of his produce is to pay up the land revenue demand of the Government, even if this means borrowing for other purposes subsequently. This, in our opinion, is the real situation in the taluka as perhaps elsewhere. In so far, however, as loans are raised for essential purposes, the payment of land revenue becomes a contributory cause of indebtedness.

II. NON-AGRICULTURAL OBJECTS

Objects	*Amount of debt.* Rs.	*Percentage of total debt.*
Purchase and repairs of house ...	29,440	7·20
Domestic and household expenses ...	30,773	7·56
Social Expenses		
(i) Death ...	16,111	3·96
(ii) Marriage ...	93,425	22·96
(iii) Re-marriage ...	12,550	3·08
(iv) Minor social purposes ...	1,414	0·35
Ancestral Debt ...	33,134	8·13
Redemption of old debts ...	22,731	5·58
Due to accumulated interest charges ...	4,810	1·19
Emigration ...	4,000	0·99
Litigation ...	2,930	0·72
Due to payment as surety for others ...	4,837	1·19
Miscellaneous ...	3,700	0·90
Total Rs.	2,59,855	63·81

We find that debt due to accumulated interest charges is only one per cent of the total debt. This comparatively small amount is due to the fact that the Sowkar of the taluka always insists on

the annual payment of interest, although he does not press for repayment of the principal amount. This is but natural as the Sowkar's source of income is the interest on loans advanced. It is also partly due to the fact that when interest falls in arrears for more than a year or two, the agriculturist debtor is made to execute a fresh bond by the Sowkar for an amount represented by the principal plus the unpaid interest charges. This new lump sum is shown as the amount of loan borrowed for the object for which the debt was originally incurred. It may be of some interest to note that figures under this object are to be met with for the most part in the Koli villages of the western zone of the taluka. The item of ancestral debt is important as being the single largest item, coming next only to that of marriage in the whole scheme of classification of debt according to objects. The main interest of this item lies also in the fact that it is present in all the villages except two investigated by us. It represents 8·13 per cent of the total debt. This certainly is a heavy burden on the agriculturists of the taluka. And yet, this burden is inherited by sons from their fathers without much grumbling. Even when this debt is large, the agriculturist does not like to repudiate it mainly due to the idea that such a course would mean loss of his prestige and credit, and that, in consequence, no Sowkar would advance him loans in future.

The proportion of debt incurred for the purchase, building and repairs of houses, and for domestic and household expenses is about the same, it being 7·20 p. c. and 7·56 p. c. respectively. As regards the former, a fairly good amount of money was spent on the purchase and building of houses during the period of high prices of cotton. The agriculturists did not hesitate in contracting debt for this purpose as for the purchase of land, during that period of buoyant optimism. The percentage of debt incurred for domestic and household expenditure would be much higher if it is remembered that in the class called 'Mixed', to be discussed hereafter, this purpose appears in conjunction with others in a large number of heads of that class. In view of this, the figure would probably represent about 12 to 13 per cent of the total debt. This is chiefly due to the occurrence of frost in the year 1929, and the subsequent years of abnormally low level of prices, when the agriculturist had to resort to borrowing even for meeting the ordinary household expenditure. But the most conspicuous, and

also the most distressing feature of the present class is the very large percentage of debt incurred for defraying expenses on such occasions as marriage and death.

By far the largest single item in the whole scheme of classification of debt by objects is the debt incurred for celebrating marriage ceremonies; it alone accounts for about 23 per cent of the total debt. The percentage rises to about 30 if the debt for other social purposes like remarriage, death etc., is added to it. It can, therefore, be safely asserted that marriage and other ceremonies account for a very large part of the agriculturists' borrowings. It is interesting to note in this connection that in the year 1929 a large number of marriages was celebrated especially among the comparatively backward caste of Kolis in view of the Child Marriage Restraint Act which was to come in force from the succeeding year. The frost of that year had seriously reduced the income of the farmers and yet marriages were celebrated, in some cases, by incurring debt. The burden could not be lightened in the succeeding years as they happened to be of low prices. The result is that a large number of these Koli cultivators are still groaning under the load of debt. This probably explains the very large percentage of debt under 'marriage' in the Koli villages[1].

Debt due to emigration is confined only to the coastal villages of the taluka. It is happy to note that litigation, so often mentioned as a cause of agricultural indebtedness, does not figure prominently in the list. Under the head 'miscellaneous' of this class is included debt incurred by a few big Kanbi agriculturists for the education of their sons.

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1. The percentages of debt due to social expenses such as marriage, death etc. in the case of the following Koli villages will be found interesting:—

Names of villages	*Percentage*
Bhadol	30
Ichhapore	47
Karanj	58
Pinjarat	40
Damka	53

III. MIXED OBJECTS

Objects	*Amount of debt* Rs.	*Percentage of total debt*
Domestic and current agricultural expenses	25,702	6·30
Domestic expenses and loss on cultivation due to frost...	3,500	0·89
Domestic expenses and payment of land revenue	1,286	0·31
Domestic expenses and payment of rent	1,075	0·26
Domestic and current agricultural expenses and payment of rent ...	1,025	0·25
Domestic and social expenses and payment of land revenue... ...	1,100	0·27
Domestic expenses and accumulated interest charges	11,075	2·72
Domestic and current agricultural expenses & accumulated interest charges	3,145	0·77
Domestic expenses and debt redemption	355	0·09
Domestic expenses and purchase of bullocks	250	0·06
Purchase of cattle and current agricultural expenses	600	0·15
Purchase of bullocks and marriage ...	1,300	0·32
Purchase of house and land	1,000	0·24
Purchase of land and domestic expenses	550	0·13
Purchase of land and bullocks, and domestic expenses	600	0·15
Purchase of house, current agricultural and domestic expenses	500	0·12
Payment of rent and land revenue ...	650	0·16
Payment of rent and current agricultural expenses	2,125	0·52
Debt redemption and accumulated interest charges	11,004	2·70
Current agricultural expenses and accumulated interest charges ...	160	0·04
Total Rs. ...	67,002	16·45

The above headings indicate the way in which the agriculturist thinks ; we have preferred to retain them as they are and not tried to give a new scientific classification.

It will be noticed at a glance that in about 12 out of 16 per cent of debt under this class, domestic and household expenditure appears as one of the multiple objects of debt. As suggested elsewhere the percentage of debt incurred for this purpose, which appears as a single object in the previous class, would thus be much higher. The important items in this class are : (i) domestic and current agricultural expenses, 6·30 per cent., (ii) domestic expenses and accumulated interest charges, 2·72 per cent, and (iii) debt redemption and accumulated interest charges, 2·70 per cent. These three items together account for 11·72 per cent. of the total debt. The above facts indicate the reason for the very low percentage of 3·25 of debt appearing under current agricultural expenses in the first classification. Likewise, the percentage of 5·58 for debt redemption in the previous class would correspondingly increase and debt due to accumulated interest charges would also be much greater. The interpretation that can be put on the items of 'domestic expenses and accumulated interest charges' and 'debt redemption and accumulated interest charges' is this. The agriculturist borrows for meeting his household expenses, and is not able to repay punctually the interest on the loans. The second item is interesting as showing that debt redemption in effect means only paying off one Sowkar (or sometimes a co-operative society), by borrowing loans from the other. Not only is this new Sowkar not repaid the principal amount, but even the interest charges on the new loans also remain outstanding. These two items are interesting features of the problem of agrarian indebtedness.

CAUSES OF INDEBTEDNESS

The foregoing discussion of the objects of debt clearly brings out the following causes of agrarian indebtedness in the taluka :—

(i) Lavish expenditure on marriage ceremonies and other social calls ;
(ii) Domestic and household expenditure ;
(iii) Current agricultural needs of the farmer ;
(iv) Ancestral debt ;
(v) Debt redemption and accumulated arrears of interest ; and
(vi) Purchase and rents of land.

We should not, however, rest satisfied with a mere enumeration of the above causes which, in our opinion, are merely symptoms of the real disease from which the economy of the taluka suffers. The underlying causes are to be found in the existence of small and uneconomic holdings, and the pressure of population on land. The small income of the agriculturist from these uneconomic holdings leaves him a little margin even during ordinary years. Moreover, there are no subsidiary industries to supplement his income. He manages to make both ends meet in normal years when no demand of a social or other nature is made on his income. The result is that he is almost always obliged to borrow for defraying expenses arising out of such occasions as marriage and the like. The charge of extravagance and improvidence is so often made against the peasant that one almost feels sick of hearing these charges levelled against the unfortunate cultivators in and out of season. And yet, the fact remains that the average cultivator is generally frugal, certainly more provident and thrifty than most of those who come out to preach these virtues to him. For instance, we shall not grudge a Koli cultivator borrowing a sum of Rs. 200 to 300 for meeting the expenses of the marriage ceremony of his son. The life in a village is dull and monotonous, and expenditure on occasional marriage or other festivals relieving this monotony should not be considered as luxury. When this charge of improvidence is made against the agriculturist by the well-fed and well-clothed critic coming from the city, he naturally feels annoyed.

Ancestral debts are handed down from father to son. The cultivator hardly thinks of repudiating this burden partly out of his sense of honour, but chiefly due to the fear that such an act on his part would mean an utter loss of credit. Debt incurred for the purchase of land at high prices has been already referred to. Debt redemption and accumulated interest charges, as a cause of debt, are interesting as bringing out the actual conditions under which agriculturists sometimes resort to borrowing. There is absolutely no interrelation between the various agencies that supply credit to the agriculturist. The amounts shown as borrowed for debt redemption are in no sense genuine attempts at redemption of old debts. They merely represent a change of the agriculturist's liabilities from one Sowkar to another, or from one credit agency to another. Under present conditions when one Sowkar presses

for payment, the agriculturist resorts to another moneylender and, being hard pressed, probably borrows at a higher rate of interest than before ; this new loan borrowed for redeeming the old debt grows at compound interest and hangs heavily on his shoulders. The same expedient is resorted to by the cultivators in their dealings with co-operative societies ; when these press for payment, they resort to the Sowkar for advances and thus pay off loans bearing a lower rate of interest with those borrowed at a higher rate. This cause is, therefore, merely an indication of the low repaying capacity of the farmer, which in turn is the result of the small earnings from his industry and the absence of savings.

Before we go on to discuss the remedies of agrarian indebtedness, it would be useful to note firstly, the attitude of the people towards the problem, and the effects of indebtedness on the agriculturist. It may be interesting to note that indebtedness has become so much a feature of agricultural life that the average agriculturist of this area regards indebtedness as a matter of ordinary course, and this force of habit has engendered in him an attitude of indifference towards debt. The force of these remarks will be understood when it is remembered that in the course of our investigations we came across a number of cultivators who, when questioned about their debt, almost always prefaced their replies with this apt remark 'A cultivator is bound to be in debt'. The agriculturist passes through life with a mill-stone of debt hanging round his neck. He has become fatalistic, and despairs of improving his position in life. This attitude clogs the wheels of agricultural progress and improvement. Apart from this, one of the most dangerous effects of indebtedness in the taluka is that it leads to the transfer of lands from the agriculturists to the non-agriculturists and Sowkars. This is chiefly the case in the Koli villages of the taluka. We observed especially in the three Koli villages of Bhadol, Pinjarat and Damka that the big landholders in the villages were the Sowkars and the rest of the agriculturists were small holders, the former presumably having acquired land by transfer from the agriculturists. The small Koli cultivator is advanced loans by the Sowkar on the security of his small plot of land which is given up by way of 'conditional' sale. The debt grows, and in course of time as the loan cannot be redeemed, the land automatically passes into the possession of the Sowkar.

REMEDIES

While thinking of remedies we are faced with the fact most prominently brought out in our previous discussion, namely, that a very large portion of the agriculturist's debt is of unproductive character. We, therefore, attach the greatest importance to the spread of adult education among the cultivators for remedying the present situation. This is very necessary if the cultivator is to be prevented from incurring debt for marriage and other social ceremonies. Although, as we have said, nobody should grudge the agriculturist spending some money on these occasions, which are the only means of relaxation for him, so long as conditions remain as they are at present, the cultivator will have to be taught to cut down all unnecessary social expenditure. The spread of adult education, therefore, should be an important plank in the scheme of all bodies whether official or unofficial, which are concerned with the welfare of the rural population.

In connection with the discussion on debt redemption and accumulated interest charges, we pointed out the fact of the lack of co-ordination between the various financing agencies. We have seen that the chief source of credit in the taluka is the Sowkar, who will probably continue to retain his present important position for a long time to come. It is, therefore, necessary that the methods of business followed by the Sowkar should be purged of all malpractices. We were informed that although the Sowkar's nominal rate is 9 to 12 per cent, it works out at a higher figure in practice. Before granting an advance he usually charges 'Vatav', or commission of 3 to 6 per cent. on the loans advanced. The borrower is paid from Rs. 94 to Rs. 97 and is made to execute a bond for Rs. 100, or when he is paid Rs. 100, a bond for Rs. 105 or Rs. 110 is taken from him. Secondly, the Sowkar charges compound interest, and when a new balance is struck every six months or every year, a further commission or 'Vatav' at the usual rate is charged. It is thus that the agriculturist's burden goes on swelling. The illiterate peasant knows no accounts, and does not know the exact amount of his debt. The Sowkar's word is law unto him. We would therefore welcome the passing of a Regulation of Accounts Act by which the Sowkar shall be made to keep regular accounts of his transactions with each debtor, and shall be under a legal obligation to furnish to each debtor an annual or six monthly

statement of accounts in a form prescribed by the Local Government. If, however, full advantage is to be taken of such an enactment, the agriculturist must be literate. Such an Act would go a long way in ensuring honesty on both the sides. It will have the further advantage of enabling the co-operative society to know the accounts of their members' transactions with the Sowkar, and *vice versa*, and thus effect a sort of co-ordination between these two agencies. Under present conditions, this lack of co-ordination has led to the evils of facile credit, for one of these agencies goes on lending to the agriculturist, which it would not have done had it been in full possession of facts regarding his borrowings from the other.

Moreover, since the passing of the Deccan Agriculturists' Relief Act, the moneylender insists upon the debtor passing a sale-deed. On the one hand, lands which are so 'conditionally' sold are not likely to be regained especially by the poor Koli cultivators of the western zone. Everything depends on good faith; if the land-grabbing Sowkar turns round and claims that the sale was genuine, the poor cultivator has neither the intelligence nor the resources to prove in a court of law that it was otherwise. On the other hand, it is somewhat risky to purchase land even in good faith from an agriculturist, for he may at any time within 60 years from the date of the transaction claim that the transaction was only a mortgage, and ask for its redemption. On the side of the moneylender, we also heard complaints about the instalments in payment allowed by the court to the debtor. There is no doubt that the complaint is about too many instalments. This, along with such considerations as Law's delays and expenditure involved in going to a court of law are factors taken into account by the Sowkar. They partly help to raise the rate of interest charged by him. The important facts brought to our notice, which have already been stated, however, show that if the relations between the Sowkar and the agriculturist debtor are to be put on a satisfactory footing, the Deccan Agriculturists' Relief Act should either be amended in suitable directions, or the present enactment be repealed and replaced by a new one[1].

1. The Bombay Provincial Banking Enquiry Committee on p. 182 of their Report suggest that a new enactment applying to small and genuine agriculturists should be passed.

This is necessary, because so long as the Sowkar remains the chief source of credit, the relations between him and the agriculturist should be harmonious.

We have also seen the existence of a comparatively large amount of ancestral debt in the taluka. If those who are hopelessly involved in debt and carry this ancestral burden, which they cannot bear, are to be freed from debt, we believe that the case for a simple Rural Insolvency Act, which would insist upon the debtor paying the utmost that he can, while relieving him of what he cannot, within a reasonable period, calls for a more thorough investigation than it was possible for us to undertake. Establishment of Land Mortgage Banks is also advocated as a remedy for agrarian indebtedness to which we shall refer in a later chapter.

The above are, however, palliatives and do not attack the problem of indebtedness at its source. The real evil lies in the subdivision of holdings and the small income of the cultivator which lead him to incur debt for any and every purpose. If the problem is to be satisfactorily solved and the economy of the taluka is to be put on a sound basis, the remedy lies in providing the cultivators with holdings large enough to maintain themselves and their families in ordinary times, and to leave behind a margin for meeting expenditure on occasional social and other calls. We need not repeat here what we have said in discussing the problem of subdivision and fragmentation. The real remedy, in our opinion, therefore, lies in relieving the pressure of population on the land, in intensive and rapid industrialisation, in the creation of economic holdings and the development of subsidiary occupations which would add to the income of the farmer. No amount of literacy or the spread of the Co-operative Movement will help the farmer, so long as the basic defects in the economic organisation of the taluka are not removed. Indebtedness is merely a symptom of the disease; for a permanent cure, the disease will have to be attacked at the source.

APPENDIX I

Showing the amounts of money borrowed through different financing agencies.

Name of the Village and Group	Sowkar	Co-operative Credit Society	Others (Friends and Relatives)	Total
	Rs.	Rs.	Rs.	Rs.
Umra	66,659	9,134	600	76,393
Sandhier	31,425	...	...	31,425
Bhadol	37,710	2,808	575	41,093
Total Gr. I	1,35,794	11,942	1,175	1,48,911
Sonsak	23,015	3,970	375	27,360
Ichhapore	47,046	2,713	2,400	52,159
Total Gr. II	70,061	6,683	2,775	79,519
Atodra	18,887	...	11,472	30,359
Mahmadpore	13,925	14,210	2,975	31,110
Pardi koba	11,980	1,639	1,909	15,528
Total Gr. III	44,792	15,849	16,356	76,997
Total Grs. I to III	2,50,647	34,474	20,360	3,05,427
Karanj	26,492	2,393	1,850	30,735
Kuwad	13,421	...	63	13,484
Kasla	14,390	2,019	...	16,409
Total Gr. IV	54,303	4,412	1,913	60,628
Bhagwa	10,410	...	4,750	15,160
Pinjarat	32,618	...	2,110	34,728
Damka	43,518	...	950	44,468
Total Gr. V	86,546	...	7,810	94,356
Total Grs. IV and V	1,40,849	4,412	9,723	1,54,984
Grand Total of all Groups	3,91,496	38,886	30,029	4,60,411

CHAPTER X

Co-operation

GROWTH OF THE CO-OPERATIVE CREDIT MOVEMENT

The following figures illustrate the growth of the agricultural co-operative credit movement in the taluka till 31st March 1931.

DETAILS SHOWING THE GROWTH OF THE AGRICULTURAL CO-OPERATIVE CREDIT MOVEMENT IN THE TALUKA

	1928	1929	1930	1931
Number of Societies	41	40	40	40
Number of Members	2097	1981	1908	1902
Share Capital in Rs.	.....	.....	.....	1395
Members' Deposits in Rs.	73097	72749	72731	64928
Reserve Fund in Rs.	55907	62876	70823	76684
Non-Members' Deposits in Rs.	120327	93007	77712	57977
Bank Loan in Rs.	300375	263229	243349	247144
Government Loan in Rs.	.....	.....	.....	2023
Total Outstandings in Rs.	521322	462167	433078	411987

NUMBER OF SOCIETIES

Since the first co-operative credit society was started in the taluka in the year 1909, Credit Co-operation has made steady progress in this area. The number of societies on 31st March 1931 was 40. The number of inhabited villages in the taluka is 116. The percentage of credit societies to villages in the taluka, therefore, works out at 34. This compares much favourably with the district percentage of 18. If societies of all types are taken into account, the number increases to 48 for the taluka and the percentage of societies to villages rises up to 41. This figure compares well with other parts of the Presidency[1].

MEMBERSHIP

It will be observed that although the number of societies has changed from 41 in 1928 to 40 in 1931, the number of members

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1. The following are the percentages for the three best developed districts of the Presidency as given in the Annual Roport of the Working of the Co-operative Societies in the Bombay Presidency for twelve months ending 31st March 1929.

Broach had societies in 47·7 per cent of its villages,
Dharwar „ „ „ 45·3 „ „ „ „ „ ,
and East Khandesh „ „ 28·3 „ „ „ „ „ .

has decreased from 2097 to 1902. There has been a more than proportionate decrease in the number of members. Although the number of societies has not diminished since 1929, the number of members has undergone a steady and continuous diminution. Does this point to any weakness in the movement? From what we have seen of the actual working of these societies, it may be said that this tendency is in the right direction. A mere quantitative estimate of progress to the exclusion of the qualitative aspect of the problem has ceased to make an appeal to us. To this point, however, we shall return later. It is sufficient to note that the average membership per society in 1928, 1929, 1930 and 1931 was 51, 49, 47 and 47 respectively, thus showing a slight decline.

SHARE-CAPITAL

The policy of organising societies on the basis of the share system is of recent date. We have, therefore, no figures under this head till 1931. The old societies are now advised to adopt the new bye-laws, and as a result we have the share capital of Rs. 1,395 owned by only one society. The object in introducing these new bye-laws is that the share system is a convenient method of enabling the societies to provide a substantial amount of owned capital.

MEMBERS' DEPOSITS

Members' deposits apparently show a slight decrease in 1929 as compared with the preceding year. The decrease, however, is not real. If the members' deposits of the society which does not appear in the list in 1929 are deducted, we should have Rs. 71,624 under this head in 1929. The actual figure of Rs. 72,749 exceeds this amount by Rs. 1,125. Thus there is a net increase of Rs. 1,125 in members' deposits over the year 1928. The following figures of deposits per member show that the position has not worsened in 1931 as compared with 1928.

Year	*Members' Deposits* (per member)
	Rs.
1928	35
1929	37
1930	38
1931	35

RESERVE FUND

It is a happy feature of the situation that in spite of a decline in the number of members, the amount of reserve fund has been steadily increasing. It has increased from Rs. 55,907 in 1928 to Rs. 76,684 in 1931, or by about 40 per cent. This steady increase is vividly brought out by the following figures.

Year	*Reserve Fund* (per member)
	Rs.
1928	27
1929	32
1930	37
1931	40

The unmistakable increase revealed by the above figures of reserve fund, which is indivisible and inalienable, is a sign of the essential strength of the movement, notwithstanding whatever we may have to say while discussing the defects in the working of the credit societies.

NON-MEMBERS' DEPOSITS

In theory, non-members' deposits show the confidence of outsiders in the management of a society, and are thus an index to its soundness. In practice, however, this method of supplying outside capital has been found to be a source of embarrassment both to the society and to the non-members. When arrears accumulate, either due to bad seasons or negligence on the part of the society, and when the non-member depositors demand to withdraw their deposits, the society is put in a very awkward position. Besides, some societies seem to have abused this privilege[1].

1. The following instances are instructive in this connection :—

(i) On 31st March 1931 the position of Ichhapore Credit Society was this :—The total outstanding loans to members amounted to Rs. 15,039. The chief source of outside capital was non-members' deposits which amounted to Rs. 9,636 and accounted for about two-thirds of the total outstanding loans to members. An equally good portion of the society's funds consisted of the reserve fund which stood at Rs. 4,187. Bank loans amounted to Rs. 1,332. The percentage of overdue loans to total outstandings was 69.

(ii) The position of Masma Credit Society on the same date was as follows :—The total outstanding loans to members amounted to Rs. 14,277. The main sources of the funds of the society consisted of non-members' deposits and reserve fund, which were Rs. 7,084 and Rs. 5,486 respectively. The amount of bank loan was Rs. 1,421 only and the percentage of overdues to total outstandings was 92.

We had occasion to examine in detail the working of both the Masma and Ichhapore credit societies whose financial position is described in the footnote and there is not a good word to be said in favour of the management of either of them. Moreover, the figures of heavy overdues in their case are sufficiently instructive. It is, therefore, evident that under existing conditions there is the danger of funds derived from non-members' deposits being utilised in making advances to improvident or undesirable members. In recent years, non-members' deposits are, therefore, discouraged, and attempts are made to induce societies to borrow loans from the Surat District Co-operative Bank. The non-members' deposits have decreased from Rs. 1,20,327 in 1928 to Rs. 57,977 in 1931. They have thus been reduced by half during the brief period of four years. The advantages of substituting bank loans for non-members' deposits are: firstly, that the former being for short term and repayable at will, are cheaper in the long run, and secondly, that they ensure a certain amount of outside inspection and control over the society's affairs which the non-members cannot exercise.

BANK LOANS

The amount of bank loans shows a steady decline from Rs. 3,00,375 in 1928 to Rs. 2,47,144 in 1931. More than fifty thousand rupees lent to societies seem to have been withdrawn by the District Bank during this brief interval of four years. The figures of bank loans per member tell the same story. The amount of bank loans per member was Rs. 143, 133, 127 and 129 for the years 1928, 1929, 1930 and 1931 respectively. This shows that the District Bank's main concern during these years was to recover whatever loans it had advanced. We shall consider later the circumstances under which the Bank felt compelled to follow this policy.

TOTAL OUTSTANDINGS

The amout of outstanding loans due from members shows a gradual decline from Rs. 5,21,322 in 1928 to Rs. 4,11,987 in 1931. The total commitments in this area have been reduced by more than a lakh of rupees during this period. The amount of outstanding loans per member was Rs. 249, 232, 227 and 216 in the years 1928, 1929, 1930 and 1931 respectively. In other words, the amounts due from members to their societies show a tendency

to decrease. The same tendency is revealed by the figures of working capital which for the years 1930 and 1931 were Rs. 4,69,327 and Rs. 4,51,895 respectively. The working capital per member, therefore, decreased from Rs. 246 in 1930 to Rs. 237 in 1931. It may be noted that the figures of working capital per member for this area are certainly imposing in comparison with some of the important districts of the Presidency[1]. However, the figures of outstanding loans and of working capital per member for the taluka show a steady decline. This is not difficult to understand, as non-members' deposits are being steadily withdrawn, and the Central Bank, instead of filling the gap by advancing fresh finance, concentrates its attention on recovering the existing loans. It may be asked : why does the Bank contract its loan operations and is unwilling to advance fresh finance to societies ? This leads us to inquire more closely into the working of the societies and to find out the reasons for this state of affairs. In spite of the satisfactory figures of members' deposits, reserve fund and working capital already given, there seems to be something wrong somewhere with the credit societies. That all is not well with the credit movement in the taluka is brought out by an analysis of the audit classification of societies given below :—

AUDIT CLASSIFICATION

The following figures showing the audit classification of societies are instructive.

Year	*Total number of societies*	*Number of societies in this class* A.	B.	C.	D.
1928	41	1	36	4	...
1929	40	1	24	14	1
1930	40	1	27	11	1
1931	40	1	21	13	5

The tendency for societies to go from the higher to the lower class is unmistakably revealed by the above figures. In 1928, there were only 4 societies in C class and none in D class. The number of B class societies declined from 36 in 1928 to 21 in 1931; the number of C class societies, on the other hand, increased from 4 to 13; and, whereas there was no society in D class in 1928, there were as many as 5 societies in the same class in 1931. A

1. In the Annual Report of the working of Co-operative Societies of this Presidency for 1929, the highest figure of working capital per member was for Broach and Surat; it was Rs. 134.

study of these figures, therefore, strengthens the view that the agricultural credit movement in the taluka does not function satisfactorily.

OVERDUES

The following statement gives figures of total outstandings, overdues and the percentage of overdues to outstandings for the three years from 1929 to 1931.

Year	*Total outstandings*	*Overdues*	*Percentage of overdues to total outstandings*
	Rs.	Rs.	
1929	4,62,167	1,53,412	33·1
1930	4,33,078	1,93,868	44·5
1931	4,11,987	2,86,809	57·5

It will be observed that although the amount of total outstandings went on diminishing, the figures of overdues have been increasing at an alarming pace. The percentage of overdues to total outstandings increased from 33 in 1929 to 57 in 1931. The situation, it will be noticed, was already serious in 1929, and has become worse since then. The overdues have been mounting up year after year and have reached serious proportions. We deliberately use the phrase 'serious proportions', for, even those who are competent to judge believe that when unauthorised arrears go beyond a reasonable limit, i.e. about 10 per cent or 15 per cent of the demand, they must be regarded as symptoms of "something wrong somewhere[1]". The percentage of overdues to outstandings for the taluka has travelled much beyond these reasonable limits. How the position as regards overdues has gone from bad to worse is clearly indicated by the following analysis giving percentages of overdues to outstandings in the societies of the taluka from 1929 to 1931.

Year	*Number of agricultural credit societies*	*Number of societies having no overdues*	*Number of societies having overdues*							
			upto 5%	6 to 10%	11 to 25%	26 to 50%	51 to 75%	76 to 85%	86 to 95%	Above 95%
1929	40	33	7	4	2	5	9	2	3	1
1930	40	32	2	3	6	6	9	1	...	5
1931	40	33	2	...	5	2	11	5	3	5

1. Vide Prof. H. L. Kaji's Co-operation in Bombay, p. 20.

A detailed examination of the above figures yields the following interesting results: (i) In 1929 there were 11 societies having arrears up to 10 per cent. and 7 societies from 11 to 50 per cent. In the following year the position was reversed; societies having arrears upto 10 per cent. decreased from 11 to 5, whereas those with arrears from 11 to 50 per cent. rose from 7 to 12. An equally interesting change took place with reference to the higher frequency groups. The number of societies having arrears from 76 to 95 per cent. decreased from 5 in 1929 to 1 in 1930. The decrease however was not in the right direction, for the societies did not improve, the number of societies with arrears above 95 per cent. having increased from 1 to 5. (ii) The above tendency was further strengthened in 1931. It will be observed that societies having overdues upto 50 per cent. declined from 17 in 1930 to 9 in 1931. On the other hand societies with arrears from 51 to 75 per cent. and 76 to 85 per cent. increased from 9 to 11, and from 1 to 5 respectively. Whereas there was no society with arrears from 86 to 95 per cent. in 1930, in the following year there were three such societies. The number of societies having more than 95 per cent. of arrears remained constant, it being 5 in each year.

To sum up, the tendency for a larger and larger number of societies to go in the higher frequency groups of arrears is established. In other words, the small arrears in the societies go on mounting up, with the result that the proportion of societies having large overdues has been increasing. The seriousness of the position as regards overdues is evident from the fact that in 24 out of 33 societies having arrears in 1931, the overdues had reached very unsafe proportions, being more than 50 per cent. of the outstandings. In about 5 societies, almost the whole of the outstanding amounts were overdue.

The chief factor explaining the large overdues is undoubtedly the character of the seasons. The year 1929 witnessed the occurrence of frost which weakened the economic position of many an agriculturist in the taluka. With his resources thus depleted the agriculturist naturally could not repay the dues of the societies. This was followed by years of general economic depression which was particularly severe for the agricultural population. The price of cotton, the principal money crop of the area, ruled very low in the succeeding year. This close succession of unfavourable

seasons is mainly responsible for the present unsatisfactory state of affairs. It is sometimes stated that the unsuitability of the 31st March as the date of closing the financial year gives a somewhat exaggerated picture in regard to arrears. The official year ends on 31st March; the crops of the cultivators are sold and the proceeds thereof are realised much later, sometime in May or June. There is some truth in this contention. As against this, however, it must be noted that the instalments of loans borrowed by the members are so adjusted that they fall due in May or June in such areas. Those instalments which are not due for payment will not therefore be counted in figures of overdues. The unsuitability of the closing date, therefore, cannot explain the heavy overdues. The reasons for this unsatisfactory state of affairs relate chiefly to defects in the present working of societies, and partly to the relations of societies with the financing agency. The question of the alarming figures of overdues has brought these defects to the surface.

DEFECTS IN THE WORKING OF THE AGRICULTURAL CREDIT SOCIETIES AND THEIR REMEDIES

Defects

(i) The organisation of a co-operative credit society is based on the principles of a democratic institution, and its success presupposes a certain amount of education on the part of its members. It is said that eternal vigilance is the price of democracy. If eternal vigilance is to be ensured in the affairs of the society, the members must know their rights and responsibilities, and must be able to elect a good managing committee on whom so much of the success of the society depends. As it is, the members as well as the managing committee hardly understand either the nature and functions of the credit society or their duties and responsibilities. The members regard the society as an additional agency to borrow funds. So long as the members continue to obtain loans, they do not much worry about the internal management of the society. It is not unusual to come across members some of whom regard the society as a sort of government agency for lending money, while others regard it as a semi-charitable institution. Those who are familiar with the working of the Co-operative movement know that when the movement was started, societies were organised in a feverish haste. The enthusiastic organiser had simply to gather

together a number of cultivators for organising a society. They had to be told that by the organisation of a society they would get loans easily at a fairly low rate of interest with facilities for repaying them in convenient instalments. The needy cultivators were only too willing to seize the opportunity. The improvident, the unthrifty and those whom no Sowkar would lend, flocked together and formed a society.

(ii) If the members do not understand the nature and functions of the society, the members of the managing committee are equally ignorant. It is like the blind man leading the blind. The managing committee is the pivot on which the structure of the society revolves. The committee are empowered to admit new members, grant loans after careful examination, supervise the application of loans, take measures for their recovery, bring to book the defaulters and so on. To say the least, these powers are exercised in a large number of cases in the most unsatisfactory manner.

(iii) Little care is exercised in the selection of members. A cultivator in need of money has simply to go through the necessary formalities for becoming a member of the society. The managing committee act as if they are managing not their funds but those of others. One almost feels that they administer the funds not of a business concern, but of a charitable endowment. In the initial stage, the societies were financed directly by the State, which later on was replaced by the Central Bank. The District Bank did not arise as a federation of the credit societies, but as an outside creation anxious to find funds for them. One feels that this spoon-feeding has weakened the sense of responsibility. It can never be emphasised too much that the success of a society largely depends on the judicious advancing of loans. The applications for loans are almost always passed, the purpose shown in the loan application is almost always productive, being purchase of bullocks, current agricultural expenses and so on. The managing committee do not make an attempt to scrutinize the purpose of the loan or supervise its application. A loan borrowed for a productive purpose may be frittered away on meeting the expenses of a ceremonial or litigation. To see that a loan is applied for the same purpose for which it is taken is nobody's business. We did not come across a single instance in which the borrower was brought to book by the managing committee for the

misapplication of loans. The underlying idea in restricting the area of operation of a rural society to a single village is that the inhabitants of the same village know each other intimately, and possess mutual knowledge and power of control. They should, in theory, be able to understand the needs of their fellows and keep a watchful eye over their doings. They should thus be well-equipped to take an active part in the management of the society and check abuses, which an outside agency cannot hope to do. In practice, however, members take little interest in the management of the society and do not make use of their mutual knowledge in checking abuses. The members of the managing committee, being often defaulters themselves, are reluctant to take stringent action against others. It would not be too much to say that the reliance on the co-operative principle has largely failed in its purpose[1].

Remedies

It will be realised from the above brief survey of the defects in the working of the co-operative credit societies of the taluka that the remedy of the unsatisfactory situation lies chiefly in the weeding out of inefficient societies and of undesirable members. From this point of view, the reduction in the number of members and of working capital already noted, is a tendency in the right direction. In this connection it is happy to note that the Co-operative Department in this Presidency is rightly concentrating its attention on the consolidation and rectification of existing credit societies, and is very cautious in registering new societies. Under present circumstances such a policy has every thing to recommend it. In addition to the weeding out of bad members, great care should be bestowed on the selection of new members seeking admission to the society. We saw that the formation of societies preceded the essential work of educative propaganda. We also noted that the present unsatisfactory position is very much due to the inefficiency of the personnel of the managing committee. If loans are made properly after careful scrutiny, if they are applied to the purpose for which they are borrowed, if the credit-worthiness of the borrower is ascertained before making the loan, and if the necessary knowledge and discipline are shown by the managing committee, there would be no arrears under normal conditions. If, however, good

1. cf. Report of the Royal Commission on Indian Agriculture, p. 449.

managing committees are to be elected, and the members are to exercise their right of voting intelligently, attempts must be made to teach not only the managing committee but the general body of members their privileges as well as their responsibilities. The remedy largely lies in Co-operative education and supervision. It is unfortunate to note that the Surat District Co-operative Institute is handicapped in its very laudable activity of Co-operative education for want of funds. So long as the members are unable to exercise a check over the managing committee, the need of supervision by some outside agency will remain. The Department is mainly concerned with audit, and the Bank with the safety of its finance. The utility of a Supervising Union of a group of societies is, therefore, obvious. The usefulness of this agency much depends on the efficiency of the Supervisor in whose selection great care must be taken. There are two Supervising Unions now working in the taluka. They are reported as making good efforts in improving bad societies. The Olpad Union, however, was started as late as 1931, and it is, therefore, not possible to pronounce any definite opinion on its working.

There are certain other specific defects which may also be noted. One of them is that the loans are advanced in a lump sum without reference to the time when a member needs them. This practice sometimes results in the spending of the amount for purposes other than those for which it is borrowed. If the loans are advanced by instalments as and when needed by the borrower, much of the present misapplication of loans can be prevented. We also heard complaints about the inelasticity and dilatoriness in the financing of members by their societies. As regards inelasticity, it must be confessed that the Co-operative system of finance is bound to remain to a certain extent inelastic as compared with that of the Sowkar's. The Sowkar is an absolute master of his funds; his relations with his clients are personal. As against this, certain formalities have to be gone through in obtaining finance from the co-operative society, and they cannot be dispensed with. There is, however, no reason why the system should continue to be so rigid, or why the members should not get loans in time, provided the Normal Credit System is adopted by the societies. If the normal credit of each member is fixed at the general meeting much in advance of the season, and if the Bank, on being satisfied by the Supervising Union, sanctions these credits without delay, there

would be no difficulty for the members in getting their finance in time. The preparation of normal credit statements is not properly attended to except in a few good societies. For securing timely finance to members, this work should be properly attended to.

There is one more point which requires attention. It relates to the pitiful condition of the non-defaulting members of a defaulting society. We have already seen that the Bank has almost stopped giving fresh finance to societies of the taluka. We certainly do not wish to see bad societies indiscriminately financed by the Bank. The total stoppage of finance by the Bank, however, makes the position of certain good members precarious. There may be a few big defaulters in a society, and as a large sum is so involved, the Bank refuses to advance loans to such a society. The result is that good members, who repay their loans punctually, are unable to obtain loans from the society through the Bank, the only fault being their punctuality in repaying their dues. They suffer for the sins of the defaulters. We observed in consequence that the faith of these people in the society was shaken. The Sowkar is reluctant to finance those who are members of a society, and when a good member, in the helpless condition described above, approaches a Sowkar for loans, the latter is naturally prone to exploit the need of the former. The proper policy would be not to advance any finance to defaulters who may in the end be dismembered, and to advance fresh loans under proper safeguards to good members. Such a step would go a long way in restoring the faith of the members in the society. Moreover, we observed in a few societies that a number of members became defaulters, not out of their own choice but out of this stringent policy of the Bank. When they saw that even those who repaid their dues could not get fresh finance, they abstained from paying their own dues out of the fear that they also would be thrown into the same helpless condition as their good brethren. Regulated fresh finance by the Bank, therefore, would go a long way in improving the condition of a number of societies, and as such it deserves a trial.

We cannot leave the present subject of defaulting societies and non-defaulting members without making reference to one more point which came forcibly to our notice. It should be noted in this connection that part of the present trouble has arisen out of the co-operative societies undertaking the business both of short and long term finance. What happens under existing conditions is

this. The society, besides advancing short term loans for current agricultural, domestic and other purposes, also advances to some members under the same bye-laws long term loans, up to a maximum of Rs. 750 to be repaid within 10 years, for the liquidation of old debts and for land improvement. The result is that when a few who have obtained long term loans become persistent defaulters, the credit of the society suffers with the consequence that fresh finance for short term is also stopped. This spells the ruin of small cultivators who borrow short term loans only. The co-operative credit society, in our opinion, is not a proper agency for doing long term business. The main objection is that the societies derive the bulk of their funds from the Central Bank whose resources for long term finance are limited. Secondly, the liability of the society is unlimited, and when a single member is advanced a large amount, other members are also liable for his debt. This is not just. Moreover, we observed that in a number of societies, members who were advanced long term loans have become defaulters. In many instances they were not able to pay the interest, much less the instalments of the principal which fell due. The right course would be to restrict the activities of the society to adequate and timely short term finance, and leave the financing of long term loans for debt redemption or land improvement to a co-operative land mortgage bank.

There are at present such co-operative land mortgage societies working in this Presidency, one of which is in the neighbouring district of Broach. We may note here that although the establisment of a land mortgage bank is often advocated, it is equally forgotten that it has its limitations. It is a useful institution only to persons owning some property, and consequently would benefit but little small tenants and peasant proprietors. Even big landholders who are heavily indebted, will have to be denied the benefit of such a bank. However, we in this taluka should wait for some time till we profit by the experience gained in the working of such an institution in the Broach district[1].

1. Since this was written, the Government of Bombay appointed a Committee to examine the working of land mortgage societies in the Presidency, and on the recommendation of the Committee, steps have been taken to organise land mortgage banks in the Presidency. One such land mortgage bank for Surat District has already been registered. A Provincial Land Mortgage Bank for the Presidency has also been organised and has started operations.

NON-CREDIT CO-OPERATION

More striking than the development of the co-operative credit movement is the development of non-credit co-operation on sound lines in this area. The most important of the agricultural non-credit societies are those for the sale of the produce of the agriculturists, chiefly cotton. Besides the forty agricultural credit societies[1] in the taluka, there were in 1931 the following agricultural non-credit societies.

Cotton Sale Societies	4
Groundnut Sale Society	1
Co-operative Ginning Society	1
Total	6

SOCIETIES FOR THE SALE OF AGRICULTURAL PRODUCE

The cotton sale societies found in the taluka in the year 1930–31 were :—

(i) Sonsak Co-operative cotton sale society,
(ii) Gothan Co-operative cotton sale society,
(iii) Asnad Co-operative cotton sale society, and
(iv) Kim Co-operative cotton sale society.

(i) The Sonsak Co-operative Cotton Sale Society is the most important not only in the taluka, but in the whole of Gujarat. As it led the way to the formation of sale societies in Gujarat, it would not be out of place here to describe briefly how it developed into a big society from a modest attempt made by a selfless and enthusiastic co-operative worker of the taluka. Its formation can be traced back to the attempts made by the Agricultural Department for evolving a better type of cotton with superior ginning percentage and longer staple than that grown in this area. The type known as 'Selection I' was evolved in 1911-12, and the improved seed was distributed to cultivators by the Department, but great difficulty was experienced in inducing merchants to purchase this superior variety of cotton at a premium. Of the several methods tried by the Department for doing this, the method

1. There was also one Teachers' Co-operative Credit Society in the Taluka with which we are not concerned. It is a salary earners' society and is doing good work for teachers of Local Board Schools of the taluka. There was also one Supervising Union of Co-operative Societies at Olpad already referred to.

introduced in 1914-15 promised to be successful. The method was briefly this. The growers of improved cotton were enabled to pool their produce and sell it in the form of clean cotton after getting it ginned. The area under the improved variety of cotton was 559 acres distributed over a group of villages. The clean cotton could be sold to Messrs. Narandas Rajaram & Co. of Bombay at a premium of Rs. 12 per candy over the prevailing rate for the local Surat Cotton. In the whole transaction the cultivator, it was calculated, made a profit of 7½ per cent. After this scheme, which brought home to the cultivators the advantages of pooling their produce, was worked for some years, the possibility of organising this work on co-operative lines was considered. These efforts of the Department stimulated one Honorary Organiser at Surat to give trial to a similar sale system in the year 1919, for 13 members of the village of Sonsak. The present Sonsak Sale Society is the fruit of these modest efforts. The members were supplied improved seed, and their seed cotton (Kapas) was pooled and ginned. The society worked as an unregistered body for the first three years of its existence. It has been working as a co-operative cotton sale society since 1921 when it was registered. Since its inception, the Sonsak Society has made steady progress. In 1919 it started with 13 members, and sold 132 maunds of lint cotton worth Rs. 9,539. By 1921, the membership increased to 127 ; the lint cotton sold was 3,045 maunds, and the amount realised by sales was Rs.1,10,236. Encouraged by the success of this society, three more cotton sale societies were registered in Gujarat in the year 1922. In 1923-24, the society is reported to have sold produce worth Rs. 4,30,000 and the members are reported to have benefited to the extent of Rs. 84,000 in the price realised[1]. In 1927 the society had nearly 300 members, and sold 6,578 maunds of lint worth Rs. 2,25,830. In 1928, the membership had increased to 557, and Rs. 4,55,609 worth of lint cotton was sold. In 1930-31, it sold 14,223 maunds of lint valued at Rs. 4,73,591. This shows how the society has made steady and continuous progress till now.

1. Mr. (now Diwan Bahadur) C. M. Gandhi, Chairman, Surat District Co-operative Bank Ltd., as Chairman of the Reception Committee to the Second Gujarat Divisional Conference of cotton sale societies held in Surat on 26-9-1925 stated that the Sonsak Society during the 8 years of its existence from 1919 to 1926 secured for its members about 1¼ lakhs of rupees more than non-members.

PROGRESS OF COTTON SALE SOCIETIES

The following statement gives important details showing the progress of cotton sale societies of the taluka in 1930[1].

Names of Societies	Kind of produce sold	Quantity sold in maunds of 80 lbs. (by private treaty)	Price realised	Total commission earned	Net profit on the year's working
		Maunds	Rs.	Rs.	Rs.
(1) Sonsak Group Farmers' Co-operative Cotton Sale Society	Cotton lint	14,243	4,73,591	3,530	4,985
	Cotton seed	26,457	60,105		
(2) Gothan Co-operative Cotton Sale Society	Cotton lint	10,399	3,31,892	2,710	3,129
	Cotton seed	21,071	46,951		
(3) Asnad Co-operative Cotton Sale Society	Cotton lint	6,289	2,08,327	1,623	1,808
	Cotton seed	12,349	28,364		
(4) Kim Co-operative Cotton Sale Society	Cotton lint	1,827	57,700	479	165
	Cotton seed	3,714	8,144		
Total	Cotton lint	32,758	10,71,510	8,342	10,087
	Cotton seed	63,591	1,43,564		

It will be seen that the quantity of lint cotton and cotton seed sold by these societies amounted in the aggregate to 32,758 and 63,591 maunds respectively. The total produce disposed of was Rs. 10,71,510 worth of lint cotton and Rs. 1,43,564 worth of cotton seed. Between them, these societies thus sold lint cotton and seed of the value of more than Rs. 12 lakhs. The total commission earned was Rs. 8,342 and the amount of net profit on the year's working was Rs. 10,087. How important these societies are in the economy of the taluka will be understood when it is realised that out of about Rs. 19½ lakhs worth of lint cotton and cotton seed sold through the agency of these societies in the whole of the Surat district, about Rs. 12 lakhs worth of produce was sold by the societies of the taluka under study. The Sonsak Society, as will be clear from the statement, is by far the most important of them all.

1. These figures are taken from the annual Statements for 1930-31 kept in the records of the Assistant Registrar, C. S. N. D.

WORKING OF COTTON SALE SOCIETIES

The following are some of the important features in the working of the cotton sale societies of the taluka.

(i) The members are bound to accept and sow the pure seed raised on the Government Farm distributed amongst them by the societies and are forbidden to adulterate the seed.

(ii) Members are bound to bring all the seed cotton to the society, which pools the same, gets it ginned and pressed, and sells lint cotton in bulk in the open market. Sales of lint are spread over the whole season in order that good prices may be realised, and are effected by private contract.

(iii) A nominal commission of Re. 1 per Bhar[1] of seed cotton (Kapas) is charged by the society. Out of the total price realised by the sale of lint cotton and seed, actual expenses incidental to ginning and other operations are deducted. The remaining amount is distributed among the members at a uniform rate according to the quantity of cotton brought by each to the society. A uniform price per Bhar of cotton is paid to each member.

(iv) About 75 per cent. of the estimated price of the quantity of cotton brought by a member is paid by the society to the member on the delivery of the produce, the remainder being paid at the end of the season. The finance required by the society to make advances to members on actual delivery of the produce is supplied by the Surat District Co-operative Bank.

(v) Loyalty to the society on the part of members is strictly insisted upon.

ADVANTAGES OF COTTON SALE SOCIETIES

The following are some of the main advantages which the cultivators have derived by the formation of co-operative societies for the sale of cotton.

(i) The agriculturist is now freed from the petty annoyance to which he was formerly subjected by the ginnery owners who used to purchase seed cotton from him. The cultivator complained

1. 'Bhar' is the unit of transaction in the sale of cotton in this area. 1 Bhar = 24 local maunds of 40 lbs.

about the use of false weights. This complaint has no place in the sale societies. On delivery of the produce the seed cotton of each cultivator is weighed properly, and a regular receipt is issued to him by the society. Formerly, even after the price was settled as between the seller and the ginnery owner, the latter used to find fault with the former for a variety of real or imaginary reasons. For instance, when the cart was being unloaded by the cultivator, the ginnery owner or his agent used to complain that the cotton was damp, that it was of inferior quality, that it contained produce of the last picking and so on. The buyer used to turn round and say that a certain deduction on this account would have to be made from the price actually settled. The agriculturist, being in a weaker position, was willing to take a reduced price rather than reload his cart and go back to his village. We were told by the members of sale societies that these grievances were redressed by the societies. A member has now simply to go to the ginnery of the society, and unload his cart without being subjected to any trouble.

(ii) The sale society has been instrumental in educating the agriculturist in business methods.

(iii) The formation of sale societies has enabled the farmer to reap an advantage in securing a better price for the improved variety of cotton. An individual being able to put on the market his produce in small quantities, cannot reap advantage for the better quality of the produce. The society is able to put on the market cotton of improved variety in sufficient bulk, and thus establish a reputation for its produce. The merchant is willing to pay a higher price when he obtains cotton of improved variety in large quantities. The result is that the society is always able to sell its cotton at a premium over the current market rate for the locally grown cotton, and thus secure a better price for its members.

THE SONSAK CO-OPERATIVE GINNING SOCIETY

The cultivators of this area, who, being imbued with the spirit of Co-operation, had already displayed considerable skill and ability in the sale of cotton on co-operative lines, could no longer rest satisfied with merely pooling their cotton and getting it ginned in privately owned ginning factories. They naturally liked to have their own ginning factory, which would be owned on co-operative

lines, and the profits of which would not go into the coffers of private factory owners, but to the agriculturist producers. This essential and necessary step was taken in the year 1925 by getting a co-operative ginning society registered. This society originally called the Sonsak Co-operative Ginning Society is now styled the Purshottam Co-operative Ginning Factory after the name of its promoter, Mr. Purshottam Ichharam Patel, to whose enthusiasm, initiative and energy, not only this ginning society, but also the Sonsak Co-operative Cotton Sale Society owe their existence and success. Since its inception, the ginning society has made steady and rapid progress. In the year 1927, it earned a net profit of Rs. 10,654. In 1928, it ginned 5,972 Bhars of cotton for four registered cotton sale societies and two unregistered societies at the rate of Rs. 6-8-0 per Bhar. It realised Rs. 38,920 as ginning charges and made a net profit of Rs. 17,869. In 1929, it ginned 4,521 Bhars of cotton at the rate of Rs. 5-12-0 per Bhar for four registered cotton sale societies and one unregistered society. Its total receipts amounted to Rs. 25,995 and net profit to Rs. 11,538. The reduction in net profit was due to a smaller quantity of cotton ginned in this than in the previous year. This was due to the frost. But for this, it was estimated that about seven thousand Bhars of cotton would have been brought to it for being ginned. In 1930, the society ginned 9101 Bhars[1] of cotton at Rs. 5-8-0 per Bhar, and realised ginning charges of Rs. 50,522. It made a net profit of Rs. 24,839 and declared a dividend of 10 per cent.

The Purshottam Co-operative Ginning Factory has 34 gins, and three engines of 84 H.P., 48 H.P. and 42 H.P. respectively. It is hardly necessary to point out that the work of the society is increasing from year to year and that it is able to reduce successively its ginning rate per Bhar of cotton to the advantage of the cotton sale societies, and ultimately of the members. It is interesting to note that the factory is entirely manned by members of the cultivating classes, its managing committee, secretary, clerks, and engineer being all drawn from amongst them. This is a very happy sign.

1. For 1930, the figure taken from the records of the Assistant Registrar C.S.N.D. was 1,09,207 maunds of 80 lbs. This is converted into local 'Bhars'. The other figures were taken from the Annual Reports of the Society which give figures in Bhars.

THE SAYAN GROUNDNUT CO-OPERATIVE SALE SOCIETY

The Sayan Groundnut Sale Society was started in 1927 when it sold groundnuts of the value of Rs. 16,858 and enabled its members to realise Rs. 7 more per 'Galli[1].' In 1930–31 it sold 583 maunds of groundnuts and realised Rs. 1,494. It earned a commission of Rs. 39 and a net profit of Rs. 212 on the year's working. The example set by this society in the sale of an agricultural product other than cotton, to which co-operative sale activity was till then confined, points the way to the development of sale societies for all important saleable crops of the area.

FUTURE OUTLOOK

In the previous discussion we had to make some criticism about the working of co-operative credit societies in the taluka. This was done, however, not in the spirit of a critic who is out to see only one side of the shield, but with a desire to see improvements in the existing state of affairs. The credit movement has another and equally important side too. The total population of the taluka in 1931 was 60,831. The number of members of co-operative credit societies was 1902. If one family is taken to consist of 5 members, about 15·6 per cent. of the population can be said to have been brought within the fold of the rural credit movement in the taluka. We have seen that the present unsatisfactory position is partly due to certain economic factors over which the agriculturist has no control, and partly due to defects in the management and working of the society. The situation is bound to improve by tactful and sympathetic handling during this period of crisis through which the agricultural industry of the taluka, in common with the rest of the country, is passing, and by removing the defects already discussed. There are, however, certain benefits the society had conferred, which cannot be borne out by mere statistics. It has given to the agriculturist an organisation of a controlled and self-governing system of rural credit, has bred a sense of independence, and has given him a certain amount of practical training in business methods. The co-operative society represents the greatest effort so far made to find a solution of the problem of rural finance. Mistakes have been committed, and defects have been

1. The local unit of transaction in this case is a 'Galli' of 30 local maunds of 40 lbs.

found out, but no human institution can claim perfection. The remedy lies not in harping on the sins of commission and omission, but in finding out suitable ways and means for rectifying the errors committed in the past. The members have been able to save a large amount in the aggregate. The need of the agriculturist building up his own funds is important. From this point of view, out of the total working capital of Rs. 4,51,895 in 1931, as much as Rs. 1,43,007 represented 'owned' capital, consisting of share capital—Rs. 1,395, members' deposits—Rs. 64,928 and reserve fund—Rs. 76,684. The imposing figure of Rs. 1,43,007 consisting of the agriculturists' 'owned accumulations', accounting for one-third of the total working capital, is an achievement of which any one can be justly proud. It may, however, be noted that members' deposits do not represent savings voluntarily deposited by members in their societies. They are compulsory deductions made from loans advanced to members in accordance with the bye-laws of the society. Though this system is desirable under the present circumstances, it has perhaps discouraged the habit of voluntary savings. These deposits are usually 5 to 10 per cent of the loans advanced. The share system has now been recognised as a better method of encouraging thrift than compulsory deposits, and is now being gradually adopted. However, the fact that one-third of the total working capital is represented by owned capital, and the steady increase of the reserve fund show the essential strength of the movement.

Much more encouraging than the spread of the credit movement in the taluka is the development of sale societies. The success of the Sonsak Society has clearly demonstrated that the best form of propaganda is the example set by a good society. A good society working in the area provides a much more powerful inspiration to the villages in the neighbourhood than a series of lectures.

As regards the future possibilities of the movement, the taluka does not need more credit societies, but better societies. This does not mean that organisation of new societies after careful inquiry need not be undertaken. The existence of a Supervising Union recently formed at Olpad holds out the hope of starting new societies on sound lines. On the non-credit side, the success of the cotton sale societies is encouraging, and holds out possibilities of

starting societies for the sale of such other agricultural produce as wheat. There are various other directions in which the Co-operative method of organisation can be employed with advantage in the taluka. The starting of co-operative societies for the consolidation of fragments and cattle insurance are some of the instances in point. However, if we are to profit by the experience of the past, the new efforts should aim rather at quality than mere expansion.

CHAPTER XI

Some Rural Problems

EXPENDITURE

In the course of our investigations we tried to ascertain, by direct and indirect inquiries, the standard of life considered necessary by the people of different castes. The Kolis are by far the most numerous class of cultivators in the taluka. Out of a number of standard budgets for this caste prepared in different villages, we give below what we regard as the most representative. A Koli family consisting of one adult male, two adult females and two children (one male and another female), according to the standard of life considered necessary by them, would require per year the following :—

I. Food

		Rs.	as.	ps.
(a)	Grain etc.			
(i)	37 maunds of Juwar @ Rs. 30/- per galli of 30 maunds.	37	0	0
(ii)	25 maunds of Rice @ Rs. 2/- per maund.	50	0	0
(iii)	4½ maunds of Tur dal (pulse) @ Rs. 3 per maund.	13	8	0
(iv)	13¾ maunds of pulses and vegetables valued as per detailed calculations.	26	14	0
(v)	Condiments, salt, etc. valued as per detailed calculations.	19	10	0
(vi)	Ghee and Sweet oil (Ghee Rs. 12; Sweet oil Rs. 24) (The Kolis make more lavish use of sweet oil than ghee)	36	0	0
(vii)	Gul.	10	0	0
(b)	Tea. (tea, sugar, milk etc.)	33	0	0
(c)	Annual extra expenditure on social and religious festivals.	15	0	0
	Total (Food).	241	0	0

			Rs.	as.	ps.
II.	Fuel and Light	Total (Fuel & Light)	20	0	0
III.	Clothes and shoes				
	for one male	17 0 0			
	„ two females	35 0 0			
	„ two children	17 0 0			
		69 0 0			
		Total (Clothes & shoes)	69	0	0
IV.	Miscellaneous expenses				
	(i) Smoking	16 0 0			
	(ii) House repairs and utensils	10 0 0			
	(iii) Toddy (on festivals and on the visit of guests etc.)	15 0 0			
	(iv) Other miscellaneous	12 0 0			
		53 0 0			
		Total (Miscellaneous)	53	0	0
		Grand Total	383	0	0

The cultivators generally live in their own houses, and have not to pay anything by way of house rent. The staple food of the cultivators is juwar and rice. According to our detailed investigations, a Kanbi family consisting of 5 members (1 male, 2 females and 2 children) would require about Rs. 500 per year. We give below the summary of the main items.

		Rs.	as.	ps.
I.	Food	337	0	0
II.	Clothes	75	0	0
III.	Fuel and Light	26	0	0
IV.	Miscellaneous including smoking	60	0	0
	Total	498	0	0

The food of a Kanbi is more varied, and richer than that of a Koli. Unlike an average Koli cultivator, he generally takes tea twice a day instead of once. He uses more of ghee, milk, and

wheat. His clothes are more ample and decent than that of a Koli and so on. Similarly, an Anavil Brahmin family would spend from Rs. 440 to Rs. 650 according to its status. The quality of rice used is superior; wheat is used in larger quantities than in the former two cases. The use of milk and ghee is more abundant. In dress an Anavil resembles a town dweller. A Dubla family, on the other hand, would require about Rs. 205, the following being the summary of the main items.

		Rs.	As.	Ps.
I.	Food	126	0	0
II.	Clothes	36	0	0
III.	Fuel and Light	6	0	0
IV.	Miscellaneous			
	Smoking	21	0	0
	Other	16	0	0
	Total	205	0	0

To sum up, a Dubla family of five members would require about Rs. 200, a Koli family from about Rs. 375 to Rs. 400, a Kanbi family from Rs. 475 to Rs. 500, and an Anavil family from Rs. 550 to Rs. 600. One or two points in connection with the expenditure on several items may be noted. A Koli family spends Rs. 15 to Rs. 25 or more, on toddy and liquor according to the requirements of the family or its addiction to drink. Each family however, has to spend as a rule about Rs. 15 at the minimum on religious and social festivals, and on guests. A Dubla family would spend about Rs. 10 to Rs. 12 on toddy on similar occasions; its economic condition does not allow it to spend more. The higher castes are forbidden the use of intoxicants. The habit of taking tea, however, has become almost universal among all castes. The period of high prices of cotton, we were informed, extended this habit to a much greater extent than before. The Dubla, the Dhed, and the Bhangi, all have taken to this habit. A Dubla would now spend about Rs. 16, a Koli Rs. 30, a Kanbi Rs. 50, and an Anavil from Rs. 75 to Rs. 100 on tea per year. Smoking again accounts for an expenditure of Rs. 15 to 20 in the family of a cultivator or a labourer of any caste.

INCOME

The following summary is abstracted from the balance-sheets of important crops raised in the taluka given in the chapter on Agricultural Wealth.

NET INCOME (OR LOSS) PER BIGHA FROM IMPORTANT CROPS

	Cotton	*Juwar*	*Wheat*	*Bajri*	*Grass*
	Rs. as. ps.	Rs. as. ps.	Rs. as. ps.	Rs. as. ps.	Rs. as. ps.
Net income (or loss) to the capitalistic cultivator ...	+ 1 4 9	+ 1 10 0	− 0 9 9	− 3 15 9	+ 11 6 0
Net income to self-working cultivator ...	+ 6 14 0	+ 8 0 0	+ 4 3 9	+ 5 4 3	+ 12 8 0

We have assumed the economic size of a holding for the taluka at 20 acres or 35 bighas[1]. A farmer cultivating 35 bighas would usually put 20 bighas under cotton, 10 bighas under juwar and 5 bighas under grass. The income of a self-working cultivator would, therefore, work out as follows :—

	Rs.	as.	ps.
Net income from 20 Bighas of Cotton @ Rs. 7 per Bigha	140	0	0
„ „ „ 10 Bighas of Juwar @ Rs. 8 per Bigha	80	0	0
„ „ „ 5 Bighas of grass @ Rs. 12/8 per Bigha	62	8	0
Total Rs.	282	8	0

In preparing the balance-sheets, we have already taken into account the cost of maintaining bullocks by assuming the value of work of a pair of bullocks per day at Rs. 1-8-0[2]. The cultivator's family therefore gets a net income of Rs. 282-8-0 for maintaining itself throughout the year, whereas the expenditure of a family of

1. In the taluka, 1 acre is equivalent to 1¾ bighas approximately. The scale adopted is : 1 local bigha = 23 gunthas ; 1 acre = 40 gunthas.

2. Vide, The balance sheet of a pair of bullocks in the Chapter on 'Agricultural Capital.'

5 members varies from Rs. 375 to Rs. 650 according to the caste and the status of the family, thus leaving a deficit of about Rs. 100[1]. If this is the position of a family with an economic holding, the position of cultivators of uneconomic holdings, who it will be recalled, are 8 out of every 10, is evidently much worse, Moreover, they cannot make an economic use of their bullocks, whose maintenance therefore becomes a costly proposition. If now the cultivator of an economic holding cannot make both ends meet, how is he to pay interest charges on debt, and rent if a plot or two are taken on lease ? The picture presented here therefore is really gloomy.

We must admit that a part of this unsatisfactory position is due to the present slump in prices, and due to the fact that the investigations were undertaken in a period of unprecedented fall in the prices of agricultural produce[2], unaccompanied by a corresponding fall in the wages of labour. The farmer cannot adjust, all of a sudden, the standard of life to which he is accustomed to changed conditions. The capitalistic farmer working with hired labour is now hardly able to make any profit, and in the cultivation of wheat and bajri, he actually incurs loss.

To put the above discussion in a nutshell, the capitalistic farmer depending on hired labour was hit the most, the self-working cultivator was not able to make two ends meet, and the agricultural labourer was the least to suffer. We have already dealt with the first two classes. What was the position of the agricultural labourer ? Our detailed investigations have shown that he usually

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1. It will be noted that we have allowed nothing by way of depreciation of live-stock and dead-stock, or repairs and renewals of the latter ; and still, this is the position.

2. The importance of this factor will be realised when the following facts are remembered. A few years ago, when cotton was sold at, say Rs. 200 per Bhar of 24 maunds, the cultivator earned, other things remaining the same, Rs. 20 more per bigha. This meant an addition of Rs. 400 to his income; and, when juwar likewise was sold at, say, Rs. 60 per Galli of 30 maunds, he earned Rs. 10 more per bigha. This meant an addition of Rs. 100 to his income. It meant, therefore, an increase of Rs. 500 over the present income.

can obtain work for 7 to 8 months in the year. The following are the details:—

Items	*Days for which he obtains work*
Cutting grass	30 days
Weeding (connected with all crops)	60 days
Harvesting of juwar and other crops	30 days
Picking of cotton	60 days
Digging cotton stalks, headlands of fields and other miscellaneous ...	45 days
	225 days or 7½ months.

What would be the position of a Dubla family of 5 members (1 male, 2 females and 2 children)? The male member, as a rule, is a Hali labourer and the female works as a free labourer. Allowing for about 1½ months for which the females may not be able to work for physical reasons, let us assume that a female free labourer gets work for 6 months in the year. At the average rate of 5 annas per day, she would earn Rs. 56-4-0; two females would earn Rs. 112-8-0. In the chapter on Agricultural Labour, we have calculated that a Hali annually earns Rs. 112-12-0. The total income of the family would thus be about Rs. 225, whereas its expenditure would be from Rs. 200 to Rs. 205. This makes it clear that the agricultural labourer was the least affected by the depression, primarily because his wages did not fall in the same proportion as the fall in the price of the agricultural produce.

The agriculturist of the taluka, being a producer for the market, was hit hard by the agricultural depression—a part of the world economic crisis which is ascribed to monetary conditions, trade policy and other factors[1]. This is not the place to enter into this wide subject. Governments of different countries took different measures of farm relief[2], and it would not be too much to expect if we here suggest that the situation demands a more liberal revenue policy by Government in this country. A tactful handling of the situation is similarly required on the part of the Co-operative organisations dealing with the agriculturist.

1. Vide, The Agricultural Situation in 1930-31 published by the International Institute of Agriculture, Rome, p. 5.

2. Vide, The Agricultural Situation in 1930-31 published by the International Institute of Agriculture, pp. 99-213.

SUBSIDIARY OCCUPATIONS

The present situation, in our opinion, has one important lesson to teach to the agriculturist. His income from the agricultural industry of the taluka is very uncertain; it may, at one time, be depleted by frost, at another, by a fall in the price of his produce, and at the third, by unfavourable and untimely rainfall. There is no need more urgent in the reconstruction of the economy of the taluka than the development of subsidiary occupations, which will bring in to the farmer a small but steady income throughout the year, and which will not be subject to the caprices of Nature.

It is often forgotten that the object of a subsidiary industry for the agriculturist is not to supplant his main occupation, but to supplement his income from agriculture. The agriculturist would work at it intermittently; the industry should, therefore, be as near his home as possible, and should be simple so as not to demand any technical knowledge. Its products must find a suitable and ready market. By the nature of the problem, the industry should be such as would give employment to a large number of under-employed agriculturists. Various suggestions, both practical and unpractical, are very often put forward without proper knowledge of the actual requirements of the situation, or the circumstances, conditions, and prejudices of the people. Poultry-farming, for instance, will never be taken up as a subsidiary occupation by the bulk of the Hindu cultivators of the taluka, although it will help the Dubla cultivators, if done on scientific lines. Such occupations as rope-making, and basket-making are carried on by and restricted to a particular caste, and are not likely to give relief as a subsidiary employment to a large number of agriculturists. Looked at from this point of view, the most important subsidiary industry for the cultivator of the taluka is the extension of the dairy industry. We have seen in our chapter on Agricultural Capital that a good she-buffalo in milk leaves a net income of about Rs. 106 per annum. Even allowing for the net loss when she is dry, the maintenance of two good she-buffaloes would leave an income of Rs. 60 to 75; the income would be considerably increased if the whole industry is properly organised, if cheap and rapid transport facilities are made available, and if the milk now converted into ghee is sold as milk. There are many villages whose distance from the city of Surat is less than ten miles, and

yet, these villages have no important milk trade with the city. There is a large demand for milk and ghee in towns. The whole question, therefore, is one of proper organisation in which the Co-operative method may be helpful. Even during the period of agricultural depression such as the present, it will be seen that the income from this industry would go a long way in balancing the budget of an average cultivator. But there is another aspect of this problem. The average farmer keeps a pair of bullocks for the plough, and the buffalo for milk. The poor Koli cultivators, who cannot afford to properly feed buffaloes, maintain ill-fed cows. We therefore attach the greatest importance to the evolving of a better breed of cows, valuable both for the production of greater quantity and richer quality of milk and for the breeding of good draught cattle. To those who argue that the cow's milk is not so rich in fat as that of the buffalo, the answer is that European countries do not have buffaloes and get a large quantity of butter from cow-milk. With improvement in the breed of the cow, with better feed and better management, there is no reason why we should be compelled to continue the present uneconomic system of maintaining two different kinds of milch animals for two different purposes. Apart from this, the maintenance of milch animals will provide the cultivator's family with more and abundant milk, which has been universally recognised as the best nourishing article of food for a vegetarian people.

Another subsidiary industry which may be advocated is hand-spinning. The Charkha can be plied by all people, men, women and children without difficulty, and does not require much technical skill. The cultivator for the most part produces the raw material on his fields; in order to add to the income, the preliminary processes of ginning and carding may be done in the family. The common objection raised against this industry is that it yields a small income. But, then, an addition of Rs. 25 to Rs. 50 per annum to the slender resources of the cultivator's family is one which cannot be overlooked. Moreover, it is possible to improve the efficiency of the Charkha by suitable improvements. It is necessary, however, that if the Charkha is to make a permanent home in the villages, the propaganda for its universal adoption will have to be more continuous and strenuous than at present. We observed a few cultivators, who have taken to the Charkha, wearing the cloth produced by their

own labour with pride. Much spare time will thus be utilised productively.

There is also another way in which a peasant's family can add to its income. Apart from the question of producing vegetables for the market, the growing of vegetables on a few square yards with the help of waste water would provide a peasant's family with vegetables for home consumption. We observed that some careful cultivators in the taluka do make such attempts. However, this will be a useful source of income, if the adoption of this method becomes universal.

EDUCATION

The following statement shows the proportion of literacy among males.

MALES

	Literate	*Illiterate*	*Total*
Hindu	9,295	19,027	28,322
Muslim	738	755	1,493
Jain	199	66	265
Parsi	246	89	335
Christian	...	2	2
Tribal and others	...	1	1
Total	10,478	19,940	30,418

The Hindu population is so large that a discussion of this aspect by religion is not necessary. It will be observed that about one-third of the male population is literate, whereas the remaining two-thirds is illiterate. The proportion of literates among females is much less than among males as will be seen from the following figures, it being only 5 p. c.

FEMALES

	Literate	*Illiterate*	*Total*
Hindu	957	27,388	28,345
Muslim	66	1,411	1,477
Jain	56	115	171
Parsi	256	161	417
Christian	...	2	2
Tribal and others	...	1	1
Total	1,335	29,078	30,413

The number of villages in the taluka is 116, the total number of Local Board schools and classes for boys on 31-1-30 in the

taluka were 60 and 9 respectively, and the number of girls' schools was 3. Taking one school or class per village, the number of villages having schools comes to 61 ; those having no school being 47. The total number of pupils for all the Local Board schools of the taluka was 4,941. If boys and girls between 5 and 15 years of age[1] are regarded as of the school-going age, it will be observed that about 70 per cent. of the population of the school-going age do not attend schools.

That the agricultural progress achieved by some countries like Denmark during the last century owed much to its excellent schools is well-known. If the people are to make any advance, their education can no longer be neglected. Not only this, but the education imparted in the schools should have an agricultural bias.

There were 4 classes with agricultural bias in the district, but none in the taluka. The subjects taught in these classes include, over and above literary subjects, practical training in agriculture, carpentry, weaving etc. The object of these classes is to create amongst boys an attachment for rural life and agriculture. We have no reliable data to judge of the success or otherwise of the existing classes in the district. The local authority is prevented from opening new classes for reasons of financial stringency. The experiment, however, deserves a trial. Much of the success of these classes, will depend on securing the services of the right type of men as teachers. In the laudable object of introducing compulsory primary education, which the local authority is reported to have kept in mind as the ultimate goal in view, the limited financial resources at its disposal prove a stumbling block. Unless more money is placed by Government at the disposal of the local authority, primary compulsory education will remain a dream as distant as ever[2]. In the course of our investigations we were informed that the people of the cultivating classes, especially the higher castes, would welcome compulsory education. There will however be some difficulty in working the scheme among labouring classes.

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1. According to the 1931 census, there were 16,747 persons between 5 and 15 years in the taluka.

2. Annual Report of the working of the District Loral Board Primary Schools in the District of Surat for the year ending 31st March 1930, pp. VI-VIII.

SANITATION AND MEDICAL RELIEF

A few observations may be offered on the sanitation of the villages. The waste water is allowed to collect in pools at the back of the house. It adds much to the insanitation of the village. It should be directed by channels and diverted to some useful purpose as mentioned elsewhere. Secondly, some of the manure pits are not properly covered and emit a foul smell. The pits being just near the house of the farmer, also add to the insanitation of the villages. Thirdly, dirt is allowed to accumulate in streets, and children are allowed to make use of by-lanes and streets as latrines. And it is nobody's business to prevent this. These and other considerations account for the unhealthy condition of the villages.

The most common disease in the taluka is malaria. This disease which has been completely stamped out in many parts of the world is reported by the people to be increasing in intensity in the taluka. The prevalence of malaria, and its intensity are clearly illustrated by the following statistics of the total number of deaths and the number of deaths due to fevers.

Year	*Total Number of deaths*	*Deaths due to fevers*
1926	2,337	685
1927	2,429	512
1928	2,178	625
1929	2,017	605
1930	2,118	719
1931	2,428	776

The above figures are instructive as showing the large number of deaths due to fevers. But many more persons are affected by malaria and become debilitated, and consequently, their energy and efficiency for work are seriously reduced. The following figures taken from the Olpad dispensary are equally illuminating.

Year	*Total number of outdoor patients treated*	*Number of Malaria patients treated during the year*
1924	3,829	1,840
1925	3,529	1,690
1926	4,463	2,081
1927	4,167	1,810
1928	7,485	3,723
1929	5,923	2,499

It will be observed that about one-half the number of patients treated were found to be suffering from malaria, and that with an increase in the number of patients, there is a corresponding increase in the number of malaria patients. The report of the Olpad dispensary for the year 1929 ascribes the causes of malaria to " uneven ground with pits and elevations causing obstructive drainage of rain water, and catchpits in compounds of residential buildings, and ignorance and poverty of the people regarding the use of quinine and of mosquito nets." We are more than ever convinced that if the taluka is to improve in this respect, the question of defective drainage already referred to in connection with waterlogging will have to be successfully tackled. It is necessary to supply the village officials and teachers with quinine in more liberal quantities and familiarise its use to the people. There are 4 Local Board dispensaries in the taluka, one at Olpad, and three to the west of the taluka at Karanj, Kudiana and Suwali. In cases of serious illness, however, the poor cultivators generally have to go without any medical relief. They can hardly afford the visiting fee of Rs. 5 charged by the private medical practitioners at Olpad. It may be considered, whether the usefulness of the existing Local Board dispensaries will not be much enhanced by the addition of a touring dispensary assistant, whose duty it would be to tour a group of villages at certain intervals. For sick persons, during the monsoon the want of roads for reaching the village or the town with a dispensary is an additional difficulty.

Unless more satisfactory sanitary arrangements come about, better medical relief is made available and a regular campaign for stamping out malaria is carried on, it is not possible to see the farmers healthy.

THE DRINK EVIL

In the programme of rural reconstruction of the taluka, there is perhaps no problem more urgent than the eradication of the drink evil. Such reform will materially improve the economic condition of many an agriculturist of poor resources, and especially of the Koli cultivators, who more than any other class are addicted to drink. The significance of this will be realised when it is remembered that in the year 1928-29, the excise revenues of the

taluka amounted to Rs. 1,37,986[1]. The population of the taluka in 1931 was 60,831. Of these, Brahmins (3192), Kanbis (5125), Vanias (108) and Sonis (307), or 8722 persons and 2,000 more persons belonging to other minor castes, that is, 10,722 persons in the aggregate may be excluded as being those who are forbidden to drink. About 50,000 persons of the taluka may, therefore, be regarded as those who have no religious or social scruples regarding indulgence in the intoxicants of toddy and liquor. If an average family is assumed to consist of 5 persons, about 10,000 families account for the excise revenues of Rs. 1,37,986. This means that an average family contributes about Rs. 14 per annum towards this revenue. If an equal amount, (or, even one-half of the above figure) is represented by the earnings of those who are engaged in the liquor and toddy trade, the incidence per family would increase to Rs. 20 or Rs. 25 per annum. In the face of these facts, who will deny the need of weaning the people from this evil, whose effects are recognised by Government which is pledged to a policy of prohibition. We have not the least doubt that a large number of Koli cultivators, a very industrious body of peasantry, are not able to advance economically simply because of their indulgence in drink. On a similar footing, but in a somewhat different category, stands the expenditure on tea, which has been increasing within recent years in all castes alike. It is an open question whether the money now spent on this item could not be saved and spent on milk and more abundant and nutritious food which would add to the health and efficiency of the farmer. These are some of the urgent and pressing problems for the social and material amelioration of the people.

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1. It will be observed that next to land revenue, this is the most important source of revenues in the taluka. The following figures of revenues of the taluka for 1928-29 are instructive.

Land Revenue	...	...	Rs. 5,65,372
Excise	...	...	„ 1,37,986
Local Fund	...	...	„ 38,697
Stamps	...	...	„ 20,430

CHAPTER XII

Rural Reconstruction

SUMMARY

The taluka is a dry-crop tract, and its agriculture is entirely dependent on the annual rains whose total quantity and seasonable distribution are both uncertain. The scope for irrigation by wells is almost non-existent in the western villages, and is limited over the rest of the taluka, because of the unsuitability of sub-soil water, which for the most part is brackish. Irrigation by tanks, on the other hand, needs to be encouraged and the existing tanks for irrigation should be kept in repairs. Black cotton soil, which for the most part prevails in this tract, is regarded as unfit for irrigation by canals and the consideration of a project of an irrigation canal from the Tapti in its relation to the taluka, if it is taken up, will have to be preceded by a thoroughgoing scientific enquiry into this aspect of the probem. Little immediate relief can, therefore, be expected from this quarter.

The growth of population is determined by such positive checks as famine, plague, influenza and disease. The rate of infant mortality is high. The proportion of effective population to the total is comparatively small. The artisan and craftsman castes are gradually losing their traditional occupations, and are taking to land. The dependence of population on agriculture is excessive, about 83 per cent of the total being occupied in or supported by it, and there is pressure of population on resources.

The average holding is a small unit of 7 to 10 acres and is in a fragmented condition. The process of subdivision goes on unchecked. As a consequence, there is a lack of balance between the different factors of production resulting into overstocking of plough cattle in parts of the taluka. The problem of creating economic holdings is fraught with difficulties. The evil is serious, and legislation on the lines of the Bombay Bill of 1927 needs to be given a trial in selected areas. For a permanent solution of the problem, however, a diversification of industries, and the absorption of the surplus population in non-agricultural industries are required. To prevent fragmentation of holdings or to bring about consolidation, the Co-operative consolidation society of the Punjab type deserves to be given a trial.

The uneconomical, inefficient and iniquitous Hali system continues to supply agricultural labour in spite of dissatisfaction on the side of both the masters and the Halis. The remedy lies in giving the Hali a certain share in the produce, and thus inducing him to stay on the land as a free and self-respecting man.

The breeding of cattle has fallen into inefficient hands; the cow is losing ground in the taluka. The uneconomical system of keeping two milch animals, the cow for breeding draught cattle, and the buffalo for milk, persists. The solution lies in evolving a dual purpose breed of cow. The problems of reclamation of salt lands and waterlogging have not been successfully tackled. In the one case, the possibilities of extension of area under cultivation, by reclamation of salt lands need to be explored; in the other, the possibility of a suitable system of drainage from the engineering point of view should be examined, and the introduction of a new method of cultivation, viz., 'ridge cultivation,' should be popularised.

The cultivator is heavily indebted, and the Sowkar remains the chief source of credit. The relations of the agriculturist with the Sowkar should be harmonious and placed on a sound footing. A Regulation of Accounts Act should be passed and the Deccan Agriculturists' Relief Act amended in suitable directions. Most of the debt of the agriculturist is of unproductive character and incurred for marriage and similar social occasions. Co-operative societies supply a small part of the agricultural finance, mostly short-term finance. A land mortgage bank for long-term loans should be started.[1]

The agriculture of the taluka has passed from the self-sufficing to the commercial stage. The problems of marketing have thus importance for the agriculturist and the best way is to organise marketing on Co-operative lines. Sale Societies have been doing good work in the marketing of cotton; the marketing of other products, and particularly vegetables, needs to be organised on the lines of these societies. Improved seed and improved methods of tillage will have to be introduced, and propaganda is necessary to acquaint the cultivator with these methods. The agriculturist gets his income once a year. Only one crop, whether cotton, juwar, or bajri is obtained, and it is not possible to have

1. A Land Mortgage Bank for the Surat District has been recently started.

more crops than one in a year. Besides, the falling prices of recent years have enormously added to his difficulties. The most urgent need of the agriculturist therefore, is the provision of subsidiary occupations, among which dairying and hand-spinning are perhaps best suited to local conditions.

The peasant's standard of living has become expensive. Expenditure on such items as tea drinking has enormously increased. It has to be remembered that an expensive standard of living which includes unwholesome food, or irrational expenditure for the satisfaction of vanity or ostentation, and does not add to the efficiency of the farmer, should not be confounded with a high standard of living[1]. If the above view is accepted, then we have no hesitation in saying that the expensive standard, which has followed in the wake of the high price of cotton, includes much expenditure on expensive tastes. People are now perhaps less well-fed, though they spend more on other items. The position now is that the virtue of thrift is entirely lost, and the rising generation tries to imitate the fashions of the city. We believe that the rural population will have to stop imitating the townspeople and set up their own standards, if we are going to have a really rural civilisation worthy of its name[2]. If these views are accepted, we believe that the people of the taluka will have to be weaned from wasting money on such intoxicants as toddy and liquor and from such habits as tea drinking[3]. It is perhaps here that the scope of the educationist and the social worker in really improving the economic conditions of the population is unlimited. It may, therefore, be urged that the development of subsidiary industries and the weaning of the people from these wasteful habits of expenditure, which go to make their standard expensive without being efficient, will do much in solving the problem of rural poverty of the taluka. The importance of the spread of education in this work of rural reconstruction will be gainsaid by none. Inter-village communication will have to be improved and such diseases as malaria which is on the increase will have to be stamped out.

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1. Cf. T. N. Carver's Principles of Rural Economics, pp. 365-366.
2. Cf. T. N. Carver's Principles of Rural Economics, p. 370.
3. Annual Report of the Department of Agriculture, Bombay Presidency, 1929-30, p. 6.

RURAL LEADERSHIP

If a part of the present energy and time that are devoted by leaders of the country to the political question were diverted to economic questions, and the energy and enthusiasm for service now engendered in the youth of the country, were diverted to the work of economic amelioration of the country, there is little doubt that very striking results would be achieved. Shall we not translate into practice the dictum " Peace hath her victories no less renowned than war "?

CO-ORDINATION BETWEEN VARIOUS AGENCIES

There is one point to which we should specially like to draw attention, and it is the lack of co-ordination between various agencies, official and non-official, connected with the rural development of the country. There is a host of officials who visit a village ; the Civil Veterinary Surgeon would innoculate the cattle, the Propaganda Officer of the Co-operative Institute would deal with the advantages of Co-operative Credit or Co-operative Sale; the Overseer of the Taluka Development Association, or an Officer of the Agricultural Department would impress on the people the benefits of the use of improved seed and implements; and the Educational Inspector would inspect the village school. A social worker would preach temperance or hand-spinning, and he may have nothing to do with any of the officials who are working independently of one another. What is required is that the rural problem should be viewed not piece-meal but as a whole. It needs to be considered as a whole and attacked as a whole. What we would, therefore, suggest is that a Rural Reconstruction Board consisting of representatives of various departments concerned with the problems of rural development, and non-officials interested in the problem, or working independently in their own way, should be established and a programme of reconstruction suited to the area be drawn up and put into execution. This will require the harnessing of the energies of the official as well as non-official workers. If systematic attempts on these lines are made, effective results would follow within a short period of time. The details of the programme, and the method of linking up this organisation with the villages, will be worked out by this body to suit local conditions. What we want is co-ordination of efforts and organisation, in order that the present diffusion of energies of various bodies may be prevented.

APPENDIX A

Giving the Schedule used in conducting the house-to-house enquiry in the villages intensively studied.

Occupational Group———— Sub-group (Caste)————

Serial No. of the Family———— Name of the Head of the Family————

HOUSE

Number of house	Description (Tiled, thatched etc.)	Use.	Value (in Rs.)	Nature of family (joint or otherwise)	Remarks
1	2	3	4	5	6

POPULATION, OCCUPATION Etc.

Names of Members of the family.	Age.	Sex (Male or female)	Civil condition (married, or unmarried or widowed)	OCCUPATION						Literate in		Migration	
				Principal			Subsidiary						
				Name	Annual period of employment	Income	Name	Annual period of employment	Income	English	Vernacular	Place	Purpose
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 (Head)													
2													
3													
4													
5													
6													
7													
8													
9													

ABSTRACT OF TOTALS

Total annual income	Land	Cattle	Labour	Other	Remarks

Total annual expenditure	Food	Clothing	Other necessaries	Interest	Land revenue	Cash rent	Repairs and renewals	Depreciation of live stock and implements

Total Debt	Ordinary	Mortgage	Productive	Unproductive

Total assets	Value of land	Value of Cattle	Value of implements	Value of house

LAND

HOLDINGS AND DIVISIONS

Kind of Land	Area owned	Number of plots	Area cultivated	Number of plots	Amount of rent	Remarks
1	2	3	4	5	6	7
Kyari Dry-crop land Garden-land. Pasture and grass land other Total						

LAND REVENUE

Land revenue demand.	Amount of land revenue paid	Paid out of	Remarks.

CROPS

Kinds of crops	Area cultivated	Outturn or yield (in maunds)	Price realised (in Rs.)	Current market price	Expenses of cultivation 6					
					Seed	Manure	Live-stock	Implements	Others	Total
1	2	3	4	5						
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

SALES

Area sold	Sale price	Sold to		Remarks
		Cultivating classes	Non-cultivating classes	
1	2	3	4	5

MORTGAGE

Area mortgaged	Amount of mortgage debt	Reasons of Mortgage	Period of mortgage	Kind of mortgage	Redemption of mortgage	Remarks
1	2	3	4	5	6	7

LIVESTOCK & DEAD-STOCK

LIVE-STOCK					DEAD-STOCK					
Kinds of animals	Number	Price	Income per unit	Expenditure per unit	Kinds of implements	Number	Price	Hire charges	Repair charges	Remarks
1	2	3	4	5	6	7	8	9	10	11
1					1					
2					2					
3					3					
4					4					
5					5					
6					6					
7					7					
8					8					
9					9					
10					10					
11					11					
12					12					
Total					Total					

DEBT

Sources of Loans	Amonnt of debt	Period of loan	Nature of Security	Rate of interest	Amount Repaid	How Repaid	8 Purpose & Use of Loan	
							Purpose	Use
1	2	3	4	5	6	7		
Sowkar								
Co-operative Credit Society								
Relations and Friends								
Tagavi								
Other								
Total								

APPENDIX B

Giving the questionnaire used for investigations in the villages.

1. What is the amount and the nature of the distribution of rainfall that you consider necessary for obtaining a good yield of crops dependent on rainfall ? (Give period in approximate dates and month, and rainfall in inches).

2. What are the means of water-supply for agriculture except the annual rains. Give the total number of (a) wells, and (b) tanks that can be used for irrigation. How many under (a) & (b) are in actual use for irrigation. Give reasons if all the wells and tanks are not so used. Can those now fallen in disuse be utilised in future. How many of (a) wells, and (b) tanks are in good condition. Will it be advantageous to repair the rest and put them in good condition ?

3. Give a brief description of the kinds of soils of your village with particular reference to the suitability of each kind of soil to the cultivation of particular crops.

4. State reasons if all the land that can be cultivated is not brought under the plough.

5. Is the land assigned as common free-pasture sufficient for the requirements of the cattle of the village ?

6. (a) What crops do you cultivate ? Give the expenditure, and income (in maunds) per bigha or acre for different crops.

(b) Make a note of the prevalent crop diseases. What remedies do you employ against them ? Have you availed yourselves of the services of the Agricultural Department.

(c) Are your crops damaged by locusts and or wild beasts, or in some other way ? If so, state the remedies employed by you or the kind of help rendered to you in this connection by the Agricultural Department.

7. What is the usual rotation of crops practised by you. What crops are raised as mixed crops. Can you give reasons for doing so or state advantages derived from rotations and mixtures ?

8. What manure do you use ? How much manure is applied per bigha and at what intervals is it applied. Mention the different

uses to which farm-yard manure is put. Can its non-manurial uses be prevented ?

9. How do you obtain your seed ? Have you used any improved variety of seed ? If you have, where do you obtain it from ?

10. Have you used any improved chemical manures ? If you have, state the advantages, and disadvantages if any, of its use.

11. Name the agricultural implements in general use. Have you used any improved implements ? What are they ? State the advantages and disadvantages of the improved implements tried by you.

12. What money-crops like cotton do you raise primarily for sale. If the cultivation of cotton has increased owing to the high prices fetched by the crop, describe the effects of the more extensive cultivation of this crop on the economy of the village.

13. State the unit of land that can be properly cultivated with a plough and a pair of bullocks.

14. Describe the effects of the rise in the price of land on the economic life of the people.

15. Were any remissions or suspensions of land revenue granted to you during the last 5 years ? If so, why ? Are the dates fixed for the payment of land revenue instalments suitable ? If not, suggest suitable dates.

16. What is your idea of a good season ?

17. Is there any difference in the methods of cultivation of a tenant from that of an owner-cultivator ?

18. What is a "Hali" ? Describe the nature of his relations with his master. State the amount of his remuneration, nature of work and hours of work. How does he differ from free labourers? Is the maintenance of a Hali cheaper than the employment of free labourers ?

19. Is there a scarcity of agricultural labourers in the village. If so, how is the deficiency met ? Are labour charges high ? If so, have you any remedies to suggest ? Are there any classes who formerly used to work in the fields and have now ceased doing so.

20. How are the village artisans, craftsmen and menials paid by the cultivators.

21. Do you breed cattle in the village or purchase them? If cattle-breeding is practised, what provision is there for breeding bulls and bull-buffaloes in the village? If cattle are purchased, what breeds do you select? State your reasons for the selection. What is the working period in the life of a pair of bullocks? What use is made of old and inefficient cattle who have ceased to work? Is there sufficient fodder for your cattle? If not, can you suggest a remedy for overcoming the scarcity? Give a list of common cattle-diseases and the remedies employed by you. Do you avail yourselves of the services of the Veterinary Surgeon at Olpad.

22. Give an estimate of the total debt of the village. Are all classes of people in debt? What, in your opinion, are the causes of indebtedness?

23. Is there a co-operative credit society in your village? Are your needs for money satisfied by it? If not, to what extent do the society and the Sowkar meet your needs. What is your relation with the society on the one hand and the Sowkar on the other.

24. Do cultivators borrow Tagavi loans? If not, give reasons for it.

25. State the usual rate of interest charged and the nature of security demanded by the Sowkar. Describe his methods of advancing and recovering loans and of keeping accounts.

26. What are the principal markets for your different crops? To whom is your surplus produce sold and who settles the price? Is it properly weighed? Give details of deductions from gross income consequent upon the marketing of your crops. Are you obliged to sell your produce to a Sowkar for clearing your outstandings? If it is sold to a Sowkar, is a fair price paid? Do you sell your crops at the village or at the market centres? Do you join hands with others for the sale of your produce or sell it individually? Is there a co-operative sale society? Has it benefited you?

27. Do you purchase your necessaries on cash or credit? What are the disadvantages of credit purchases? Are you obliged to sell your produce to the shop-keeper from whom you purchase your goods on credit? How many shops are there in the village. What do they deal in?

28. What transport facilities are available to you ? What is the distance of your village (i) from a railway station, (ii) from a good metalled road, and (iii) from the market town. What are the means of transport ?

29. Name the occupations, other than agricultural, which are followed in the village. Has any indigenous industry (art or craft) died out ? Can you give reasons ?

30. How do you utilise your time when there is little or no work in the fileds ? Can you give a time-table of your work in the fields ?

31. If the inhabitants of your village are divided into three classes i. e., good, middle and poor, what would be the annual income and expenditure of an average family of each group. Can you give details ?

32. At what age would you draw the line between children and adults ?

33. Give the amounts of maximum and minimum expenditure on religious and social occasions and ceremonies for different castes.

34. Is there a school in the village ? What classes of boys do not generally attend schools ? What is the attitude of the people towards a measure of compulsory primary education ? Would you like your boys to be educated in secondary schools and colleges ? What will be its effect on the agricultural industry ?

35. Is litigation much prevalent in the village ? Do people have faith in the decisions given in small disputes by respectable and leading persons of the village.

36. What are the common diseases in the village. Is malaria prevalent ? Give general considerations regarding village sanitation.

37. Are there any temples, mosques etc.? How are they managed ?

38. How are the untouchables provided with wells for drinking ?

39. Is there a common village fund ; how is it used ?

40. What are the usual occasions for social intercourse among the people ?

41. Is there any liquor shop or toddy booth in the village ? What classes of people are habitually given to drink and how much do they annually spend on toddy and liquor ?

42. Is the economic condition of the village in general improving or deteriorating ? If the latter, give reasons. If the former, state how it has improved.