

ANNUAL REPORT.

OF THE

DIRECTOR, LAND RECORDS AND  
AGRICULTURE,

BOMBAY PRESIDENCY,

FOR THE YEAR 1889-90.



Bombay:  
PRINTED AT THE GOVERNMENT CENTRAL  
1890.

## CONTENTS.

	Para.	Page.
<b>Introductory—</b> ... ..	1-3	1
<b>Divisions of Report</b>		
<b>I.—ORGANIZATION AND MAINTENANCE OF VILLAGE RECORDS—</b>		
Transfer of the Survey Records to the Collectors of the Southern Division from 1st April 1891 and provisional equipment of the other Divisions with the Circle Inspector or Kanungo Staff sanctioned by Government ... ..	4-5	1-2
Position and duties of the Director, Divisional Inspector, District Inspector and also the sub-divisional officers defined; recruitment and grades of District and Circle Inspectors... ..	6-7	2-3
Review of work of Circle Inspectors' duties as regards crop, waste and boundary-mark inspection; quality of village officers' work; check exercised by the District Inspector and by the sub-divisional officers ... ..	8-12	3-5
Check census of population and live-stock by the Circle Inspectors and the test taken by the District Inspector and the sub-divisional officers ... ..	13-15	5
Details of Circle Inspectors' work as regards Complete Boundary-Mark Inspection and Measurement ... ..	16-17	5-7
Head-quarter office work ... ..	18	7
<b>II.—ANALYSIS OF DISTRICTS WITH REFERENCE TO SECURITY FROM FAMINE—</b>		
Bombay Statistical Atlas recommended at the Simla Conference as a model for other provinces; intended introduction of the <i>Pargana</i> Book of the North-West Provinces into this Presidency; Revision of Bombay Famine Code ... ..	19-20	7-8
<b>III.—SYSTEM OF COLLECTION OF REVENUE AND RENTAL IN PRECARIOUS TRACTS—</b>		
No special measures needed... ..	21	8
<b>IV.—MEASURES OF PROTECTION—</b>		
Bábhul growing on headlands of fields condemned; Plantations in Násik and Poona districts and on the Bhadgaon Farm described ... ..	22	8
<b>V.—AGRICULTURAL EXPERIMENTS, INCLUDING FARMS—</b>		
<b>A.—Experimental Farms—</b>		
Committee's proposal of increasing the number of Experimental Farms generally approved by Government; Mr. Mollison's appointment as Superintendent of Farms sanctioned ... ..	23	8-9
<b>Bhadgaon—</b>		
Season and financial results; Experiments on sugarcane, wheat, cotton ... ..	24	9-10
<b>Poona—</b>		
Season and financial results; mango grafting; location of dairy herd; Farm classes for agricultural students of the College of Science ... ..	25	10
<b>Nadidd—</b>		
Management of the farm not good; in other respects the Association's work good; a museum established and show exhibits arranged therein ... ..	26	10-11
<b>Sind (Hyderabad)—</b>		
No experiments reported ... ..	27	11
<b>B.—Experiments on various Indigenous and Exotic Products—</b>		
<b>Wheat—</b>		
Distribution of selected Muzaffarnagar seed in Sind and its results ... ..	28	11
<i>Date-palm; Arrowroot; Indigo; Divi-Divi; Strawberry</i> ... ..	29-33	11-12

	Para.	Page.
<i>C.—Utilization of bones for manure—</i>		
Export Trade in bones and chances of a counter demand to check it; Bone-mills and their increase ... ..	34	12
<i>D.—Takávi Advances—</i>		
Success in the Belgaum District ... ..	35	12-13
<i>E.—Locust attacks of the year</i> ... ..	36	13-14
<i>F.—Improved Agricultural Implements—</i>		
Successful trials with the "Planet Jr. combined" horse-hoe and cultivator ... ..	37	14
<i>G.—Adulteration of wheat—</i>		
Reduction in refraction; Grain Elevators; Wheat Trade ...	38	14
<i>H.—Cotton Steam Saw-Gins in Dhárwár—</i>		
Progress of steam saw-gins; Government factory at Hubli ...	39	14-15
<i>I.—Forecasts—</i>		
Earlier submission ordered; Forecasts for Oilseeds instituted...	40	15
<i>J.—Agricultural and Cattle Shows—</i>		
Poona, Rájkot, Pálanpur, Sind, Kolhápúr and Southern Marátha Country, Ahmadabad, Bombay and Nadiád Shows ...	41	15-17
VI.—CATTLE BREEDING AND VETERINARY ESTABLISHMENT—		
<i>Veterinary Dispensaries—</i>		
General remarks; working of the Ahmadabad, Nadiád, Násik and Dhulia Dispensaries ... ..	42	17-18
<i>Bacteriological Laboratory—</i>		
Dr. Lingard's arrival ... ..	43	18
<i>Civil Veterinary Department—</i>		
Organization of the Department under the Director, Land Records and Agriculture... ..	44	18
<i>Cattle Disease—</i>		
Rinderpest in several districts ... ..	45	18-19
VII.—AGRICULTURAL AND FISCAL STATISTICS—		
General remarks; comparison of the area of Available Statistics; Cultivated and Uncultivated area; Gross cropped area; Twice cropped area; Cultivated area; Net cropped area and Fallow; Uncultivated area; Forest... ..	46-55	19-22
Details of Crops with causes of increase and decrease; Kharif and Rabi details ... ..	56-58	22-25
Percentages of Food and other crops on the Gross area Cropped...	59	25-27
Outturn of crops ... ..	60	27-28
Fruit Trees ... ..	61	28-29
Irrigated area ... ..	62-63	29-30
Agricultural Stock—General remarks; Cattle, Sheep and Goats, Ploughs and Carts ... ..	64-66	30-31
Rainfall—Seasons, 1888-89 and 1889-90... ..	67-68	31-32
Crop Experiments ... ..	69	32
VIII.—TRADE AND TRADE STATISTICS—		
Transfer of the Registration and Compilation of the Rail-borne Trade to the Agricultural Department; Review of the Rail-borne Trade Report of Sind ... ..	70	32
IX.—ARCHAEOLOGY—		
No information ... ..	71	33
X.—MINERAL STATISTICS ... ..		
—DAIRY MACHINERY ... ..	72	33
—FUSION ... ..	73	33
—MISCELLANEOUS ... ..	74-75	33

## CONTENTS.

iii

Page.

**Statistics—***A.—Agricultural—*

I.—Area of Available Statistics	...	...	...	iii
II.—Area, Cultivated and Uncultivated	...	...	...	iv-v
III.—Crops	...	...	...	vi-xiii
IV.—Irrigation	...	...	...	xiv-xv
V.—Agricultural Stock	...	...	...	xvi-xvii
III-A.—Details under Kharif and Rabi	...	...	...	xviii-xxi
III-B.—Principal Fruit-bearing Trees	...	...	...	xxii

*B.—Rainfall—*

Explanatory remarks	...	...	...	xxiv
Synopsis of Rainfall Summary	...	...	...	xxv
District Tables	...	...	...	xxvi-xxxv

**Appendix—**

A.—Export of wheat from the Port of Bombay	...	...	...	xxxvi
B.—Export of wheat from the Port of Karáchi	...	...	...	xxxvii
C.—Dairy Experiments	...	...	...	xxxviii-xxxix

---

No. 2260 OF 1890.

FROM

E. C. OZANNE, ESQUIRE, C. S., M. R. A. C.,  
Director, Land Records and Agriculture,  
Bombay;

TO

JOHN NUGENT, ESQUIRE, C. S.,  
Chief Secretary to Government,  
Revenue Department,  
Bombay.

*Poona, 15th November 1890.*

SIR,

I have the honour to submit the **seventh** Annual Report of the Department of Land Records and Agriculture, for the year ending 31st October 1890.

The report will be somewhat late, but my absence at Simla for the Agricultural Conference at the time when the report is usually being compiled, coupled with delay in receipt of the District Returns (see para. 46), is a full explanation.

2. The post of Director was held by Ráo Bahádur Bhimbháí Kirpáram till the end of April when I resumed charge. Mr. Bhimbháí paid four visits to the Government Farm at Bhadgaon in December, January, March and April. He was also present at the Chinchli Show in February and at the Nadiád Show in the same month. I paid three visits to the Bhadgaon Farm in May, July and August. I visited Ahmadabad in June to confer with the Commissioner, N. D., on the subject of cotton trade frauds, and again, under the orders of Government, I met Dr. Voelcker at Ahmadabad on 19th July, and with him visited Nadiád, Baroda, Kelva Máhim, Poona and Belgaum in the Bombay Presidency, Bellari and Hospet in the Madras Presidency, and on the return journey, Poona, Kalyán, Igatpuri and the Bhadgaon Farm. My tour with Dr. Voelcker was made at a most interesting season, and lasted three weeks. We were accompanied throughout by Professor Middleton of the Baroda College, and in Gujarát by Mr. K. B. Jádhav, M.R.A.C., of His Highness the Gáekwár's Service, both agricultural experts. From the 27th September till the 18th of October I was absent from head-quarters to attend the Simla Conference.

3. The department is still without the assistance of the Superintendent of Farms sanctioned in Government Resolution No. 3621, dated 26th May 1890.

The officer selected, Mr. Mollison, is expected shortly.

Ráo Bahádur Bhimbháí has, owing to over-work and anxiety, chiefly arising from his duties connected with the Crawford Enquiry, been reluctantly compelled to sever his connection with the department. Government recognized his faithful service not only by placing him in charge of the department during my absence at Baroda for a whole year, but by granting his request to complete his service for pension at his native place in the comparatively easy post of Treasury Officer at Surat. His loss is greatly felt. He has been succeeded by Ráo Bahádur Ichhárám Bhagvándás, B.A., in the post of Personal Assistant, an officer trained by Mr. Campbell and Mr. Bhimbháí in the office of Compiler of the Gazetteer, and who was with Mr. Bhimbháí transferred to the Department, Land Records and Agriculture, on the completion of the Gazetteer in 1884.

#### I.—ORGANIZATION AND MAINTENANCE OF VILLAGE RECORDS.

4. Most important steps have to be recorded towards carrying out the scheme of 1883, which is described in detail in the First Report of this Department, for the reformation of the Bhág-kárkún or supervising branch of the Mámledár's staff, and for the maintenance of the Survey Record on the completion of the work of the Survey Department. The whole subject, including the revision of the Famine Code and of the functions of the Agricultural Depart-

ment, was considered by a Committee in July. The recommendations of the Committee have been accepted. At the same time the Survey Commissioner has submitted proposals for the final winding up of his department in April 1892. The immediate steps advised by the Committee will fit in with the Commissioner's recommendation.

5. Orders have issued directing the transfer to the Collectors of the Survey records of all the Collectorates of the Southern Division by the 1st April 1891. The transfer will be made on the plan, experimentally worked out in the two districts of Dhárwár and Bijápur, the various stages of which have been faithfully recorded in the reports of the Agricultural Department. A selected Survey Assistant Superintendent will be appointed Divisional Inspector, and will, as Assistant to the Director, hold charge of the duties of the Agricultural Department in connection with the re-organized staff. At the same time provisional sanction has been accorded to the immediate equipment of the other Divisions of the Presidency, excluding Sind, with a better paid, more numerous, and better educated staff of supervisors, though the Survey maintenance branch will not be incorporated till the close of the field operations of the Survey Department in April 1892. The Bombay Presidency will therefore be soon provided with a competent Kanungo establishment, such as is entertained in other Provinces.

6. Full advantage will be taken of the facilities offered by the closure of the Survey to leaven the new staff with trained men in all its grades. The position of the Director will be that of a responsible supervisor, charged especially with the duty of preserving uniformity in the working of the inspecting staff under the control of the Collector, and of upholding the traditions of the Survey. His tours will be directed towards bringing to the notice of the Collectors dilatoriness and irregularities. The Divisional Inspector will prepare and submit proposals for future revisions of rates on expiry of current leases; will watch the correction of the Survey record and map by regular inspection of the District Head-quarter Offices in charge of the Records. He will keep a systematic check by field test on the professional, *i. e.* measurement and classing, work of the District Inspector, who in his turn will be the head of the District Survey Office and will be responsible for the correctness of the Survey work of the Circle Inspectors, and for the ledgering of village statistics for use at revisions of rates and for constant inspection by Revenue officers desiring to obtain prompt intelligence of the fluctuations of any village or group of villages, indicating increasing prosperity on the one hand, or deterioration on the other. The District Inspector will further supervise the compilation of the District Statistical Forms in the Collector's office for submission with his review through the Collector to the Director, for the compilation of the Annual Returns of the Presidency, which appear in the Director's Report and are submitted to the Government of India in a condensed form for incorporation in the Imperial Returns.

The whole staff from the District Inspector downwards will be strictly under the control of the Collector, who will look to the Divisional Inspector for advice on professional matters. But the check and test of the work of the Circle Inspectors in their duties as supervisors of the statistical registers of the village officers will practically devolve on the Sub-Divisional Officers and Mámledárs in each district.

7. District Inspectors will be graded. The grades will be Rs. 100, 125 and 150, so that a District Inspector, 1st grade, will receive the pay of the lowest grade of Mámledár, and will, when qualified, be eligible for promotion in the Mámledár's grades. The post of Assistant District Inspector will no longer be retained, except in one large district (Khándesh). The pay of Circle Inspectors will be from Rs. 25 to 35, exclusive of a permanent travelling allowance of Rs. 7 per mensem. Recruitment will as hitherto be from the Survey ranks and from the Mámledárs' offices, by selection. The passed Agricultural Students of the Agricultural College will enjoy a preferential claim to appointment on the regular Revenue staff and will, after passing the Revenue departmental test, be eligible for appointment as Circle Inspector, on probation till they have passed a further special test in surveying. Those who proceed to the diploma in Agriculture will have a still higher claim to appointment in the higher grades

of the Revenue service and it is hoped will be permitted to have the same claim as graduates in Arts and Engineering, in order that they may leave the higher grades of the regular and special branches of the Revenue Department with men whose education specially fits them for the posts of Mámledár and District Inspector, to whom agricultural knowledge is of the greatest use in their every-day work.

8. I now proceed to show the work done by the supervising staff in Bijápur and Dhárwár. By the retransfer of Mr. Price to the Survey Department in 1889, this staff has been without the requisite supervision of a competent Survey officer, and, as will be seen, the work of the special branch has suffered in quality.

9. Apportionment of duties of Circle Inspectors :—

November to February.—Crop, waste and concurrent boundary-mark inspection.

March to May.—Complete boundary mark inspection.

June.—Compilation of táluka statistical returns.

July and August.—Checking village census and vital statistics.

September.—Compilation of táluka census return.

September and October.—Miscellaneous measurement and classing work.\*

10. *Crop and waste inspection and examination of boundary marks.*—This is the táluka inspection, required by and recorded in Village Forms 2 to 4. By special sanction the Circle Inspectors confine the boundary mark inspection to all the marks of survey numbers inspected, whether in occupied land (crop inspection), or in unoccupied land (waste inspection), the object of the crop inspection being to improve the statistics of cultivation and that of the waste inspection to detect unauthorized cultivation and encroachment.

*Statement showing percentages.*

District.	Year.	Villages inspected per cent.	CROP INSPECTION.		WASTE INSPECTION.
			Occupied lands percentage inspected.		Unoccupied Lands Survey Nos. inspected per cent.
			On Survey Numbers.	On Area.	
Dhárwár ... ..	Last ...	78	7.58	5.49	29.02
	Present ...	97	7.73	5.63	27.17
Bijápur ... ..	Last ...	85	10.37	8.99	31.29
	Present ...	95	10.09	8.39	36.77

11. All surveyed villages are required to be annually inspected, the whole time for inspection being divided according to the size of the villages, and the number of days of halt at each being thus fixed. Last year the inspection was incomplete because, as reported, the period for inspection was curtailed. It has been practically completed during the present year.

The extent of work done, considering the larger number of villages traversed, is satisfactory. It is a standing order that all the waste should be inspected at least in four years. The year's inspection has exceeded the fixed standard. If the percentage of numbers inspected be taken on occupied and waste numbers together, it works out to 8.8 and 11.2 respectively for the two districts. On the average the daily work amounts to  $6\frac{3}{4}$  and  $7\frac{3}{4}$  survey numbers, respectively—a slightly better result than that of the previous year and satisfactory when it is borne in mind that all the marks of all the numbers were examined, *i. e.*, on the average about 12 marks per survey number, for marks common to the selected numbers and others adjoining are included in the inspection.

\* This work is also necessarily carried on during the whole travelling season, and only that which can be postponed, or which is left incomplete, is disposed of at the close of the year (September and October).

The quality of the work of the village officers, as disclosed by the inspection, does not show improvement. The inspection of waste brought to light 70 cases (Dhárwár 16, Bijápur 54) of encroachment or unauthorized cultivation, of which only 1 in Dhárwár and 3 in Bijápur had been reported by the village accountants. In crop inspection 41 and 50 per cent. of the entries had to be corrected, and 18 per cent. in each district were found blank. The rest were correct. In the boundary-mark examination, the number of marks found by the Inspector in dis-

	Not shown in the village form as in disrepair.	Shown as in repair.
	Per cent.	Per cent.
Dhárwár ...	61	31
Bijápur ...	48	31

repair not noted at the village inspection, or shown as in repair proves how superficial the annual village inspection is, and to this it may be added that 526 marks in Dhárwár and no less than 3,674 in Bijápur were incorrectly entered as in disrepair which were really in repair. It is probable that some, though not many, of these had been repaired

between the village and the taluka inspection. On the other hand I have to notice a decided improvement in the attendance of kulkarnis at the Inspector's visit and in the punctuality of their registration. The absentees fell from 29 to 19 in Dhárwár and from 21 to 5 in Bijápur, while the number of blank entries fell from 21 and 20 respectively to 18 per cent.

12. The superior check exercised by the District Inspector and his Assistant, its extent and result may be exhibited as follows:—

District.	CROP INSPECTION.		WASTE INSPECTION.		BOUNDARY MARK INSPECTION.	
	Extent.	Quality.	Extent.	Quality.	Extent.	Quality.
Dhárwár ... ..	3·3	85	3·1	95	3·2	95
Bijápur ... ..	3·0	65	4·1	99	3·2	92

that is, for instance, in Dhárwár the superior test extended to 3·3 per cent. of the numbers tested by the Circle Inspectors and in 85 per cent. of these numbers the lower test was found satisfactory. All the circles were visited in both districts, the number of villages being 94 in Dhárwár and 115 in Bijápur. The figures of quality show large improvement, but the question left in doubt is whether the superior check was as strict as it should have been and would have been had the District Inspector felt that a Mr. Price would scrutinize his work. The only light which is thrown on this question comes from the general remarks made by the Revenue officers.

The Collectors write:—

*Dhárwár.*—“The total as well as the average work done this year by the Circle Inspectors is shown by the District Inspector to be greater than last year. On the whole, I am quite satisfied with the work done, which is far more complete and methodical than the inspection work done under the old system.”

*Bijápur.*—“The amount of work shown here contrasts favourably with that done in the previous year \* \* \* . The above are the results as they appear on paper. But the intrinsic value of them is open to a great deal of doubt. Mr. Harvey, in his report, has drawn attention to certain noteworthy shortcomings, *e.g.*, the general tendency to select for test fields which contain only one kind of crop; and the imperfect nature of the tests applied in the case of fields containing crops of more kinds than one \* \* \* . But it is impossible for a Collector and his Assistants to do all that is necessary in the way of testing the work done by the Circle Inspectors. And I am convinced that the working of the department can never be made quite satisfactory, unless a special European officer is employed again, as Mr. Price was when the system was started; unless the District Inspectors are men of higher grade, greater experience and more authority; and unless the Director of Agriculture himself can give more attention to the department, by visiting the districts in person than has been the case during, at any rate, the past year.”

In Dhárwár the crop and boundary-mark inspections were tested in 28 villages by the district officers (sub-divisional). The only remark as to quality is that the work was good, but the extent of the test and its nature are



not indicated. In Bijápur the Collector's Office tested the work of 16 Circle Inspectors but no details are reported. Mr. Harvey in 11 villages tested 116 numbers for crop and boundary mark inspection in 5 circles, in three of which the work was "very bad", in one "good" and in the last "very fair." Mr. Drew tested in 20 villages 54 numbers for crop inspection and 130 for boundary marks; but left on record no opinion as to the result. The District Deputy Collector visited 5 villages and tested 51 numbers for crop and boundary mark inspection, the work done being found "quite satisfactory in every case".

The Collector's remarks seem largely based on Mr. Harvey's report and adverse criticisms, with regard to which the Commissioner remarks: "Sub-Divisional Officers seem to forget that in deploring the want of adequate supervision over Circle Inspectors they are censuring themselves". I need make little further comment. The Collector of Bijápur in heading his paragraph "the working of the Agricultural Department" appears to have forgotten that by the sanction of Government in May 1889 his predecessor accepted the whole control of the special establishment and the duty of supervising it. The Collector was unfortunate in his District Inspector for part of the year, but on his removal an active and competent successor was appointed. In future the Divisional Inspector and the District Inspector will have little opportunity to check this class of work except so far as to lay down the lines on which the test should be made, and the whole responsibility of supervision will devolve on the Sub-Divisional Officers and the Mámledárs.

13. *Check Census of Population and Live-stock.*—This work should be reviewed next in order that all the regular test work of the Circle Inspectors and the check exercised by superior officers may be considered in one place. The Circle Inspectors visit all the villages of their circles in July and August, the only time when the villagers and their cattle are mostly at their homes, and immediately after the completion of the village census by the Kulkarnis. All the entries of Village Form No. XIII are examined in villages with a population under 500, half in larger villages with a population not exceeding 1,000, and one-quarter in still larger villages. The number of villages inspected rose 17 per cent. in Dhárwár, 16 in Bijápur. Some delay in commencement arose from the detention by the Mámledárs of Inspectors for the compilation work, which ought invariably to be fully completed by the end of June. Work was impeded also by the absence of the Kulkarnis at the date of the Inspector's visit. As the villages are visited in order and on fixed dates, there is no reason why this impediment should be allowed. In all 46½ and 49 per cent. of the entries in Village Form XIII were checked in the visited villages as against 47 and 49 respectively in Dhárwár and Bijápur last year. Of the entries checked 77 per cent. and 70 per cent. respectively as against 76 and 73 per cent. in the two districts were passed as correct, *i. e.*, a small improvement in Dhárwár but falling off in Bijápur. I may add that no provision whatever is made for any such check of the village census in other districts.

14. As to vital statistics the Circle Inspectors at the time of the check census are required to make a regular test of Village Forms XIV and XIV A—D, but as the results of this regular check and of the irregular check made at every visit to a village are reported direct to the Mámledár for transmission to the Deputy Sanitary Commissioner, no figures are available for report in this place. The subject is however important, and if Government so desire, statistics will in future be called for. The Deputy Sanitary Commissioner, Southern Registration District, acknowledges the valuable assistance of the Circle Inspectors of Bijápur and Dhárwár.

15. The census was checked in 100 villages of Dhárwár but in only 2 of Bijápur by Sub-Divisional Officers. The only remark in Dhárwár is that the work was found good, but the extent and nature of the check exercised are not indicated. On the other hand, the District Inspector and his Assistant checked 3·1 and 4·4 per cent. respectively in Dhárwár and Bijápur of the entries tested by the Circle Inspectors, visiting 50 villages in 33 circles out of 37 and 74 villages in 32 circles out of 38 respectively in the months of July and August, the object being to guide the work of each Inspector on the lines laid down rather than to make a large test.

16. From March to May the Circle Inspectors carried on the complete boundary mark inspection on the revised plan instituted last year. I have in

detail reported in my letter No. 1125, dated 26th June, on the remarks made by Government in the concluding sentence of paragraph 2 of the Resolution which reviewed last year's report and, I trust, have made it plain that the progress of this inspection must be shown separately from that of the inspection made concurrently with the crop and waste inspection already described. The system is detailed in paragraph 9 of last year's report, the only change being that of making the Inspectors responsible for the repair of the marks found out of repair—a change approved by the Collectors. The number of villages in which

	Last year.	Present.	Total.
Dhárwár ...	170 +	144 =	314
Bijápur ...	268 +	177 =	445

the complete inspection has been made is shown marginally. At this rate the whole district will be traversed in less than 10 years, *i. e.*, with the present staff all the marks demarcating the village site, tanks, roads and unoccupied numbers, including numbers set apart for public or special purposes, and the village boundaries will be systematically inspected and repaired once in ten years. The necessity for such periodical revision is well shown by the results of the inspection. No less than 23 and 27½ per cent. of the marks inspected this year were found out of repair in the two districts respectively and similarly no less than 220 and 185 encroachments were detected. The steps taken to cause repairs to be done were fairly effective. The second inspection was not completed, 37 per cent. in Dhárwár and 13 per cent. in Bijápur of the marks found out of repair at the first inspection not being re-inspected. But of those re-inspected 81 per cent. in Dhárwár and 92½ per cent. in Bijápur were either found repaired or were repaired. The figures last year were 40 and 20 when the repairs were left to the Kulkarnis. A large number of marks demanded measurement to re-fix their position. It would be well if the Collectors insist on the completion of the non-completed second inspection before any new village is taken up next March.

The decrease in villages and work done is chiefly due to the change noticed, but also to a prevalence of influenza.

17. It is necessary to show in detail the work done by the Inspectors as measurers and classers. This work does not decrease.

Statement showing the Measurement Work done by the Circle Inspectors.

No.	Classes of Cases.	DHÁRWA'R.			BIJÁPUR.				
		Arrears on 31st July 1889.	New Cases.	Disposed of	Arrears on 31st July 1890.	Arrears on 31st July 1889.	New Cases.	Disposed of	Arrears on 31st July 1890.
1	Partitions of land under decree of Court ...	7	60	65	2	3	7	7	3
2	Sub-divisions on applications of occupants duly sanctioned ...	22	20	29	13	3	8	8	3
3	Disputes necessitating re-measurement of fields ...	32	52	52	32	18	30	40	8
4	Disputes requiring fixing of marks by the field books ...	176	225	247	154	110	251	218	143
5	Encroachments ...	132	267	312	87	73	238	244	67
6	Measurement of alterations caused by alluvion and diluvion ...	45	60	65	40	32	87	81	38
7	Measurement of land required for public purposes—								
	(a) Extramural burial grounds ...	17	43	51	9	7	26	18	15
	(b) Tanks ...	13	6	16	3	...	...	...	...
	(c) Roads ...	17	18	17	18	1	19	13	7
	(d) Dharmashálas and other public buildings ...	7	6	10	3	...	1	1	...
8	Measurement of land for building sites ...	53	166	164	55	39	233	235	37
9	Re-classification of survey numbers ...	...	7	6	1	1	3	2	2
10	Miscellaneous ...	111	214	246	79	118	523	517	124
	Total ...	632	1,144	1,230	496	405	1,426	1,384	447
	Non-measurement cases—								
	Prescribed by the rules ...	564	3,472	3,415	621	122	726	725	123
	Not prescribed by the rules ...	40	417	417	40	8	174	179	3
	Total ...	604	3,889	3,832	661	130	900	904	126
	Grand Total ...	1,236	5,033	5,112	1,157	535	2,326	2,288	573

Measurement work (Nos. 1—10)—New cases decreased by 10 per cent. in Dhárwár but increased 20 per cent. in Bijápur, the increase on the whole being 4 per cent. The arrears on 31st July which are usually disposed of in September and October have considerably fallen in the former and slightly increased in the latter district. The Collectors do not report the fees received for the work done under heads 1—4. There is no doubt that the orders of Government authorize the demand for payment for such work (Government Resolutions No. 1993 of 14th April 1890, Judicial Department; No. 1325, dated 16th February 1889, and No. 745, dated 29th January 1890). The point will be brought to the notice of Collectors.

The total number of cases disposed of rose by 17 and 62 per cent. in the two districts respectively and the percentage of arrears on the total number of cases for disposal has fallen by 4 and 7 respectively. This is satisfactory.

18. I think it necessary to show the statement hitherto shown for "Head-quarter Office Work," because this table proves whether the work of correction is up to date or in arrears :—

Statement showing the Head-quarter Office Work.

District.	Number of Cases received necessitating correction in Survey Records.	Number of Akárbands.		Number of Maps and Field Books corrected.	Number of extracts from Field Books sent to Circle Inspectors.	Number of extracts from Survey Books supplied to Revenue Officers and Petitioners.	Number of Maps supplied to Village Officers.
		Corrected.	Remaining to be corrected on 1st October.				
Dhárwár ...	51	102	14	911	962	71	200
Bijápur ...	205	74	2	548	225	7	343

## II.—ANALYSIS OF DISTRICTS WITH REFERENCE TO SECURITY FROM FAMINE.

19. This subject was discussed at the Simla Conference. The Statistical Atlas of the Bombay Presidency was recommended as a model among others. Without anticipating the report of the Conference, I may say that it is very desirable to imitate the North-West Provinces Pargana Book in this Presidency. No province can claim to have village statistics superior to ours, but the Pargana Book annually collects the main facts of each village from the various registers into one form. The Survey Commissioner in Bombay keeps a similar village ledger which, however, only shows what is called the "Revenue History" in Settlement Reports. More is required. The Committee appointed by Government Resolution No. 3664, dated 27th May, in paragraph 14 of its report has shown exactly what is necessary, *viz.*, the ledger of village statistics, year by year, required both for famine needs and for revisions of rates. The materials are at hand, but they must be compiled from the date of the last settlement in each village by the Circle Inspectors, each for his circle, so that the pargana book will be a circle book, so arranged that there will be no difficulty in transferring the ledger of any village from one to another circle book and with blank pages, as in the North-West Provinces, for the remarks by itinerant officers of all departments, when such officers in their tours notice any noteworthy fact and wish to record it. The circle book will serve the purposes of the Settlement Officer, and will be a most valuable record for the perusal of District Revenue Officers, especially those new to a particular charge, and will indicate deterioration, should any deterioration occur in any village or group of villages, and either show the reason or indicate the necessity for ascertaining it. Lastly, the circle book will give all the materials for the detailed analysis of districts with reference to security from famine which may be summarized in periodical editions of the Statistical Atlas, or in supplements to the Atlas. I note these remarks here for no orders are required from Government. But I believe that the circle book will be appreciated by the Collectors and their Assistants, and I only need their co-operation.

20. The Bombay Famine Code has been revised by a Committee appointed at the instance of the Supreme Government. The alterations desired by that Government were principally with respect to the "duties before famine" and have been practically met by the incorporation of the special rules for Circle Inspectors, already sanctioned, into the Famine Code.

### III.—SYSTEM OF COLLECTION OF REVENUE AND RENTAL IN PRECARIOUS TRACTS.

21. During the year no special measures have been called for under Chapter VI of the Bombay Famine Relief Code.

#### IV.—MEASURES OF PROTECTION, including—

1. *Fodder Reserves and Arboriculture.*
2. *Extension of Communication.*
3. *Irrigation.*

##### (1). *Arboriculture.*

##### *Bábhul Plantations.*

22. A perusal of the information supplied to me under this head leads me to fear that the course which I know to be noxious and harmful is being allowed in some districts. I have repeatedly stated that though bábhul is a most valuable tree, if confined to set areas, it is one of the most harmful in the presence of dry-crop cultivation, especially in the rabi season. I have in various reports annually given proofs (*vide* especially report of 1885-86, paragraphs 27 to 32, and of 1886-87, paragraph 13) and yet the tendency is apparently towards *inducing* cultivators to plant their headlands with bábhul. From Hyderabad it is reported that extensive avenues along roads have been planted, and cultivators, alive to their interests, are growing bábhul in parts of their fields. If this is in irrigated land, the benefit may be great, but the object of the concessions offered by Government was to induce cultivators to set apart whole fields or defined portions of fields for bábhul plantations. From Násik, a dry district, though the district officers have endeavoured to induce rayats to set apart fields for bábhul plantations, the only result reported is an increase of bábhul on the headlands of fields. This is to be regretted. Immense harm was done in Khándesh (see Report of 1885-86, para. 29) by the misdirected influence of district officers in this direction. The result of Mr. Ashburner's experiment on the Bhadgaon Farm therein reported is evidence enough. There is only one instance of the commencement of a bábhul plantation during the year on the plan of the Government offer, *i. e.*, in the case in Bhimthadi (last year's report, paragraph 18). Orders have been issued by Government that remission of assessment may be granted as long as the land is kept under bábhul. The Collector however has postponed the remission "till the plantation has actually been formed." It will never be formed under those terms and they do not appear to be the terms intended by Government in their Resolution No. 6232, dated 5th August 1884, which are that remission may be allowed to *induce* the setting apart of fields in occupation for bábhul-growing. The Malthan plantation started under the concession has been handed over to the Forest Department. The plantations on the Bhadgaon Farm in two fields of four and two acres are progressing very favourably, but the experiment is still in progress. The possibility of thus utilizing cultivable land with profit cannot be decided till the plantations begin to yield an annual return from the wood and grass. One remarkable fact has come to notice. Where the young bábhul is growing near the headlands, covered with established bábhul trees, it has failed. Bábhul shade is so bad that it prevents even bábhul from growing.

### V.—AGRICULTURAL EXPERIMENTS INCLUDING FARMS.

#### *A.—Experimental Farms.*

23. Government have been pleased to approve of in general the proposal to increase the number of experimental farms made by the Committee appointed under the Government Resolution No. 3664, dated 27th May last. The Director has also been desired to submit a detailed scheme showing precisely how he would propose to give effect to the suggestions of the Committee. Government

have also sanctioned the appointment of Mr. Mollison as Superintendent of Farms, Bombay Presidency.

Bhadgaon Farm.

24. The rainfall at the farm was very low again, but its distribution was very favourable to the two staples—cotton and jowari. In spite, then, of a rabi season so dry that only the very first sown crops of that season gave any outturn at all without irrigation, the financial result was very good:—

	Area cropped or fallowed.	Assessment.	Gross Value of Produce.	Net Profit per Acre.		
	Acres.	Rs.	Rs.	Rs.	a.	p.
General area ... ..	407	576	8,681	10	6	0
Experimental crops ... ..	63	82	644	0	9	6
	470	658	9,325	9	1	0

Thus, even taking into count the experimental area and debiting the assessment, a net profit of over Rs. 9 per acre was secured. The incidence of assessment on gross produce in the general area was less than 7 per cent. and on net produce a little over 13½ per cent. These figures would have been improved if irrigation had been resorted to for the late crops; but experience has shown that such a course would have encouraged weeds and been harmful in future years. Advantage was taken of the absence of rain to clean 35 acres of land at a cost of Rs. 165 (included in the total cost), though from these fields there was no immediate return.

The breeding herd swallowed up a large share of the profits of cultivation as it must necessarily do. It can never pay directly to breed cattle on a Government Farm though indirectly the results justify the cost of the herd, for its surplus is distributed by sale in the neighbourhood and the village cattle are greatly improved by the services of the young bulls sold from time to time. Nine such bulls were sold at an average of Rs. 58, only two of which were over three years old. These two fetched Rs. 75 a piece.

The sales of produce have met all cultivation expenses, excess keep of live-stock, miscellaneous charges necessitated by sanitation and the isolated position of the farm, the cost of the Superintendent's frequent tours, and that of the clerical establishment, which is required to keep a minute record of every result obtained on the experimental as well as on the general area.

Large expenditure has been incurred during the year (Rs. 11,700) in building a new granary, quarters for the clerks, a masonry silo (Rs. 300), and in extending the cattle byres and repairing those already existing. Two per cent. of this cost in the case of new works and 5 per cent. in the case of repairs have been debited to the accounts of the year already burdened by a small sum debitable on account of previous permanent improvements.

On the whole the net cost of the farm has been Rs. 743 as against Rs. 990 in the previous year. The pay of the Superintendent (Rs. 3,000) is not included.

The experimental results though not numerous were important.

*Sugarcane.*—In sugarcane cultivation it was shown that by sowing the tops of canes, instead of cutting whole canes into sets, a saving of some Rs. 15 per acre can be effected.

Two varieties of cane from the Saharanpur Botanical Gardens, styled Lahona and Lahima, were tried, but they compared unfavourably with the local white (? Mauritius) variety.

*Wheat.*—But the most important results were secured with wheat and cotton. The sixth season of experiment with soft-white and soft-red wheats seems now definitely to prove not only that the soft varieties can be cultivated without appreciable change in colour or consistency in a district of hard wheats, but that they, as well as hard wheats from other parts of India, after one or two years of poor yield, become acclimatized and give crops of grain and straw far in excess of the best local varieties.

As regards consistency, the earlier results of the trial seemed in the soft kinds to indicate a tendency to harden, but with irrigation that tendency has disappeared and it does not seem premature to assert that in irrigated land in the Deccan it is profitable to grow soft white wheat provided it is acclimatized; and it is certain that excellent results will be obtained with hard wheats—irrigated as well as dry—if outside seed is introduced, provided a short crop for the first year can be afforded.

*Cotton.*—The results in cotton are more numerous. Sea Island cotton has produced a few bolls and may improve.

Four varieties of American cotton, imported in 1886 and grown for one year in Dhárwár and then transferred to the Bhadgaon Farm, hardly returned the seed in the first year, gave a very poor crop in the second, but in the third beat all other varieties, even the short-stapled Varádi. Of these importations, the one (Louisiana), with the best staple, is yet far behind the others. Two others (Memphis "Allen," and Arkansas "Upland") have a harsh coarse fibre, but the last, Memphis "Bruder," with a good strong staple, yielded the best crop (198 lbs. clean cotton per acre). The local Varádi gave only 110 lbs.. If Louisiana improves, as is possible, choice for distribution and for new importations should apparently be made from that and from the "Bruder."

Side by side with these results, excellent returns were secured from selected Bani cotton—good staple—from the Berárs (149 lbs. clean cotton per acre). Another good variety from the same province, Jari, is a cold weather variety sown later and taking longer to mature. It does not seem likely to succeed in Khándesh.

It is certain that if success is secured with these better staples, a reaction in their favour will set in. The now falling price of cotton may aid the reaction. For some years everything (price, colour, utility for mixing and yield) has been in favour of the local Varádi, which Dr. Watt declares to be a hybrid, not indigenous to Khándesh or the Berárs, as hitherto it has been considered to be.

#### Poona Farm.

25. This farm is intended as a means of imparting practical instruction to the students of the Agricultural Branch of the College of Science. Thirteen acres of new land have been brought under cultivation. The season was poor and the greater part of the land uneven and unfruitful. No part is fit for comparative experiment. Arrowroot has again been successfully grown, but there is no market for it.

The cultivation charges on the farm were Rs. 742. The assessment on the land is Rs. 90. The produce sold for Rs. 791. The old Botanical Gardens at Ganeshkhind are supervised by the Assistant Superintendent in charge of the Poona Farm. The sales of grass and mango grafts (Rs. 847) just suffice to cover the expenses of tending and watering the planted graft mangoes. These now number 1,500 well established grafts. The sale of mango grafts continues. Rs. 95 were realized under this head during the year. Grafts are sold at cost price to cultivators and at a profit to others. There were 300 good grafts ready for sale at the close of the year.

A small dairy herd is kept on the Kirkee portion of the farm. It is a beginning in the study of milking capacities of various breeds, feeding of milch cattle, crossing to improve local breeds, and the like. But the use to the agricultural students of such a herd to teach them something about the management of cattle is also important. The Assistant Superintendent (pay Rs. 100 per mensem) gives farm-classes to the students.

#### Nadiád Farm.

26. The reports received from the Agricultural Association of the working of this private farm are still very sketchy. The management of the farm is not good. Some of the first principles of good cultivation have been neglected. The Association will be called on to improve the management, else the assessment on the land, the remission of which is allowed as long as the farm is usefully managed, will have to be demanded. In other departments the Association has continued to do good work. It has established a museum and arranged show-exhibits in it.

It has continued its Show (as will be seen from paragraph 41 below). Its pamphlet is flourishing. Its seed store is kept up, but is not yet a success. Financially the Association is successful. Its balance is about Rs. 8,500.

The Sind Farm (Hyderabad).

27. The Hyderabad Farm is now under the charge temporarily of the Local Board (Government Resolution No. 8422, dated 5th November 1889). The Board has not continued the experiments which were in progress at the time of the transfer, nor has it kept up the cultivation book and other registers, so that no results can be reported.

*B.—Experiments on various Indigenous and Exotic Products.*

1. Wheat.

28. Selected Muzaffarnagar seed wheat was again distributed in the Nára Valley of the Thar and Párkar District. The grant from Government was Rs. 1,000, and from Local Funds Rs. 500, but sanction came late, and in all only 67 maunds of fresh seed were imported, though with the Local Fund money 220 maunds of acclimatized seed were purchased and distributed. The area now under this variety is 4,100 acres, as against 2,812 acres reported last year. Frost slightly reduced the yield this year. The following table shows the results:—

Kind of Seed.	Area sown in 1889-90.	Total Seed sown.	Total Outturn.
	A. g.	Mds. s.	Mds. s.
New seed imported by Government ... ..	52 23	63 20	240 10
Acclimatized seed purchased by Local Funds ...	162 19	219 33	937 0
Do. Government share of previous year's produce ... ..	285 1	357 32	1,682 26
Do. Jamindár's share ... ..	3,607 11	4,738 26	15,040 0
Add—Reapers' share ... ..	.....	.....	2,237 19
Total ... ..	4,107 14	5,379 31	20,137 15
Average per acre ... ..	.....	52·4	4·36

Note.—1 maund = 82½ lbs.

2. Date-palm.

29. Seed of the Egyptian date-palm was distributed in 1888. The seedlings have been planted out, and are reported to be doing well.

Mr. Duthie, Director, Botanical Department, North India, kindly supplied 7 lbs. of seed again this year which was distributed in March and was sown between April and June. The seedlings have come up well except in Bijápur.

The Djereed date-palm seed supplied to the Commissioner in Sind in June 1889 was distributed as noted in the margin.

Sers.	In Kotri in Karáchi, as previously anticipated,
Collector of Karáchi ... .. 10	the plants have made good progress. In the
Municipal garden at Karáchi... 8	municipal garden more than 3,400 seedlings are
Meer's garden at Karáchi ... 2	growing. In the economic garden at Hyderabad
Collector of Hyderabad ... 10	545 seedlings have been planted out. Else-
Collector of Shikárpur ... 10	where in Hyderabad and also in Shikárpur the

seed sown has germinated and the plants promise well.

3. Arrowroot.

30. Mr. Gogte in Dápoli (Ratnágiri) produced 8,000 lbs. of starch on 10 acres. The Commissariat demand has been very short and no other market has yet been found. Arrowroot was grown also at Gondal and at the Poona Farm.

4. Indigo.

31. Junágad had 30 acres under this crop and the Mahi Kántha Agency at Sádra reports 1 bigha of indigo. Thus the endeavours to revive its cultivation in Gujarát are continuing.

## 5. Divi-divi.

32. A test shipment of pods was made this year of about 3½ tons, the produce of about 150 trees on the Bhadgaon Farm for two years. The trees are along a nála bank, but if regularly planted out, would occupy about three acres. Picking the pods and filling the bags cost Rs. 22-8; bags, Rs. 28-2; railway charges, cartage, freight, Rs. 166-3; charges in Liverpool, Rs. 38-10; total Rs. 255-7. The consignment sold for Rs. 409-11 or Rs. 111-4-6 per ton. The profit was Rs. 154-4. This is equivalent to Rs. 26 per acre per annum, which must be considered an excellent return. This result is encouraging to the extended cultivation of divi-divi.

## 6. Strawberry.

33. In December of 1887 about 2,000 strawberry plants were procured through the Superintendent, Botanical Gardens, North-West Provinces, Saháranpur, at the rate of Rs. 4 per 1,000 and sent to Mahábaleshvar, where they were distributed for experimental cultivation. The plants arrived late in the season and many died on the way. A poor crop has been picked, but the fruit is reported to be excellent.

## C.—Utilization of Bones for Manure.

34. The export trade in bones is increasing. Bone-mills have come into existence to cheapen carriage by crushing to one-inch bones and by grinding to meal. In the form of bone-meal there will be no difficulty in using bones for manure, though their precise value will have to be experimentally studied. It was decided in 1883 not to attempt to check the export directly by a heavy tax or in any other way but to trust to the gradual rise of a counter-demand for manure. This demand has not yet arisen, but the facility now for obtaining bone-meal may induce it. It is necessary that I should record the result of enquiries made.

There are 7 mills in Bombay and 1 at Thána. The latter is a large one, recently opened by Messrs. Croft & Wells. Bones are bought by itinerant dealers, chiefly Musalmáns, who employ the low-castes of villages to collect them. These petty dealers either sell direct to exporters who employ the Bombay mills or to larger dealers. It is estimated that some 10,000 tons are annually collected. The prices paid in Bombay vary from Rs. 35 to 45 per ton, but are rising. Conversion to one-inch bones costs about Rs. 2½ and to bone meal about Rs. 5. The prevalent prices last season in England for the prepared bones were £4-10 and £5 respectively.

The imports by sea of bones to Bombay for export to England come chiefly from Cutch and Káthiáwár. The rail imports are larger. The difficulty of collection in the Konkan has so far prevented much export therefrom.

## D.—Takávi Advances.

Amounts advanced in 1888-89.

Northern Division.	Rupees.	Central Division.	Rupees.	Southern Division.	Rupees.	Sind.	Rupees.
Kaira ... ..	1,300	Ahmadnagar ...	10,316	Belgaum ... ..	33,320	Karáchi ... ..	5,800
Panch Maháls ...	2,400	Khándesh ... ..	15,072	Bijápúr... ..	585	Hyderabad ...	4,550
Broach ... ..	535	Sátara ... ..	1,816	Ratnágiri ... ..	320	Thar and Pár-	
		Sholápur ... ..	3,262			kar ... ..	4,045
		Násik ... ..	50			Shikárpur ...	2,800
						Upper Sind	
						Frontier ... ..	600
Total ... ..	4,235	Total ... ..	30,516	Total ... ..	34,225	Total ... ..	17,795

35. The figures show no blank district in Sind, but only Ratnágiri in the Konkan made any use of the advances offered by Government. The repayments were punctual on the whole, but in Khándesh, Ahmadnagar and Karáchi the overdue outstandings are large. Belgaum is conspicuous in the statement. Great efforts have been made by the Collector to overcome the little understood difficulties which keep the cultivator from utilizing to the full the great facilities offered. During the year ending June advances in this district were made to 142 persons. Rs. 10,730 were advanced for constructing and repairing wells and enlarging



tanks, Rs. 8,877 for clearing fields of deep-rooted grasses, Rs. 7,238 for raising protective embankments, Rs. 6,760 for converting dry-crop into rice land, Rs. 350 for purchasing cattle and Rs. 825 for removing prickly pear in cultivated land. The details are noted to show how greatly agricultural improvements can and should be effected by means of these advances on low interest.

Referring to his observations on the dry north-east talukas, the Collector says:—"I saw several wells for irrigation, also a small tank or two, lately constructed there; lands never cultivated before, freshly brought under cultivation; lands cleared of the *natt* grass; culturable land brought into existence by means of embankments constructed to intercept the alluvial deposit, washed down in the monsoon from the higher lands; stone ramps thrown up to protect good land from the action of neighbouring streams, and so forth." These improvements, but for these advances, would never have been taken in hand. The improvement in Belgaum has been effected by the interest taken by the district officers, and there seems no reason to think that similar results cannot be attained in the same way elsewhere. Notifications were posted in every chávdi and school throughout the district. "The numberless applications now received show that the matter is now to some extent attracting the attention that it deserves; but they also show that the public is to a great extent still under a misapprehension." Many applications are received for money to be expended on the payment of ancestral debts or for marriage expenses to be incurred.

The increase of work has called for an addition to the clerical staff and the appointment of three clerks to be paid out of the takávi grant in Belgaum has been experimentally allowed for one year.

Under recent modifications in the rules under the Land Improvement Act the ordinary rate of interest has been lowered from  $6\frac{1}{4}$  to 5 per cent., and that of compound interest for any sum not paid when due, from  $6\frac{1}{4}$  to 6 per cent. A corresponding lowering of interest has been sanctioned in respect to loans for the purchase of cattle, seed and implements.

The work of clearing village sites of the over-growth of prickly pear seems to have been systematically conducted in Belgaum. Within a period of five years 477 villages have been cleared up to a distance of 100 yards from the village site. In some cases the villagers have been induced to subscribe large sums and to make the clearance by hired labour.

#### *E.—Locust attacks of the year.*

36. Locusts were harmful in Sind from July 1889 till September 1890. They lingered longest in the Thar and Párkar and Upper Sind Frontier Districts. The locusts did considerable damage. Their visits are not infrequent, but on this occasion they came at an unusual time. It is reported that they were exterminated by jowári birds. The Deputy Commissioner reports that the birds did not attempt to eat the locusts, but snipping them in two, left them.

Mr. Ommanney in 1883 mentioned the jowári bird or Rose Pastor as a great enemy of the locust in Khándesh.

Locusts visited Cutch and Gujarát and parts of Káthiáwár, but were not injurious. Specimens were sent to the Superintendent, Indian Museum, Calcutta, for identification. Besides the samples of locusts, samples of grasshoppers (*hieroglyphus*) from the Panch Maháls, Rájpipla and Broach, of *Hieroglyphus furcifer*, and *Chilo oryzacellus* from Thána, of *Heteropterius* from the Upper Sind Frontier and Jhálávád (Káthiáwár) and of *Pocilocera picta* from Jhálávád (Káthiáwár) were sent to the Indian Museum. *Hieroglyphus* was reported to do damage to maize, rice and bávto. "So far as is known, they do not migrate and can therefore scarcely be looked upon as locusts." Mr. Cotes is of opinion that it is not worth while to take special measures for destroying them. As regards *Hieroglyphus furcifer* Mr. Cotes writes: "The insect is a grasshopper, allied to the migratory locusts, but probably is one of those forms which do not migrate or often occur in sufficient numbers to occasion serious injury. The insect is therefore entirely distinct from the

migratory locust. \* \* With regard to remedies the insects being now almost all in the imago or winged stage, I don't think that much can be done beyond perhaps beating them off the crops." The rice bug from Thána is reported to have done damage. "The insect proves to be the caterpillar of a small moth, either identical with or very closely allied to, the rice stalk-borer (*Chilo oryzacellus*) of the United States.\* \* With regard to remedies, the observations of Mr. Howard in the United States, and of Mr. Wray in Perak, have shown that the insect passes the time between the harvesting of one crop and the springing up of the one in the following year in the self-sown rice, and perhaps also in the stems of large grasses which spring up in and around the fields. The careful destruction therefore of these after the harvest by burning has been thought to be the most promising means of reducing the numbers of the pest." About *Poecilocera picta* Mr. Cotes states that little is known about its habits but it is not expected that it will be found to occur in sufficient numbers to do any considerable damage.

#### *F.—Improved Agricultural Implements.*

37. I have lately purchased for the Bhadgaon, Poona and Nadiád Farms "Planet Jr." horse and hand hoes. The implements have been tried on the farms and have been found useful. The Superintendent of the Bhadgaon Farm reports that the horse hoe is specially suited for cultivation for the rabi crop during the monsoon and for the interculture of cotton. In his opinion it is light, strong and cheap for its high finish. On the Poona Farm the horse hoe was used in preparing land for wheat and the hand hoe in hoeing capsicum. As regards the Nadiád trial, Sirdár Ráo Bahádur Bechardás Viháridás writes that considering the dry nature of the soil the furrows were sufficiently wide and deep and the draught was not heavy. He thinks that the horse hoe would work still better in the wet season, but fears that "the ordinary cultivator will not be able to manage it and the ordinary smith will not be able to repair it on emergency."

Messrs. Lloyd Lawrence and Co. of Philadelphia, United States of America, who are the manufacturers of these implements, have appointed Messrs. John Fleming and Co. of Bombay their Agents for these implements. The horse and hand hoes respectively are sold for Rs. 33 and 16.

#### *G.—Adulteration of Wheat.*

38. The Conference on adulteration and refraction in wheat under the presidency of Her Majesty's Secretary of State appears to have led the Committee of the London Corn Trade Association to agree to limit refraction in samples of Bombay wheat to 3 and 3½ per cent. according to the time of shipment and similarly of Calcutta "No. 2 club" to 4 and 5 per cent.

Shortly afterwards a proposal to introduce Elevators was brought before Government. The proposers asked for many concessions. Grain Elevators will not easily succeed, for there is an absence as yet of a real demand for pure wheat. As long as the manipulation of the comparatively pure sample sold by the producer can be turned to profit by the middleman, and as long as the cultivator cannot get a higher price for cleaner wheat, the scope of Elevators does not appear large. Some of the concessions asked could hardly be granted, e.g., a guarantee of interest on capital outlay and a long monopoly.

Appendices A and B show the exports of wheat from the ports of Bombay and Karáchi since 1880. The exports from Bombay exhibit a continuing fall which commenced in 1887. On the other hand, the exports from Karáchi have increased. The reasons are climatic; a bad wheat season in the Central Provinces on the one hand and a good one in the Punjáb on the other.

#### *H.—Cotton Saw-gins in Dháruwár.*

39. Last year (paragraph 28 of report) the number of steam saw-gins was shown at 15; one more has been added. Of the total 3 are fitted with rollers and the rest with saws in part or entirely. The oldest gins were established in 1884 at Hubli and Gadag by the Southern Marátha Ginning and Pressing Company. In the next

year Mr. Byrámjí Frámjí followed the Company with two more gins. The natives of the district have not been slow in following in the wake of these outsiders and have up to date erected 12 steam gin factories. The introduction into the district of the Steam Boilers Inspection Act, which enjoins the employment of second class engineers in charge of portable engines, seems to have checked further progress.

It is satisfactory to find that steam saw-gins necessary for the exotic American variety have at last been established in this district. But the number of hand saw-gins has not decreased. They are convenient to small holders and to those at a distance from the steam gins. Saw-gins have of late years been largely used for ginning indigenous cotton to pass it off as saw-ginned Dhárwár. The result is a fall in the price of Dhárwár-American cotton. The Government establishment at Hubli for the repair of hand saw-gins has not yet been taken over by the District Local Board. The fund to which all owners of hand saw-gins contribute compulsorily (as long as they use the gins) is in a satisfactory condition. The Government debt has been paid off and the assets show Rs. 5,000 cash in hand and Rs. 9,500 outstanding balances.

#### I.—Forecasts.

40. Earlier submission of the cotton forecast and the introduction of forecasts for the more important oilseeds—sesame, linseed and rapeseed—have been ordered.

The following statement shows the areas under cotton and wheat as shown in the forecasts with the estimated outturn :—

Province.	Total Acreage.			Estimated Out-turn, 1889-90.	
	1889-90.	1888-89.	Average.	Total.	Per Acre.
				Bales.*	Lbs.
<i>Cotton.</i>					
British districts ... ..	2,872,963	2,762,294	2,615,930	559,156	77·8
Native States ... ..	2,873,523	2,620,482	2,639,243	768,403	106·9
Total ... ..	5,746,486	5,382,776	5,255,173	1,327,559	92·4
				Tons.	
<i>Wheat.</i>					
British districts ... ..	2,322,993	2,362,004	2,301,828	582,482	561·6
Native States ... ..	551,017	633,887	631,547	249,695	1,015
Total ... ..	2,874,010	2,995,891	2,933,375	832,177	648·5

\*In accordance with the recent Government Resolution a bale is here taken equal to 400 lbs.

The area estimated in the forecasts for British districts differs from that reported in the agricultural returns by only about 1·48 per cent. for cotton and 0·49 per cent. for wheat, which is very satisfactory. It is not so easy to test the accuracy of the estimated yield which at best is very approximate.

#### J.—Agricultural and Cattle Shows.

41. Horse shows are included under this head under the general orders of Government. The reports of such shows are commented upon by the Director of Land Records and Agriculture. The principal shows of the year were :—

No.	Province.	Place.	Kind of Show.	Date.	Prize Money.	Contributions.
1	Deccan ...	Poona ...	Horse-show ...	24th September.	Rs. 2,887	Government grant, Rs. 2,000; private subscription, Rs. 1,639.
2	Káthiáwár ...	Rájkot ...	Horse-show ...	9th December.	Rs. 2,395 and 42 diplomas.	Káthiáwár Chiefs, Rs. 2,000; Local Funds, Rs. 750; Government grant, Rs. 600.
3	Gujarát... ..	Pálanpur ...	Horse, cattle and agricultural show and exhibition.	17th December.	Rs. 1,628	Native Chiefs, Rs. 4,511.
4	Sind ... ..	Shikárpur ..	Horse and European vegetable show.	13th January...	Rs. 4,230	Government grant, Rs. 2,000.
5	S. M. Country...	Chinchli ...	Horse, cattle and agricultural show.	6th February.	Rs. 4,897	Kolhápúr Darbár, Rs. 2,000; Chiefs of Miraj Junior and Rámdurg, Rs. 1,000 each; other States, Rs. 4,055.
6	Gujarát... ..	Ahmadabad...	Horse-show ...	24th March ...	Rs. 2,270	Government grant, Rs. 2,000; H. H. The Gáekwár, Rs. 1,000; Ahmadabad Local Board, Rs. 1,000; and others 319.

*Poona Horse Show.*—The Government grant was reduced from Rs. 3,000 to Rs. 2,000. The season was unfavourable, and the exhibits were few and inferior. Several prizes were withheld. In the Breeders' classes the number was only 233, or less than  $\frac{2}{3}$  rds that of the previous year.

*Rájkot Metropolitan Horse Show.*—Cattle were not admitted. The show was successful owing greatly to the abolition of local shows in the province. His Excellency the Governor was present. The total number of entries rose from 355 to 610, of which more than half belonged to Girásíás and cultivators, the Chiefs wisely preferring to encourage their subjects. Of 8 entries in the remount class 2 were purchased. In all 16 horses changed hands. The brood mares numbered 139, *i. e.*,  $2\frac{1}{2}$  times the total of the last show. There was a good increase in every class. 100 prizes (value Rs. 2,025) and in addition Rs. 370 for silver medals were awarded. Diplomas were given to Chiefs and officers. 225 copies of Mr. Steel's pamphlet on cattle-disease were distributed. The opinion of the Show Committee was expressed that thorough-bred English sires were proved by the exhibits at the show to be more suitable to Káthiáwár than Norfolk Trotters.

*Pálanpur Agricultural Show and Exhibition.*—Organized by Colonel Nutt. There were 294 horse entries. The cattle were numerous (492) and were worthy representatives of the fine local breeds. The cream separator and a hay-press were worked at the show. Articles of local manufacture (including jail manufactures) were exhibited. The number of visitors to the show was computed to be about 25,000. The value of the prizes awarded was Rs. 1,628.

*Sind Horse Show.*—The exhibits were 294 less than in the previous year, a result due to wise selection by the classing committee, ensuring superiority in the animals admitted to compete. The remount class was very good indeed and contained many animals suitable as remounts for the army and the police. The gelding class was good. But the paucity of exhibits of animals, the produce of Government stallions, proved the necessity of extension of the nursery system, in imitation of the beginning made at Ahmadnagar. Mule-breeding showed a small but steady progress. 167 remounts—143 for the army and 24 for the police—were purchased at an average of Rs. 250. Similarly 19 mules were secured for Government at Rs. 123—a low figure. The prospects of the show are excellent. Rs. 4,230 were given away in prizes. The Upper Sind Frontier District alone secured Rs. 1,590. Translations of Mr. Sutherland's memorandum on mule-breeding were distributed gratis. Colonel Mayhew, Collector of Shikárpur, organized a show for European vegetables. Rs. 238 were given in prizes. The Collector has for several years encouraged trials with European vegetable seeds and with continued success. The Sind show was very largely attended.

*Kolhápúr and Southern Marátha Country Horse and Cattle Show.*—The show is timed to fit in with a long established Fair. In 1885 the number of horses entered for the show was 382. It is now 1,881, and they are reported remark-

Districts.	
Shikárpur with Khairpur ...	288
Upper Sind ... ..	280
Beluchistán ... ..	157
Áfghánistán ... ..	39
Punjáb, &c. ... ..	20
	784

ably free from unsoundness and above ordinary show standard. Large purchases were made from young stock by Captain Webb for the Ahmadnagar Nursery. As to cattle, though numbers were slightly less, the quality was high. Exhibits of agricultural produce appeared to have been hand-picked for the show. Steps should be taken to remedy this defect. A class for agricultural implements and machinery was newly introduced, but it did not fill.

Prizes amounting to Rs. 1,570 were taken by exhibitors from British districts, and Rs. 3,327 by those belonging to the States supporting the show. 130 horses and 2,166 cattle valued at Rs. 46,000 changed hands at the Fair.

*Ahmedabad Horse Show.*—This show was not successful. The bad season of 1888 showed its effect on the condition of the animals and no doubt the Bombay show tempted the best animals. The number of exhibits compared with the previous year shows little change. The large decrease in the remount class was counterbalanced by increases in the classes of brood mares, colts and fillies. The remount class was fairly good. 12 remounts were purchased. Prizes amounting to Rs. 750 were withheld, with promises that they would be given at the next show if improvement takes place. It is, however, satisfactory that in spite of the Bombay show the number of exhibits did not fall off.

District or State.	1889.	1890.
Ahmedabad ...	280	286
Kaira ...	78	71
Baroda ...	159	183
Mahi Kántha ...	63	44
Káthiáwár... ..	6	20
Other places ...	48	33
Total ...	634	637

*The Bombay Show.*—The great show held in *Bombay* on the occasion of the visit of His Royal Highness Prince Albert Victor was the special feature of the year. No details are at hand to enable me to comment.

Mr. Steel, Principal of the Veterinary College, secured a large number of most interesting photos of horses and cattle representing nearly all the breeds of the Presidency and excellent specimens of nearly all. Mr. Steel is about to publish an album of the photographs with descriptive notes, which will be one of the most valuable publications of the decade.

*Nadiád Show of Agricultural Produce and Cattle.*—His Excellency the Governor was present. The Secretary has not favoured me with statistics of the show, but from personal observation I can attest to the excellence of the show except in cattle, of which the exhibits were neither as numerous nor as good as they ought to have been.

## VI.—CATTLE-BREEDING AND VETERINARY ESTABLISHMENT.

### *Veterinary Dispensaries.*

42. The object in view is to follow with respect to animals the methods of popularizing scientific treatment of disease which have been successful in the case of human beings. The Bombay Veterinary College graduates have been utilized as Assistant Veterinarians in charge of dispensaries furnished with a few sick stables for in-patients. The dispensaries are assisted by a grant-in-aid from Government under the conditions noted in paragraph 43 of last year's report. Though no addition to the number of the dispensaries has been made during the year, the successful working of the four previously established in Ahmedabad, Nadiád, Násik and Dhulia will undoubtedly induce the Local Boards and other bodies interested in the care of cattle in disease, such as the Managers of Pinjrápols, and of Associations for the Prevention of Cruelty to Animals, to accept the offer of Government open to all.

A short notice of the working of each of the dispensaries may be given:—

*Ahmedabad.*—The Government grant (Rs. 400) is supplemented by grants from the Municipality (Rs. 200), Pinjrápol (Rs. 300), Local Board (Rs. 200). Private subscriptions amounted to Rs. 220. A small balance remained at the end of the year. Instruments and medicines have been purchased. The dispensary has been furnished. Sick stables for animals have been provided, and a compounder or assistant on Rs. 10 employed. 22 in-patients, 554 out-patients, and 69 Pinjrápol patients have been tended. The Assistant Veterinarian visited 25 villages in the neighbourhood where foot and mouth disease was raging. He has given lectures.

His work has been satisfactory and he has succeeded in winning confidence. If even Pinjrápols could, by the work of the Assistant Veterinarian, be

converted into refuges for animals, conspicuous for attention to and care of diseases and injuries, as well as for providing a mere means of subsistence, these well intentioned charities would be charities in reality.

*Nadiád.*—Government grant (Rs. 400), Municipality (Rs. 150), Local Board (Rs. 500). The Municipality also gave an initial donation of Rs. 150. The funds were all expended in equipment and pay of the establishment, including the compounder. 667 patients were tended, of which 128 were brought from outside villages. There are apparently no arrangements for in-patients; but the Assistant Veterinarian halted for three weeks at Mehmabad and Anand, and treated five patients. The Collector rightly thinks that the Assistant should not attempt to make his dispensary peripatetic. The Pinjrápol at Nadiád has so far, it would seem, neither availed itself of the services of the dispensary nor contributed to its support. The Assistant Veterinarian wisely visited several villages, before his medicines arrived, to study cattle-disease and to acquaint the villagers with his mission.

*Násik.*—The dispensary has been incorporated with an established depôt of the Society for the Prevention of Cruelty to Animals. The grants were as follows:—Government Rs. 400, Municipality and Local Funds Rs. 200 each, donations and subscriptions Rs. 845. The charges were similar to those of other dispensaries and were covered by the receipts. Three prosecutions for ill-treatment of animals were instituted in the year as against 11 in the 14 months previous. In all 186 animals were treated as in-patients. Of these, 38 were sent by members of the Society, and 19 by the Pinjrápol. 14 were sent by the police and municipality. The rest by their owners.

There were, in addition, 39 out-patients. Fees are received for feeding animals in hospital, but animals belonging to poor owners were fed at the cost of the Society.

*Dhulia.*—Opened in December only, but the report gives a history up to the end of July. There is provision for 12 in-patients. 239 out-patients and 9 in-patients were treated. During the nine months ending 31st July the receipts amounted to Rs. 2,950 and expenditure to Rs. 1,287. In April the Assistant Veterinarian toured in the Páchora Táluka where rinderpest was prevalent, and assisted the Superintendent of the Government Farm at Bhadgaon where the epidemic was most severe. The dispensary was closed during the tour.

All the dispensaries have framed rules.

#### *Bacteriological Laboratory.*

43. Dr. Lingard has assumed charge of the Bacteriological Laboratory located near the College of Science at Poona (*vide* paragraph 44 of last report), and the work of the laboratory has been commenced.

#### *Civil Veterinary Department.*

44. The sanction of Government to the organization of the department has been received. The Department, which will include the Horse-breeding Department, will be under the Director, Land Records and Agriculture. Detailed proposals under the sanction are in course of submission.

#### *Cattle-Disease.*

45. The year is characterized by an absence of reports of epidemics among cattle. But information received from other sources than the reports published in the *Government Gazette* show that there was rinderpest in Khándesh, Thána and Kaira. The prompt report by local officers of cattle epidemics is greatly desirable.

On the Bhadgaon Farm a severe attack of rinderpest occurred in April 1890. Of 113 animals attacked 54 died. The Superintendent observes that rinderpest is only known to the Vanjáris. Good results were obtained by keeping up the strength of the animals attacked with arrowroot *kánji*. Soon after the disappearance of rinderpest foot and mouth disease broke out on the farm. No casualties occurred, but in this disease the value of ensilage and arrowroot *kánji* was marked.

Cattle-disease was also reported from the Bassein Táluka of the Thána District. From the symptoms described by the village officers, the disease appears to have been rinderpest. It occurred about the end of November, and

attacked 406 head of cattle, of which 223 died. It lasted only for a fortnight. The rayats are reported to have taken no steps towards segregation. Both sick and unaffected animals were driven together as usual to pasturage.

## VII.—AGRICULTURAL AND FISCAL STATISTICS.

### A.—AGRICULTURAL.

46. The only important change made in the standing orders during the year is with reference to the anna estimates of the outturn of crops, which will be explained further on (paragraph 60).

The district returns again show some improvement in compilation but

	Date of receipt.
Broach .. ..	3rd October ..
Karachi .. ..	6th do. ..
Hyderabad ..	6th do. ..
Shikarpur ..	7th do. ..
Thana .. ..	13th do. ..
Thar and Parkar ..	20th do. ..

not in punctuality, the returns from many districts having been late; while in the case of the districts noted in the margin, they were more than a month over-due. Besides this, the returns from some districts of Sind were so incomplete and faulty that amended returns had to be

asked, which were not received until the other sections of my annual report had already gone to press. The general compilation of the Presidency Returns was thus delayed, both for my annual report and for the General Administration Report.

#### Return No. 1—Area of Available Statistics.

47. Gross Area.—The gross area of the Presidency Proper shows an increase of 44 villages and 55,000 acres under 'Government', but a decrease of 57 villages and 2,400 acres under 'Alienated'. In Government villages, Kánara gives an increase of 43 villages in consequence of the recognition of hamlets as villages; while in Panch Maháls one village lapsing was transferred from the head 'Alienated' to 'Government'. In alienated villages Panch Maháls returns 60 villages less, and Sátára 3 villages more. In the former district the record of the 59 villages of the Nárukot State has been separated from the district record, and one alienated village lapsed to Government, while, in the latter district, 3 villages which belong to Native States are now for the first time included in the returns, because they contain land belonging to Government.

The chief variations in the gross area of the districts are noted in the

	Government.	Alienated.
	Acres.	Acres.
Ahmedabad ..	—853	.....
Panch Maháls ..	+1,700	—1,735
Khándesh ..	—24,662	—839
Ahmadnagar ..	—3,976	—270
Poona ..	—8,014	—5,074
Sátára ..	+3,918	—829
Thána ..	—848	+5,032
Kánara ..	+84,494	.....

marginal table. The variations in Panch Maháls are already explained. In Khándesh the correct area is not yet known; in the *outbandi* villages it varies according to the extent of cultivation which only is recorded. In Kánara the large increase is due to the completion of the survey. The gross area of the district has now been correctly ascertained and returned at 2,519,930 instead of

2,435,436 acres hitherto estimated. In other districts the variations are due to the progress of the survey, to transfers made from 'Alienated' to 'Government' and to rectifications of errors. In Sind, the survey being still incomplete, the gross area is still an estimate; that reported shows an increase of 236,000 acres.

48. Area of available statistics.—In the Presidency Proper fluctuations in the

	Villages.	Area.
		(Acres.)
Panch Maháls ..	+1	+1,700
Khándesh ..	—22	—16,407
Poona ..	+1	—14,975
Sátára ..	+4	+8,218
Kánara ..	+66	+82,609

number of villages and in the areas returning figures are noted in the margin. In Khándesh 19 *outbandi* villages were last year wrongly entered under the head 'Available' and 3 villages lay waste during the year. These are transferred to the head 'Not available.' In Kánara the large increase is due, as

noticed above, to the progress of the survey. 81 villages are still returned under the head 'Not available', for which statistics will be available in future. In other districts the variations have arisen from the causes which have been stated with reference to the gross area.

In Sind the area of available statistics has increased by 6,706,000 acres. The large increase in area is, however, nominal, being chiefly due to the inclusion of the extensive unsurveyed waste in the 14 villages of Thar and Parkar. In Karachi, on the other hand, 62 villages which were wrongly included last year, are excluded this year, as they are unsurveyed villages. The revised manual has been in force in Sind for two years, but the classification of villages for the return under consideration does not appear to have been correctly observed. The large increase in area is thus greatly due to misapprehension.

In the Presidency Proper statistics are not available for 843½ Government and 803 alienated villages with a total area of 2,373,000 acres, or 5 per cent. of the gross area. The alienated villages are all unsurveyed. The non-reporting Government villages, except in Kánara, are held under various tenures which preclude the possibility as yet of obtaining fairly correct statistics.

	Non-reporting Government Villages.
Kaira .....	36
Panch Maháls .....	59
Khándesh .....	388½
Násik .....	12
Poona .....	3
Thána .....	14
Kolába .....	2
Ratnágiri .....	278
Kánara .....	81
Total .....	843½

In Sind statistics are returned for all but 161 villages with an area of 1,844,000 acres.

Return No. II.—Cultivated and Uncultivated Area.

49. The following table summarizes the information contained in Returns Nos. I and II:—

No.	District.	Percentage on gross area, of areas for which statistics are not available.	PERCENTAGE ON NET AREA FOR WHICH STATISTICS ARE AVAILABLE, OF AREAS.				Forest.
			Cultivated.		Uncultivated.		
			Actually cropped.	Current Fallows.	Available for cultivation.	Not available for cultivation.	
<b>A.—PRESIDENCY PROPER.</b>							
<i>I.—Gujarát.</i>							
1	Ahmadabad ... ..	1.0	55	22	4	18	1
2	Kaira ... ..	8.5	75	5	8	12	...
3	Panch Maháls ... ..	15.5	35	13	30	9	13
4	Broach ... ..	1.9	65	5	3	27	...
5	Surat ... ..	2.4	47	25	7	17	4
	Average ... ..	4.8	55	16	9	17	3
<i>II.—Deccan.</i>							
6	Khándesh ... ..	9.8	58	4	17	12	9
7	Násik ... ..	4.2	55	10	5	9	21
8	Ahmadnagar ... ..	2.5	66	8	2	10	14
9	Poona ... ..	1.2	62	11	1	14	12
10	Sholápur ... ..	...	74	11	1	8	6
11	Sátára ... ..	4.1	60	13	2	10	15
	Average ... ..	4.3	62	9	6	11	12
<i>III.—Karnátak.</i>							
12	Belgaum ... ..	0.9	62	11	5	7	15
13	Bijápur ... ..	0.7	76	9	4	6	5
14	Dhárwár ... ..	2.5	71	9	3	7	10
	Average ... ..	1.4	70	10	4	7	9
<i>IV.—Konkan.</i>							
15	Thána ... ..	4.1	22	21	6	32	19
16	Kolába ... ..	2.4	30	23	4	24	19
17	Ratnágiri ... ..	28.7	27	43	1	28	1
18	Kánara ... ..	3.3	10	3	3	8	76
	Average ... ..	10.7	20	21	3	23	33
	Average A. ... ..	4.9	56	12	5	13	14
<b>B.—SIND.</b>							
19	Karúchi ... ..	2.7	8	8	13	69	2
20	Hyderabad ... ..	...	15	23	34	27	1
21	Shikárpur ... ..	17.6	21	15	39	18	7
22	Upper Sind Frontier ... ..	48.9	22	42	17	13	6
23	Thar and Párkar ... ..	...	8	7	...	85	...
	Average B. ... ..	7.0	12	14	18	54	2
	Average for the Presidency ... ..	5.7	40	13	10	27	10



Comparing the first percentage column of this table with that of the year 1885-86, it may be noticed that in the Presidency (excluding Sind) the area of non-available statistics has decreased from 9 to 5 per cent. On the whole this decrease indicates improved classification but also to some extent arises from progress of the survey. Ratnágiri has gradually been able to send in statistics, approximate though they be, for  $\frac{3}{4}$ ths of its area. In Kánara the improvement from 14 to 3 per cent. is real. In Panch Maháls and Khándesh, it is only in part a real improvement. In other districts where there is an apparent retrogression, the decreased area of available statistics points rather to more discrimination in classification.

The figures for Sind will not be again commented upon, for as yet they are not sufficiently trustworthy to justify comparison with those of previous years.

In the Presidency Proper the cultivated land gives an increase of 2 per cent. in the area actually cropped but a decrease of 1 per cent. under current fallow, if compared with the percentages of last year. The increase is general, and though partly due to corresponding decrease in fallow, is also attributable to occupation of unoccupied waste, as will be explained. The "Uncultivated area" exhibits a decrease of 3 per cent. under the sub-head "Available for cultivation," a decrease mostly confined to Kánara and caused by corresponding transfer to "Forest."

50. The gross cropped area (excluding Sind) shows an increase of  $6\frac{1}{2}$  lákhs acres, or 2.6 per cent. The increase is general, but especially large in the districts noted in the margin. It is chiefly due to favourable sowing rains both in the kharif and rabi seasons. A few districts, however, report decrease—Ahmadabad (35,000 acres), Dhárwár (6,000) and Kolába (26,000). In the two former the falling off is accounted for by decrease in the twice-cropped area, and in Kolába by larger fallow.

Gross cropped area.				Thousand Acres.
Ahmadnagar	...	...	...	+144
Násik	...	...	...	+116
Khándesh	...	...	...	+101
Panch Maháls	...	...	...	+89
Bijápur	...	...	...	+89
Surat	...	...	...	+62

51. The twice-cropped area shows an increase of 53,000 acres, or 10 per cent. This area, except in garden lands, depends on the moisture available from the late rains. The variations are most striking in Gujarát, where the last year's deficit in the Panch Maháls and Surat appears to have been made up, while in Ahmadabad the unusual increase of last year has disappeared. In other districts the variations are small and require no detailed notice.

Twice-cropped area.				Thousand Acres.
Ahmadabad	...	...	...	-50
Kaira	...	...	...	-8
Panch Maháls	...	...	...	+63
Surat	...	...	...	+45
Dhárwár	...	...	...	-10
Násik	...	...	...	-8
Sátára	...	...	...	+6

52. The cultivated area, *i.e.*, occupied including fallow plus unoccupied but temporarily cultivated land, *e. g.*, river-beds and the like, gives an increase of 184,000 acres, or 0.6 per cent. The increase is specially large in Bijápur (35,000 acres), Panch Maháls (33,000) and Thána (31,000), and is due to the taking up of waste land for cultivation. In Bijápur the increase is confined to the northern tálukas where land was extensively thrown up during the famine of 1876-77, which is steadily being re-occupied under the influence of favourable seasons and railway extension. Other districts also show a small but general increase in the cultivated area. On the other hand, in Surat there is a decrease of 1,500 acres and in Kolába of 1,000 acres. In the former the Collector attributes the decrease chiefly "to land having been attached (? resumed) by Government for arrears of revenue," while in the latter the explanation furnished is not relevant.

53. Contrary to last year, there is a general increase except in Kolába in the net cropped area (597,000 acres) with a decrease in current fallow (413,000 acres), a result due to a more favourable season. The chief variations are marginally shown. The exceptional decrease in Kolába must be due to rotation only, for the sowing rain was here as favourable as in other districts. In Panch Maháls the increase both under net cropped area and current fallow is due to the large area of waste taken up for cultivation, indicating progress in this backward district.

District.	Net cropped.		Current Fallow.
	...	...	
Thousand Acres.			
Ahmadabad	+15	-13	
Kaira	+18	-17	
Panch Maháls	+20	+6	
Broach	+26	-26	
Surat	+17	-18	
Khándesh	+101	-86	
Násik	+122	-111	
Ahmadnagar	+142	-131	
Sholápur	+22	-20	
Bijápur	+69	-33	
Kolába	-28	+27	

54. The decrease in assessed land available for cultivation (106,000 acres) indicates the gain in occupied, *i. e.*, revenue-paying area. The decrease in unassessed land available for cultivation of 879,000 acres, or 49.8 per cent., is principally due to the transfer of the area returned under this head to "Forest".

55. The forest area shows an increase of 977,000 acres, or 18 per cent. The chief variations are noted in the margin and are chiefly observable in Kánara. In Kánara, the increase is all due to the transfer to this head of the land hitherto shown under the head "Available for cultivation." In other districts the increase is probably due to more land brought under forest settlement. The decrease in Khándesh is attributed to the transfer of certain forest villages from the villages of available statistics to villages for which statistics are not available. These increases

	Thousand Acres.
Kánara ... ..	+937
Thána ... ..	+40
Khándesh... ..	-14
Poona ... ..	+11.
Sholspur ... ..	+3
Sátára ... ..	-3

prove improvement, for, in one sense the area under forest may be looked on as, to some extent, a reserve fund for future extension of cultivation.

The Collectors of Kánara, Dhárwár, Belgaum and Shikárpur have made enquiries with a view to reconcile the discrepancies in the forest area returned by the Forest and the Revenue Departments respectively. But it is certain that so long as the returns of the Forest Department are prepared on the basis of the Government Notification issued in 1878, the discrepancies will continue until the forest demarcation and settlement are completed and until the requirements of Village Form IA (Government Resolutions Nos. 2952 and 3614, dated 30th April and 26th May 1890) are complied with.

In some districts, it seems probable that the discrepancies are due to the inclusion, in the area returned as forest by the Forest Department, of land in villages which are entirely excluded from the agricultural returns because they cannot provide the requisite statistics of cultivation.

#### Return No. III.—Crops.

56. The rainfall was on the whole more favourable for sowing than last year, the total area under crops in the Presidency Proper having risen by 6½ lakhs acres, or 2.6 per cent. Bájri and paddy among cereals, tur and other pulses except gram, tobacco, oil-seeds and cotton give a general increase, while jowári, especially the rabi variety, wheat, gram and sugar-cane show a considerable decrease. The increase is specially noticeable in the kharíf area, the early rain being decidedly favourable in the Deccan and Karnátak. But the late rains were generally deficient for the rabi sowing of wheat and gram in many parts. Food and non-food crops show an increase of 2 and 5 per cent. respectively.

57. The following table shows at a glance the effect of the season as far as the area sown is concerned :—

PRESIDENCY PROPER.						
Crops.	1888-89.	1889-90.	Increase.		Decrease.	
	Thousand Acres.	Thousand Acres.	Thousand Acres.	Per cent.	Thousand Acres.	Per cent.
Jowári ... ..	8,510	7,698	...	...	812	9.5
Bájri ... ..	3,845	4,959	1,114	29.0	...	...
Paddy ... ..	1,605	1,704	99	6.1	...	...
Wheat ... ..	2,078	1,924	...	...	154	7.4
Others ... ..	2,012	1,981	...	...	31	1.5
Total Cereals ..	18,050	18,266	216	1.2	...	...
Tur ... ..	508	603	95	18.7	...	...
Gram ... ..	731	691	...	...	40	5.5
Others ... ..	1,035	1,186	151	14.6	...	...
Total Pulses ...	2,274	2,480	206	9.0	...	...
Tobacco... ..	49	70	21	42.8	...	...
Sugarcane ... ..	89	68	...	...	21	23.6
Oil-seeds ... ..	1,482	1,533	51	3.4	...	...
Cotton... ..	2,665	2,816	151	5.6	...	...
Food Crops Total ...	20,593	21,003	410	1.9	...	...
Non-food Crops Total ...	4,472	4,713	241	5.4	...	...
Grand Total ...	25,065	25,716	651	2.6	...	...

Jowári—Rabi jowári has decreased by  $10\frac{1}{2}$  lákhs acres, while the kharif

	THOUSAND ACRES.	
	Kharif.	Rábi.
Ahmadnagar .. ..	..	-419
Sholápur .. ..	..	-199
Sátára .. ..	+47	-150
Bijápur .. ..	-6	-92
Broach .. ..	-5	-34
Násik .. ..	+72	-101
Surat .. ..	-5	-6
Dhárwár .. ..	-44	+85
Poona .. ..	+107	-80
Ahmadabad .. ..	+15	..
Belgaum .. ..	+8	+7

variety shows an increase of  $2\frac{1}{2}$  lákhs. The net decrease of 8 lákhs acres, or 9.5 per cent., is general, for the favourable early rain in the Deccan and Karnátak encouraged a preference for bájri except in Khándesh, Belgaum and Poona. In parts of Khándesh bájri is not a favourite kharif cereal. The decrease in some parts, as in Broach, is also partly due to rotation. The net decrease in jowári is more than counterbalanced by the increase of over 11 lákhs in bájri.

Bájri.—The increase of 11 lákhs, or 29 per cent., is general except in Poona and parts of Gujarát, and especially large in the north and east Deccan.

	Thousand Acres.
Ahmadnagar .. ..	+544
Násik .. ..	+182
Sholápur .. ..	+134
Khándesh .. ..	+119
Sátára .. ..	+90
Bijápur .. ..	+88
Ahmadabad .. ..	+9
Poona .. ..	-35
Kaira .. ..	-22

In Poona the early favourable rains appear to have been taken advantage of in sowing the kharif jowári rather than bájri as in other districts. In Gujarát, Ahmadabad alone shows increase; other districts give a small decrease.

	Thousand Acres.
Ahmadabad .. ..	+37
Kaira .. ..	+35
Surat .. ..	+7
Broach .. ..	+8
Panch Maháls .. ..	+2

Paddy.—The increase of 1 lákhs, or 6.1 per cent., is chiefly confined to Gujarát, where the deficit of last year appears to have been made up to a great extent by the favourable sowing rain. In other districts, the variations are small, and on the whole show a small increase.

Wheat.—The decrease of  $1\frac{1}{2}$  lákhs, or 7.4 per cent., is specially large in the north Deccan, north Gujarát and Bijápur, while south Gujarát gives a considerable increase.

	Thousand Acres.
<i>Decrease.</i>	
Khándesh .. ..	-114
Ahmadnagar .. ..	-39
Násik .. ..	-37
Bijápur .. ..	-23
Ahmadabad .. ..	-14
Kaira .. ..	-13
<i>Increase.</i>	
Broach .. ..	+40
Panch Maháls .. ..	+16
Surat .. ..	+12
Sholápur .. ..	+8
Dhárwár .. ..	+6
Poona .. ..	+3
Sátára .. ..	+3

There is no evidence that the wheat area has been influenced by the export demand for wheat. Rather may it be said that the area under wheat influences the export trade.

Other cereals.—The minor cereals show on the whole a decrease of 31 thousand acres, or 1.5 per cent. Where grown they form the principal food of the poorer classes. Rála is almost all grown in the Karnátak and south Deccan, Under kodra, Surat and Kolába give a large decrease of 12 and 8 thousand acres respectively; while other districts of Gujarát give a considerable increase.

	Thousand Acres.
Kodra .. ..	-8
Rágl .. ..	-17
Rála .. ..	+2
Vari .. ..	+12

Under rági a decrease is noticeable in Ratnágiri (10,000 acres), Ahmadabad (6,000 acres), Kaira and Kolába (5,000 acres each); while Poona gives an increase of 5,000 acres, and Sátára and Thána of 3,000 acres each. There is a large increase under rála, which is chiefly confined to Dhárwár (9,000 acres) and Bijápur (3,000 acres). Belgaum and Sátára on the other hand show a decrease of 9 and 1 thousand acres respectively. Under vari, Ahmadabad in Gujarát, Násik and Sátára in the Deccan, Belgaum in the Karnátak and Ratnágiri in the Konkan give a large increase, while Kolába shows a decrease. In Panch Maháls, where it is a staple crop, maize occupied 87,000 acres, a decrease of 4.4 per cent.

**Barley.**—The area under barley shows a large decrease of 19,000 acres, or about 34·4 per cent. The decrease is most conspicuous in Gujarát, where, owing to the insufficiency of late rains, the rabi area was generally short. The crop is cultivated chiefly in the districts noted in the margin.

	1888-89.	1889-90.
	Acres.	Acres.
Ahmadabad ...	84,100	19,600
Kaira ...	10,700	6,500
Panch Maháls ...	230	1,360
Poona ...	2,200	1,200
Sholápur ...	1,200	1,400
Sátara ...	5,700	5,200

**Pulses.**—There is a general increase of 2 lákhs, or 9 per cent. under pulses.

Tur.	Thousand
	Acres.
Ahmadnagar ...	+21
Bijápur ...	+21
Sholápur ...	+20
Sátara ...	+10
<b>Gram.</b>	
Ahmadnagar ...	-29
Ahmadabad ...	-26
Násik ...	-17
Khándesh ...	-13
Panch Maháls ...	+16

Pulses are largely sown mixed with bájri and jowári. The figures shown in para. 58 indicate that nearly two-thirds of the pulses are grown in the kharíf season. The increase may therefore be attributed to the favourable early rains in the Deccan and Karnátak. Tur shows a general increase except in Poona and Dhárwár and gram, a rabi pulse, a general decrease except in a few districts and especially in Panch Maháls, where the deficiency of last year was more than made up by the exceptionally favourable showers from late rains. The decrease in gram elsewhere is attributed to the deficiency of late rains, as in the case of wheat.

**Tobacco.**—Contra to last year, an increase of 21,000 acres, or 42·8 per cent.,

	Acres.
Belgaum ...	+6,600
Kaira ...	+6,000
Sholápur ...	+1,900
Ahmadnagar ...	+1,400
Broach ...	+1,300
Khándesh ...	+1,100
Ahmadabad ...	+700
Panch Maháls ...	+600
Bijápur ...	+500

is observed in all districts, except Sátara, and is especially large in the districts noted in the margin. The increase is attributed to seasonable rainfall and in some places to high prices of last year. In Sátara alone, there is a small decrease of 200 acres. It may be noticed that this crop is only an extensive field-crop in Kaira and in one taluka (Chikodi) of Belgaum. Elsewhere it is chiefly grown in small plots solely for local consumption.

**Sugarcane.**—The decrease of 21,000 acres, or 23·6 per cent., is noticeable in all

	Acres.
Sátara ...	-4,400
Násik ...	-2,900
Poona ...	-2,800
Ahmadnagar ...	-2,600
Surat ...	-2,500
Sholápur ...	-1,300
Ahmadabad ...	-1,100
Kaira ...	-1,100
Belgaum ...	-1,100
Khándesh ...	-1,100

districts, except that Dhárwár gives an inappreciable increase of 77 acres. The decrease is generally attributed partly to exigencies of rotation and partly to low prices of 1888-89, especially in the Deccan and Karnátak, where the prices show a fall varying from 6 annas to Re. 1 per Indian maund. In Poona, the decrease is also no doubt due to the prohibition of sugarcane cultivation within an area of five miles round the Poona city. I think that the low price of gur in the previous year must be taken to be a partial explanation of this decrease. It is a crop requiring capital, and capital with the cultivators depends on previous good seasons. In many parts, especially Gujarát, where cane is largely grown, we have passed long through a cycle of unfavourable seasons. The trade returns also show large importations from Upper India into Gujarát of gur for local demand. Local supply was short and prices rose again very rapidly in 1889-90.

**Oilseeds.**—There is a net increase of 51,000 acres, or 3·4 per cent. Linseed,

	Thousand
	Acres.
Linseed ...	-42
Sesame ...	+32
Others ...	+61

which is a late crop, gives a considerable decrease, while sesame and others give the increase noted in the margin. Among other oilseeds, kardai or safflower, which is largely grown as a mixed crop in the Deccan and Karnátak, shows a decrease of 20,000 acres, or 3·6 per cent., corresponding to the general fall in wheat and jowári. Nigerseed, a kharíf crop, shows a rise of 53,000 acres, or 23·2 per cent. Castorseed and groundnut give a small increase of 22 and 9 thousand acres respectively.

Linseed and sesame are important as being the export seeds of Bombay and require special notice.

	Thousand
	Acres.
Khándesh ...	-42
Násik ...	-7
Sátara ...	-6
Ahmadnagar ...	-4
Bijápur ...	+7
Sholápur ...	+6
Dhárwár ...	+3

**Linseed.**—Linseed is always a late crop, chiefly grown in the Deccan and Karnátak. The decrease of 42,000 acres is noticeable in the Deccan, except Sholápur, while the Karnátak exhibits an increase. The decrease is due to deficiency of late rains in the Deccan.

	Thousand Acres.
Ahmadnagar ... ..	+10
Bijapur ... ..	+9
Panch Mahals ... ..	+8
Khandesh ... ..	+7
Ratnagiri ... ..	+6
Sholapur ... ..	+4
Poona ... ..	-15
Kolaba ... ..	-2

Sesame.—The increase of 32,000 acres, or 12 per cent., is general, except in Poona and Kolaba. Sesame is chiefly grown as a kharif crop, and the increase is due to favourable early rains. The large decrease in Poona is attributed to insufficiency of sowing rain.

	Thousand Acres.
Khandesh ... ..	+90
Bijapur ... ..	+53
Ahmadnagar ... ..	+39
Dharwar ... ..	+12
Broach ... ..	+3
Surat ... ..	+3
Ahmadabad ... ..	-45
Belgaum ... ..	-4

Cotton.—There is an increase of  $1\frac{1}{2}$  lakhs, or 5.6 per cent., *i.e.*, exactly equal to the decrease noticed last year. The increase is general, except that Ahmadabad and Belgaum give a decrease. The increase is due partly to season and partly to rotation. In Ahmadabad where the decrease is considerable, the sowing rain for cotton was again unseasonable as in last year.

	1888-89.	1889-90.
	Acres.	Acres.
Poona ... ..	9,800	8,100
Ahmadnagar ... ..	550	230
Satara ... ..	530	370
Nasik ... ..	170	300
Ahmadabad ... ..	200	170
Kaira ... ..	190	110
Dharwar ... ..	80	160

Potato.—The area shows a decrease from 11,700 to 9,600 acres, or 17.9 per cent. The area and variations are given for the chief districts in the margin. The decrease is general, except in Nasik and Dharwar. The large decrease in Poona is probably due to poor crop of previous year.

Green fodder.—Lucerne occupied 1,139 acres against 659 acres in last year, chiefly in Ahmadnagar (644), Poona (220), Nasik (217) and Thana (53). In Ahmadabad 268 acres were last year returned under Guinea grass. But no area has this year been shown under this head. Hot-weather jowari, which is the only cereal largely cultivated for fodder only, shows a decrease from 21 to 17 thousand acres.

58. Kharif and Rabi crops.—The details appended in the tables show the variations under kharif and rabi cereals and pulses as noted below:—

*Thousand Acres.*

Year.	KHARIF.		RABI.	
	Cereals.	Pulses.	Cereals.	Pulses.
1888-89 ... ..	1,02,40	14,03	78,09	8,71
1889-90 ... ..	1,15,99	15,95	66,66	8,84
	+13,59	+1,92	-11,43	+13

The kharif crops show, as noticed above, a large increase owing to seasonable early rains, while the rabi crops give a large decrease.

59. The two returns showing the distribution of crops are now to be given as usual. Statement A shows the distribution of the principal crops in each district, including Sind. Statement B shows the proportion which the area under the several crops in each district holds with respect to the gross area in the Presidency Proper.

From these returns it is possible at a glance to see what are the staples of each district and the proportion the area under staples bears to the total area of crops in the district and also in the Presidency. Again, the tables after a series of years will, if collated, indicate the varying proportion between food and non-food crops and the gradual transition under the influence of general progress and of the impetus of local and foreign trade, from the self-sufficing system of cultivation for local needs to the system of farming for profit or trade.

## A.—Distribution of Crops.—Percentages shown on District Areas.

No.	District.	FOOD CROPS.									NON-FOOD CROPS.			TOTAL.	
		Cereals.							Pulses.	Others.	Cotton.	Oil-seeds.	Others.	Food Crops.	Non-food Crops.
		Jowári.	Bajri.	Paddy.	Wheat.	Coarse grains.	Others.	Total.							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>A.—PRESIDENCY PROPER.</b>															
<b>I.—Gujarát.</b>															
1	Ahmadabad ... ..	26	18	4	12	4	2	66	6	1	23	3	1	73	27
2	Kaira ... ..	9	29	16	3	24	1	81	11	1	1	2	4	93	7
3	Panch Maháls ... ..	2	11	13	5	16	24	71	20	...	...	2	1	91	9
4	Broach ... ..	22	3	3	9	2	...	39	10	4	43	3	1	53	47
5	Surat ... ..	23	2	19	4	9	...	57	16	2	17	7	1	73	25
	Average ...	19	14	10	8	10	3	64	11	1	19	4	1	76	24
<b>II.—Deccan.</b>															
6	Khándesh ... ..	19	25	1	7	1	...	53	7	...	25	4	1	60	40
7	Násik ... ..	7	40	3	17	10	...	77	10	1	1	10	1	88	12
8	Ahmadnagar ... ..	37	35	...	9	2	...	83	8	...	2	6	1	91	9
9	Poona ... ..	41	27	3	5	5	1	82	8	2	...	7	1	92	8
10	Sholápur ... ..	57	15	1	3	...	1	77	10	...	...	11	3	87	13
11	Sátára ... ..	28	31	2	4	8	1	74	17	1	...	6	3	92	8
	Average ...	31	23	1	8	4	1	73	10	1	8	7	1	84	16
<b>III.—Karáttak.</b>															
12	Belgaum ... ..	43	7	7	7	9	...	73	11	1	8	4	3	85	15
13	Bijápur ... ..	47	13	...	7	1	...	68	10	...	15	6	1	78	22
14	Dhárwár ... ..	29	...	7	14	8	...	58	10	1	24	5	3	69	31
	Average ...	40	7	4	9	6	...	66	10	1	16	5	2	77	23
<b>IV.—Konkan.</b>															
15	Thána ... ..	...	...	63	...	22	...	85	8	1	...	4	2	94	6
16	Kolába ... ..	...	...	57	...	34	...	91	6	1	...	2	...	98	2
17	Ratnágiri ... ..	...	...	26	...	55	...	81	7	5	...	5	2	93	7
18	Kánara ... ..	...	...	78	...	3	...	81	8	11	...	...	5	95	5
	Average ...	...	...	52	...	32	...	84	7	4	...	3	2	95	5
	Average A ...	30	19	7	7	7	1	71	10	1	11	6	1	82	18
<b>B.—Sind.</b>															
19	Karáchi ... ..	23	6	34	9	...	4	76	6	7	...	9	2	89	11
20	Hyderabad ... ..	14	33	19	5	...	1	72	2	3	9	12	2	77	23
21	Shikárpur ... ..	28	2	20	24	...	...	74	8	1	1	15	1	83	17
22	Upper Sind Frontier ... ..	51	5	7	8	...	...	71	5	1	1	22	...	77	23
23	Thar and Párkar .. ..	1	66	14	5	...	...	86	1	...	2	11	...	87	13
	Average B ...	20	23	20	12	...	1	76	5	2	3	13	1	83	17
	Average for the Presidency ...	23	20	8	8	6	1	72	9	1	10	7	1	82	18

## B.—Distribution of Crops.—Percentages shown on Presidency Area.

No.	District.	FOOD CROPS.									NON-FOOD CROPS.			TOTAL.			
		Cereals.									Pulses.	Others.	Cotton.	Oil-seeds.	Others.	Food Crops.	Non-food Crops.
		Jowari.	Bajri.	Paddy.	Wheat.	Coarse grains.	Others.	Total.									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
<i>I.—Gujardt.</i>																	
1	Ahmadabad ... ..	4.4	4.9	8.7	8.8	3.1	11.1	4.9	3.4	4.1	11.0	2.6	2.4	4.7	7.6		
2	Kaira ... ..	0.8	4.2	6.8	0.9	10.0	8.4	8.2	8.3	3.2	0.4	0.8	7.0	3.3	1.0		
3	Panch Mahals ... ..	...	0.8	2.9	0.9	3.3	44.0	1.4	3.0	0.4	...	2.0	1.3	1.6	0.3		
4	Bronch ... ..	1.7	0.8	1.2	2.9	0.6	...	1.3	2.6	9.7	9.1	1.1	1.1	1.5	5.9		
5	Surat ... ..	1.6	0.2	6.0	1.2	2.7	0.2	1.7	3.5	8.0	3.3	2.6	1.2	1.9	2.3		
	Total ... ..	8.5	10.4	20.6	14.7	19.7	58.7	12.5	15.7	20.4	23.8	9.0	13.0	13.0	18.1		
<i>II.—Deccan.</i>																	
6	Khandeesh ... ..	7.4	14.6	1.4	11.4	1.4	2.4	8.6	7.5	4.2	38.0	8.4	9.0	8.4	25.0		
7	Nasik ... ..	2.0	16.0	2.8	17.8	11.8	3.2	8.5	8.2	7.0	0.6	13.3	2.9	8.4	4.9		
8	Ahmadnagar ... ..	13.2	19.4	0.8	12.8	2.6	8.9	12.5	8.9	8.9	2.2	10.5	5.5	11.9	5.1		
9	Poona ... ..	11.4	11.6	3.7	6.2	5.7	7.2	9.6	6.9	11.4	...	10.2	5.1	9.3	3.7		
10	Sholapur ... ..	16.0	6.4	1.3	3.1	0.2	11.7	9.0	8.7	3.8	0.3	15.3	10.7	9.0	5.9		
11	Satara ... ..	6.8	11.9	2.4	3.8	8.8	8.8	7.6	13.2	8.6	0.2	7.2	10.6	8.3	3.5		
	Total ... ..	66.8	79.9	12.4	54.6	29.7	37.2	55.8	53.4	38.9	39.3	64.9	44.7	55.3	48.1		
<i>III.—Karnatak.</i>																	
12	Belgaum ... ..	10.0	2.5	6.6	6.5	8.9	3.6	7.1	7.8	8.0	5.1	5.0	13.9	7.2	5.8		
13	Bijapur ... ..	16.9	7.2	0.6	9.5	2.0	0.4	10.3	10.6	2.5	14.1	11.4	5.7	10.3	12.6		
14	Dharwar ... ..	7.8	...	9.1	14.7	9.7	...	6.7	8.2	6.4	17.7	6.3	14.1	6.8	13.6		
	Total ... ..	34.7	9.7	16.3	30.7	20.6	4.0	24.1	26.6	16.9	36.9	22.7	33.7	24.3	32.0		
<i>IV.—Konkan</i>																	
15	Thana ... ..	...	...	19.8	...	6.8	0.05	2.5	1.8	2.6	...	1.4	2.1	2.4	0.6		
16	Kolaba ... ..	...	...	11.5	...	6.7	...	1.7	0.9	1.1	...	0.4	0.4	1.6	0.2		
17	Ratnagiri ... ..	...	...	8.0	...	16.1	0.05	2.3	1.4	10.0	...	1.6	2.7	2.3	0.7		
18	Kanara ... ..	...	...	11.4	...	0.4	...	1.1	0.2	10.1	...	...	3.4	1.1	0.3		
	Total ... ..	...	...	50.7	...	30.0	0.1	7.6	4.3	23.8	...	3.4	8.6	7.4	1.8		
		100	100	100	100	100	100	100	100	100	100	100	100	100	100		

60. **Outturn of Crops.**—The anna valuation in the District Returns has been generally returned according to the newly prescribed standard by which an average crop is designated by 16 annas as directed in Government Resolution No. 6304, dated 5th September 1890. The local custom is to call an average crop a 12 anna crop, though this custom is said to vary in a few districts. With a view to avoid misunderstanding and to have an assurance that the anna estimates returned are according to the new standard, instructions were issued to the Mámledárs to the effect that in all the returns showing the anna estimates a note should invariably be added as below:—

“In this return an average crop is designated by 16 annas. According to local custom an average crop is designated by        annas.”

Care was at the same time enjoined that in entering the figure which by local custom represents an average crop, no reference should be made to the estimates of outturn given in the formulæ. It had come to notice that instead of making due enquiry into local custom, some Mámledárs had made up their minds in some way or other as to the outturn in pounds and then referring to the formulæ had entered the anna valuation therein shown for that number of pounds. This is altogether misleading.

The Collector of Surat, Mr. Lely, suggests that the anna estimates by the Mámledárs should be returned as hitherto, according to local custom, and that the conversion according to the new standard should be left in the Collector's office. I quote the reasons from Mr. Lely's letter:—

“The delay has been almost entirely due to the difficulty in preparing anything like satisfactory anna estimates of outturn. The Mámledárs seem most of them hopelessly confused on the subject, having mixed up local custom with the formulæ and with the standard prescribed by the Government of India. I believe the figures at last arrived at to be fairly accurate, but would suggest that in future the Mámledárs be instructed to follow

the simple local custom leaving their figures to be reduced to the Government of India standard in the Collector's office. Any more elaborate directions only perplex them."

In the opinion on the point offered by me to Government, I went still further and urged that the conversion should be made in my own office. I fear that the final orders will result in misunderstanding and confusion.

I tabulate the reported figures for what they are worth.

*Approximate Anna Valuation of Principal Crops, 1889-90.*

No.	District.	AVERAGE ANNA VALUATION.										
		Jowari.	Bájrí.	Paddy.	Wheat	Kodra.	Rágl.	Vari.	Tur.	Gram.	Cotton.	
<i>I.—Gujarát.</i>												
1	Ahmadabad ... ..	16	20	16	17	14	13	9	11	9	11	
2	Kaira ... ..	10	13	12	9	12	10	8	13	6	11	
3	Panch Maháls... ..	{ Maize. 17 }	{ 13	{ 15	{ 15	{ 16	{ 13	{ 20	{ 15	{ 15	{ 11	
4	Broach ... ..	11	16	7	15	14	...	...	11	15	17	
5	Surat ... ..	12	13	12	9	7	6	3	12	10	10	
<i>II.—Deccan.</i>												
6	Khándesh ... ..	14	12	...	8	...	8	...	...	8	15	
7	Násik ... ..	10	14	15	11	...	14	14	13	10	11	
8	Ahmadnagar ... ..	9	10	10	10	9	12	8	11	11	12	
9	Poona ... ..	12	13	19	12	16	17	14	12	14	8	
10	Sholápur ... ..	10	8	7	11	...	5	11	14	11	5	
11	Sátára ... ..	9	8	10	8	9	8	9	9	11	8	
<i>III.—Karnátak.</i>												
12	Belgaum ... ..	11	7	14	14	16	11	12	8	14	12	
13	Bijápur... ..	13	14	11	14	13	16	10	14	15	11	
14	Dhárwár ... ..	9	6	9	10	4	8	6	6	10	7	
<i>IV.—Konkan</i>												
15	Thána .. ..	...	...	13	...	...	13	12	12	12	...	
16	Kolába... ..	...	...	14	...	12	12	11	10	14	...	
17	Ratnágiri ... ..	...	...	12	...	11	8	9	9	7	...	
18	Kánara... ..	...	...	13	...	...	7	6	10	11	...	

*Note.*—In the above table the valuations are calculated on the standard by which 16 annas represent an average crop.

For want of sufficient moisture from the late rains rabi jowari in the Deccan and Karnátak and rice in parts of Gujarát specially suffered in outturn. Ripening bájrí was also damaged by the excessively heavy rainfall in September-October in parts of the Deccan and Karnátak. Owing to these reasons the season, which would otherwise have been excellent, was either below or only up to average in many parts of the Deccan and Karnátak. In the Konkan and Gujarát the crops gave fairly average outturn. Cotton yielded a good outturn in Gujarát and Khándesh, and in Broach—one of the principal cotton growing districts—it was a bumper crop. For further detail I would refer to paragraph 67.

61. *Fruit-trees.*—There is a considerable increase reported in mango and toddy-palm trees and some increase in tamarind and jack trees, while cocoanut and date-palm trees give a considerable decrease. The figures, however, are as yet, at best, rough estimates. The fruit-trees are distributed in the several provinces as shown below, but no attempt is made to enumerate those in forest or in village-sites:—



(Figures in thousands.)

No.	Province.	Mango.	Tamarind.	Jack.	Cocoanut.	Toddy-palm.	Date-palm.
1	Gujarát ... ..	498	116	4	7	236	627
2	Deccan ... ..	770	53	10	4	9	113
3	Karnátak ... ..	351	100	19	66	...	927
4	Konkan ... ..	509	39	174	1,474	89	12
Total, 1889-90 ...		2,128	308	207	1,551	334	1,680
Total, 1888-89 ...		1,980	298	190	1,599	295	1,763
		+148	+10	+17	-48	+39	-83

Some districts add to the return a few fruit-trees of special local importance as shown below, but the list is still incomplete:—

Trees and Districts.	Number.	Trees and Districts.	Number.
<b>1.—Moha (<i>Bassia latifolia.</i>)</b>		<b>4.—Keshewnut (<i>Anacardium occidentale.</i>)</b>	
Kaira ... ..	129,161	Thána ... ..	5,251
Panch Maháls ... ..	89,256	Ratnágiri ... ..	106,267
Broach ... ..	1,068	Kánara ... ..	89,597
Khándesh ... ..	55,455	Belgaum ... ..	1,105
Násik.....	3,254	<b>5.—Hirda (<i>Terminalia Chebula.</i>)</b>	
<b>2.—Betel-nut (<i>Areca Catechu.</i>)</b>		Ahmadnagar... ..	12,719
Thána ... ..	4,437	Násik... ..	1,000
Kolába ... ..	2,522	<b>6.—Rátambi (<i>Garcinia indica.</i>)</b>	
Ratnágiri ... ..	305,188	Ratnágiri ... ..	14,598
Kánara ... ..	7,108,500	<b>7.—Fig (<i>Ficus Carica.</i>)</b>	
<b>3.—Ráyan (<i>Mimusops hexandra.</i>)</b>		Poona... ..	35,356
Kaira ... ..	72,749	Ahmadnagar... ..	2,585
Panch Maháls ... ..	3,845	Násik... ..	2,921
Broach ... ..	1,551		

## Return No. IV.—Irrigation.

62. The net irrigated area amounts to 3·1 per cent. of the net cropped area

District.	Canal.	Tanks, Wells, &c.
	Acres.	Acres.
Ahmadabad ...	+ 740	— 22,000
Kaira ...	+ 3,700	— 13,800
Khándesh ...	— 5,500	— 2,000
Násik ...	— 3,900	— 5,400
Ahmadnagar ...	— 3,700	— 500
Poona ...	+ 4,300	+ 7,400
Sholápur ...	— 60	+ 3,300
Sátára ...	+ 600	+ 1,800
Belgaum ...	+ 500	— 800
Bijápur ...	+ 200	— 1,000
Dhárwár ...	— 600	— 2,100

in the Presidency Proper and 84 per cent. in Sind. The irrigated area in the Presidency Proper shows a fall of 41,000 acres, or 4·8 per cent., of which 6,000 acres belong to the canal irrigated area and 35,000 acres to that irrigated from tanks, wells and other sources. The principal variations are noted in the margin. The decrease is generally attributed to sufficiency of monsoon rainfall—a reason specially explaining the large decrease in Ahmadabad and Kaira.

63. Among irrigated crops the decrease is found in all crops except rice and non-food crops. The increase in rice is confined to Gujarát, where the total area under rice also shows a considerable increase. Wheat shows a decrease in north Gujarát and north Deccan, while the south Deccan gives some increase. Sugarcane shows a general decrease, proportionate to the decrease noticed above in the area devoted to the cultivation of this crop.

	Thousand Acres.
Rice ... ..	+ 15
Wheat ... ..	- 20
Other cereals and pulses..	- 9
Sugarcane ... ..	- 21
Other food crops ... ..	- 12
Non-food crops ... ..	+ 5
Fodder crops ... ..	- 3

Return No. V.—Agricultural Stock.

64. It was not known how far the district returns include the stock of large towns and cities. Special information obtained from the Collectors shows that no return is made of stock in the cities of Ahmadabad, Surat and Broach, but that elsewhere, the district return includes the stock of all towns and cities, except in Poona and Belgaum, where cantonment returns are wanting. It is hoped that the exceptions will soon disappear.

65. *Cattle.*—The total number of cattle shows an increase of nearly 1½ lakhs, or 1·7 per cent. The increase is general except in 5 districts, and is attributed generally to the favourable season and plentiful pasture. In some districts the increase is also attributed to the arrival of roving herds of cattle for grazing, but the standing orders on this point seem to have been lost sight of. I quote them here to invite special attention :—

	Thousand.
Thána ... ..	+48
Bijápur ... ..	+30
Panch Maháls ... ..	+27
Sholápur ... ..	+14
Kánara ... ..	+14
Kaira ... ..	+10
Poona ... ..	-23
Násik ... ..	-10

" All animals belonging to a family should be entered against the name of the head of the family, even though the animals are temporarily absent from the village on grazing grounds or elsewhere. Animals belonging to other villages should be excluded."

The increase in Thána is especially large, and though it is not explained by the Collector, it may probably be due in part to the arrival of cattle from the Násik and Poona Districts where the number of cattle shows a considerable decrease owing to insufficient pasture.

Among the sub-heads of cattle, plough cattle show a large increase (64,000) in plough oxen, and a small decrease in plough-buffaloes. Milch cattle give an increase of 29,000 in cows and of 3,000 in she-buffaloes.

66. *Sheep and Goats.*—The enumeration is doubtful. There is an increase of 71,000, or 6·2 per cent., in goats, but a decrease of 43,000, or 2·1 per cent., in sheep. The chief variations are noted in the margin. In sheep, Gujarát districts show a small increase, while elsewhere there is a general decrease except in Sholápur, Ahmadnagar and Belgaum. In goats the alleged increase which I do not credit is confined to the Deccan, while Ahmadabad in Gujarát and the Karnátak districts give a considerable decrease. The decrease in goats in Ahmadabad is attributed to the absence of the special reason for increase last year, *viz.*, large flocks from Native States for grazing. In Bijápur, goats is specially defective, and no satisfactory explanations as to variations

	Thousand.	
	Sheep.	Goats.
Ahmadabad ... ..	...	- 11
Khándesh ... ..	- 2	+ 14
Násik ... ..	- 3	+ 12
Poona ... ..	- 14	+ 11
Sholápur ... ..	+ 15	+ 11
Bijápur ... ..	- 1	- 10
Dhárwár ... ..	- 5	- 12
Thána ... ..	...	+ 8

the decrease is attributed to correct registration. The registration of sheep and goats have been received.

*Ploughs.*—Show an increase of 19,000 in small ploughs, but a small decrease (1,700) in large ploughs.

*Carts.*—There is an increase of about 2,500 in light and of 7,000 in heavy carts.

The calculations based on the reported figures to find the area cultivated per pair of plough cattle have been made as usual. But as they hardly differ from the figures given in paragraph 61 of the report for 1887-83, they need not be shown again. Suffice it to say that they corroborate the previously reported figures which may therefore be accepted with less reserve.

B.—RAINFALL.

67. The rainfall for each district has been analysed in the appended tables (pages xxiii-xxxv), but the following comparative table is required in this place:—

Season 1889-90.

*Rainfall at District Head-quarters.*

No.	District Head-quarters.	ANNUAL RAINFALL ENDING 31ST DECEMBER.				
		Average of eleven years ending 1886. Inches.	1888.		1889.	
			Fall. Inches.	Rainy days.	Fall. Inches.	Rainy days.
1	Dhulia (Khándesh) ... ..	25·79	18·54	54	17·65	52
2	Násik ... ..	33·74	19·99	84	22·93	85
3	Ahmadnagar ... ..	25·11	19·26	61	23·15	64
4	Poona ... ..	31·06	34·02	90	37·49	82
5	Sholápur ... ..	33·33	25·81	64	33·22	65
6	Sátára ... ..	40·84	51·82	123	46·21	114
7	Belgaum ... ..	46·80	45·81	134	55·40	140
8	Bijápur ... ..	26·79	21·92	102	36·04	90
9	Dhárwár ... ..	32·95	33·34	115	38·64	102
10	Kárwár (Kánara) ... ..	116·62	133·93	121	179·93	123
11	Ratnágiri ... ..	100·73	85·37	103	106·97	116
12	Alibág (Kolába) ... ..	84·79	75·55	99	86·01	111
13	Thána ... ..	99·12	87·16	105	96·73	110
14	Surat ... ..	44·06	29·49	61	40·22	77
15	Brouch... ..	44·21	18·96	47	33·73	57
16	Kaira ... ..	37·13	20·06	44	41·22	66
17	Godhra (Panch Maháls) ... ..	43·24	25·08	54	36·02	70
18	Ahmadabad ... ..	29·92	14·76	29	24·89	52

The monsoon rains began early and were generally speaking far more favourable for kharif than for rabi. The rabi rains were abnormally heavy in October and closed too soon.

A few remarks may be made on the different provinces of the Presidency.

*Deccan.*—The rain was insufficient for general sowing till the middle of July in east Khándesh and east Deccan. Elsewhere it was more timely. In the east, away from the *gháts*, the August rain was light with the immediate result that the kharif standing crops began to suffer. Fodder became scarce, especially in the dry *tálukas* of Násik, Ahmadnagar and Poona. The rain in Purva was not general, and the long break was not fully relieved till the Uttara rain in September. This was very valuable. It ensured the safety of the kharif and a large area at least of rabi. The rain in October (in Chitra, which is always harmful) was very heavy. It delayed rabi sowings and injured important kharif staples, being or about to be harvested. Still the kharif was fair. Cotton was very good in Khándesh. On the other hand, the rabi checked by the unseasonable Chitra rain or sown late, yielded very poorly.

*Karnatak.*—Away from the immediate neighbourhood of the gháts, the early sowing rains of the South-West Monsoon were scant, though seasonable. These were followed by very favourable falls in Uttara and Hast, and prospects were excellent till the heavy Chitra rain, much heavier than in the Deccan, came causing damage all round. The kharif yield in the east was much below average. It was fair in the west near the gháts. The rabi harvest was fair and would have been good but for the absence of moisture from rain and dew in the later months.

*Konkan.*—The rains were uniformly seasonable and good, till the Chitra rain, unnecessary and untimely, reduced the kharif—the more important season below gháts—to only a fair crop. The rabi was also fair.

*Gujarát.*—The kharif rain was on the whole seasonable and sufficient for full kharif sowing. The closing rains of Uttara and Hast in September, though favourable to kharif crops and to rabi sowing were generally deficient, especially for rice. Kharif, except rice, gave a fairly good outturn, cotton being a bumper crop in Broach. Owing to insufficiency of late rains the rabi area was short and the outturn was only fair. The season was, on the whole, much better than that of previous year in many parts as had been anticipated in last year's report. (paragraph 69).

68. It is out of place to refer to the rain of the monsoon of 1890. It will be enough to say that the tendency to improvement, *Season 1890-91.* begun in 1889, continues. We have had a cycle of good cotton seasons, and my own forecast is that as we go on the rain is more likely to favour wheat than early sown cotton in the next few years.

#### C.—CROP EXPERIMENTS.

69. The number of crop experiments reported during the year 1889-90 was 81 against 63 in the preceding year. A separate report regarding these experiments has already been submitted to Government.

#### VIII—TRADE AND TRADE STATISTICS.

70. Under Government Resolution No. 3725, dated 29th May 1890, the registration and compilation work in connection of the Rail-borne Trade of the Presidency Proper has since 1st July last been transferred to the Agricultural Department. A detailed report for the year ending 31st March 1890 has already been separately submitted to Government. Agreeably to Government Resolution No. 6280, dated 26th August 1889, I reviewed for the second time the Annual Returns of the Rail-borne Trade of the Province of Sind. The total trade registered in the Presidency Proper and Sind during the year is shown below :—

Year.	PRESIDENCY PROPER.				SIND.					
	External Trade.		Local Trade.	Total Trade.	External Trade.		Local Trade.	Total Trade.		
	Imports.	Exports.			Imports.	Exports.				
Figures in lákhs of maunds (1 maund = 82½ lbs.)										
Average .. .. .	291	86	277	654	48	11	63	122		
1888-89 .. .. .	324	91	292	707	55	12	68	135		
1889-90 .. .. .	281	89	256	626	94	16	65	175		
Increase or decrease over average .. .. .	—10	+3	—21	—28	+46	+5	+2	+53		
Increase or decrease over last year .. .. .	—43	—2	—36	—81	+39	+4	—3	+40		

The Presidency Trade shows a decrease both below average and last year by 4 and 11 per cent., respectively, while the Trade of Sind increase of 44 and 29 per cent. respectively. To the total external trade of Sind the Punjab contributed 98 per cent. The Road-borne Trade has, as usual, been registered at six selected nákas under the rotation system.

## IX.—ARCHÆOLOGY.

71. No reports on the subject have been received from the district officers under Government Resolution No. 1672, dated 13th April 1889, General Department.

## X.—MINERAL STATISTICS.

72. The return of minerals required by Circular No. 80 M—18-7, dated 11th September 1888, from the Government of India, was submitted in the amended form in July last. It was second of its kind, but amplified under orders from the Supreme Government. The value of the statistics is very low. The scope is too ambitious. Gain in value and interest would result if attention is confined to obtaining statistics of valuable minerals, *e. g.*, coal, gold, in those localities where such are known to exist. No useful purpose is served by the fruitless endeavour to ascertain the outcrop of such minerals as clays and quarry stones and less in endeavouring to assess the value thereof.

## XI.—DAIRY EXPERIMENTS.

73. As I wish to give a somewhat detailed account of the steps taken by the Department to introduce improved dairy machinery, I have reserved the account for an Appendix (C).

## CONCLUSION.

74. My calls on the Press have been even heavier than usual. I may be allowed to place on record my testimony to the neatness and promptness of the work of the Government Central Press. The extent of the work done on my demand may thus be shown :—

	Folio pages.
Annual Reports (including Trade, Crop Experiments and Farm Reports) ... ..	69,020
Quarterly Trade Returns ... ..	46,928
Special Reports... ..	3,300
Forms (for Rain Returns, Forecasts, &c.) ... ..	45,995
Miscellaneous ... ..	3,800
Total ...	169,023

75. I have much pleasure in reporting to Government that Ráo Bahádúr Icchárám Bhagvándás has both in the post of Superintendent and in that of Personal Assistant, merited my warmest commendation. It was not an easy matter to fill the latter post, when vacated by an officer of such varied experience, ability and devotion to duty as Ráo Bahádúr Bhimbháí Kirpárám. Mr. Yeshvantrao Nilkanth has succeeded to the post of Superintendent *vice* Mr. Icchárám. He has proved himself skilful in the art of getting work done cheerfully by a large office and in training new hands. He is also, from his special study of the Economic Products of the Presidency and their uses, invaluable to me in meeting the calls of the Compiler of the Economic Dictionary, the Indian Museum and other public bodies for statistical information of all kinds. On the Bhadgaon Farm, Mr. Mehta, M.R.A.C., has fully maintained his reputation as a good scientific and practical farmer, a trustworthy experimenter, and an enthusiastic worker ; and has exhibited great skill in dealing with cattle-diseases.

I am beholden to the subordinate members of my office for accuracy, punctuality and intelligence in the heavy statistical work which they perform.

I have the honour to be,

Sir,

Your most obedient Servant,

E. C. OZANNE,

Director, Land Records and Agriculture,

Bombay.

---

STATISTICS.

A.—AGRICULTURAL.

---

- I.—Area of Available Statistics.
- II.—Area, Cultivated and Uncultivated.
- III.—Crops
- IV.—Irrigation.
- V.—Agricultural Stock.
- III. A.—Details under Khari'f and Rabi Crops.
- III. B.—Principal Fruit-bearing Trees.

I.—Area of Available Statistics, 1889-90.

No.	District.	NUMBER AND AREA OF VILLAGES.*						VILLAGES FOR WHICH STATISTICS ARE AVAILABLE.								VILLAGES FOR WHICH STATISTICS ARE NOT AVAILABLE.					
		Government.		Alienated.		Total.		Surveyed Government Itayatwari.		Other Government.		Surveyed Alienated.		Total.		Government.		Alienated.		Total.	
		No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.
1	2		3		4		5		6		7		8		9		10		11		
<b>A.—BOMBAY PRESIDENCY PROPER.</b>																					
<i>I.—Gujarat.</i>																					
1	Ahmedabad .. .. .	832	2,318,721	52	123,518	884	2,442,239	448	1,054,570	384	1,262,151	36	98,017	868	2,417,633	..	....	16	24,601	16	24,601
2	Kaira .. .. .	583	994,259	23	27,464	591	1,021,723	416	757,406	91	177,181	..	....	527	934,967	36	59,292	28	27,464	64	86,756
3	Panch Mahals .. .. .	611	902,289	79	125,683	691	1,027,972	403	627,303	134	198,200	32	42,652	584	864,155	59	76,786	47	83,031	106	159,817
4	Draoch .. .. .	408	917,748	15	18,724	423	936,472	407	916,569	1	1,179	..	....	408	917,748	..	....	15	18,724	15	18,724
5	Surat .. .. .	820	1,026,654	32	31,055	853	1,057,709	810	1,014,419	10	12,235	4	5,254	825	1,031,908	..	....	28	25,801	28	25,801
<i>II.—Deccan.</i>																					
6	Khandesh .. .. .	3,223	5,453,249	111	209,463	3,334	5,662,712	2,677	4,619,814	187	374,458	63	109,120	2,928	5,104,392	358	458,977	48	100,343	406	559,320
7	Nasik .. .. .	1,512	3,420,550	184	299,738	1,696	3,720,318	1,500	3,395,318	..	....	80	168,073	1,580	3,563,391	12	25,262	104	131,665	116	156,927
8	Ahmednagar .. .. .	1,223	3,669,565	151	550,604	1,374	4,220,169	1,223	3,639,565	..	....	109	444,282	1,332	4,113,847	..	....	41	106,322	41	106,322
9	Poona .. .. .	1,002	2,861,691	201	501,769	1,204	3,363,460	990	2,860,031	..	....	161	462,123	1,161	3,322,154	3	1,660	40	39,648	43	41,306
10	Sholapur .. .. .	665	2,897,954	52	209,111	717	2,907,065	665	2,897,954	..	....	52	209,111	717	2,907,065	..	....	..	....	..	....
11	Satara .. .. .	980	2,460,320	397	622,995	1,377	3,083,315	960	2,460,320	..	....	209	494,897	1,229	2,955,217	..	....	128	128,098	128	128,098
<i>III.—Karnatak.</i>																					
12	Belgaum .. .. .	892	2,278,759	241	568,515	1,133	2,847,274	892	2,278,759	..	....	183	540,890	1,075	3,819,149	..	....	58	24,125	58	24,125
13	Bijapur .. .. .	1,011	3,205,692	162	422,008	1,173	3,627,700	1,011	3,205,692	..	....	155	395,537	1,166	3,601,229	..	....	7	26,471	7	26,471
14	Dharwar .. .. .	1,239	2,639,250	184	256,566	1,423	2,895,816	1,239	2,639,250	..	....	137	180,871	1,428	2,870,121	..	....	47	75,095	47	75,095
<i>IV.—Konkan.</i>																					
15	Thana .. .. .	1,880	2,397,963	104	122,168	1,984	2,520,131	1,854	2,308,733	12	12,495	28	33,652	1,894	2,415,080	14	16,735	76	83,316	90	105,051
16	Kolaba .. .. .	1,264	1,104,395	80	30,461	1,344	1,134,856	763	571,562	499	531,744	6	8,466	1,268	1,106,772	2	80	74	26,995	76	27,084
17	Ratnagiri .. .. .	1,271	2,394,276	62	100,719	1,333	2,503,995	58	133,215	05	1,017,915	17	33,724	1,010	1,784,554	278	643,146	45	75,995	323	719,141
18	Kanara .. .. .	1,416	2,519,930	..	....	1,416	2,519,930	1,335	2,435,365	..	....	..	....	1,335	2,435,365	..	....	..	....	..	....
	<b>Total A.</b> .. .. .	<b>20,844</b>	<b>43,312,295</b>	<b>2,136</b>	<b>4,229,561</b>	<b>22,981</b>	<b>47,541,856</b>	<b>17,731</b>	<b>37,758,275</b>	<b>2,269</b>	<b>4,187,508</b>	<b>1,333</b>	<b>3,222,269</b>	<b>21,334</b>	<b>45,168,052</b>	<b>843</b>	<b>1,366,512</b>	<b>803</b>	<b>1,007,292</b>	<b>1,646</b>	<b>2,373,804</b>
<b>B.—SIND.</b>																					
19	Karachi .. .. .	857	5,078,581	14	35,161	871	5,113,742	759	3,040,439	42	1,012,352	12	20,901	813	4,073,692	56	125,790	2	14,260	58	140,050
20	Hyderabad .. .. .	1,339	5,401,555	58	269,234	1,397	5,670,789	1,205	4,159,929	134	1,241,626	58	268,234	1,397	5,669,789	..	....	..	....	..	....
21	Shikarpur .. .. .	1,175	4,938,119	17	274,085	1,192	5,212,204	1,141	4,064,041	..	....	14	233,673	1,155	4,297,714	34	874,073	3	45,412	37	919,499
22	Upper Sind Frontier .. .. .	297	1,561,102	7	40,718	304	1,601,820	231	669,677	1	120,521	6	27,333	234	817,541	65	770,894	1	13,365	66	784,279
23	Thar and Parkar .. .. .	71	8,488,494	..	....	71	8,488,494	..	....	..	....	..	....	71	8,488,494	..	....	..	....	..	....
	<b>Total B.</b> .. .. .	<b>3,739</b>	<b>25,467,851</b>	<b>96</b>	<b>623,198</b>	<b>3,835</b>	<b>26,091,049</b>	<b>3,336</b>	<b>11,934,086</b>	<b>248</b>	<b>11,763,003</b>	<b>90</b>	<b>550,141</b>	<b>2,674</b>	<b>24,247,230</b>	<b>155</b>	<b>1,770,762</b>	<b>6</b>	<b>73,057</b>	<b>161</b>	<b>1,843,819</b>
	<b>GRAND TOTAL</b> .. .. .	<b>24,583</b>	<b>68,780,146</b>	<b>2,232</b>	<b>4,852,759</b>	<b>26,816</b>	<b>73,632,905</b>	<b>21,067</b>	<b>49,692,361</b>	<b>2,517</b>	<b>15,950,511</b>	<b>1,423</b>	<b>3,772,410</b>	<b>25,008</b>	<b>69,415,282</b>	<b>998</b>	<b>3,137,274</b>	<b>809</b>	<b>1,080,349</b>	<b>1,807</b>	<b>4,217,623</b>

\* Exclusive of Foreign Territory, Feudatory and Tributary States.

111



II.—Area, Cultivated and Uncultivated, 1889-90.

No.	District.	Total Area as in Columns 5, 6 and 7 of Return No. 1.	CULTIVATED AREA.					UNCULTIVATED AREA.						Total Columns 10 to 13.
			Gross Area cropped.	Deduct Area cropped more than once.	Remainder net Area cropped.	Add Current Fallows.	Total Columns 5 and 6.	Details of Column 7.		Available for Cultivation.		Not available for Cultivation.		
								Assessed Land.	Unassessed Land.	Assessed Land.	Unassessed Land.	Forest.	Other.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
<b>A.—BOMBAY PRESIDENCY PROPER.</b>		<b>Acres.</b>											<b>Acres.</b>	
<i>I.—Gujarat.</i>														
1	Ahmedabad ...	{ Rayatwari ... Other Government ... Alienated ...	702,708 402,268 40,031	17,092 6,894 271	685,616 595,374 30,780	94,521 392,004 59,076	780,137 947,378 98,839	777,681 487,117 98,836	2,456 261 .....	73,129 ..... .....	13,844 6,264 .....	21,555 ..... .....	168,405 208,509 81	276,423 274,773 81
	<b>Total ...</b>	<b>2,417,638</b>	<b>1,345,007</b>	<b>24,257</b>	<b>1,320,750</b>	<b>545,601</b>	<b>1,866,351</b>	<b>1,863,634</b>	<b>2,717</b>	<b>73,129</b>	<b>19,608</b>	<b>21,555</b>	<b>436,995</b>	<b>551,287</b>
2	Kaira ...	{ Rayatwari ... Other Government ... Alienated ...	565,131 177,131 .....	13,349 5,248 .....	544,782 154,928 .....	39,570 6,850 .....	586,352 181,278 .....	585,861 181,252 .....	491 26 .....	70,625 470 .....	1,185 22 .....	39 ..... .....	90,635 15,361 .....	171,484 15,853 .....
	<b>Total ...</b>	<b>934,967</b>	<b>725,307</b>	<b>23,597</b>	<b>701,710</b>	<b>45,920</b>	<b>747,630</b>	<b>747,113</b>	<b>517</b>	<b>71,095</b>	<b>1,207</b>	<b>39</b>	<b>114,996</b>	<b>187,337</b>
3	Panch Mahals ...	{ Rayatwari ... Other Government ... Alienated ...	281,604 71,305 22,888	57,026 9,248 2,131	224,578 62,057 20,757	29,453 67,848 16,210	254,031 120,906 84,967	252,040 129,725 36,967	1,985 160 .....	95,009 24,209 .....	125,955 13,844 .....	110,189 ..... .....	42,110 34,202 6,655	373,272 68,295 5,685
	<b>Total ...</b>	<b>868,155</b>	<b>375,797</b>	<b>68,405</b>	<b>307,392</b>	<b>113,511</b>	<b>420,903</b>	<b>418,738</b>	<b>2,165</b>	<b>119,218</b>	<b>139,839</b>	<b>110,189</b>	<b>78,006</b>	<b>447,252</b>
4	Broach ...	{ Rayatwari ... Other Government ... Alienated ...	595,270 906 .....	952 ..... .....	594,318 906 .....	49,782 236 .....	614,100 1,142 .....	636,533 1,142 .....	7,567 ..... .....	27,733 ..... .....	1,985 ..... .....	..... ..... .....	212,751 37 .....	272,469 37 .....
	<b>Total ...</b>	<b>917,748</b>	<b>596,176</b>	<b>952</b>	<b>595,224</b>	<b>50,018</b>	<b>645,242</b>	<b>637,675</b>	<b>7,567</b>	<b>27,733</b>	<b>1,985</b>	<b>.....</b>	<b>242,788</b>	<b>272,506</b>
5	Surat ...	{ Rayatwari ... Other Government ... Alienated ...	523,610 8,673 3,787	51,434 499 20	472,176 8,174 3,767	251,585 4,885 1,130	723,761 9,759 4,897	722,268 9,759 4,896	1,408 ..... 1	30,393 593 210	30,148 750 .....	43,806 ..... .....	180,311 1,124 147	290,659 2,476 337
	<b>Total ...</b>	<b>1,031,908</b>	<b>533,070</b>	<b>51,953</b>	<b>481,117</b>	<b>257,300</b>	<b>738,417</b>	<b>736,948</b>	<b>1,469</b>	<b>37,196</b>	<b>30,907</b>	<b>43,806</b>	<b>181,582</b>	<b>293,491</b>
<i>II.—Deccan.</i>														
6	Khândesh ...	{ Rayatwari ... Other Government ... Alienated ...	2,822,529 53,000 70,197	8,008 20 203	2,814,521 52,980 69,995	206,359 1,040 9,507	3,020,880 54,020 79,503	3,015,560 4,360 79,474	5,320 49,660 28	415,417 5 11,062	270,660 137,153 5,890	283,811 162,152 750	599,046 1,128 11,926	1,568,974 320,433 29,613
	<b>Total ...</b>	<b>5,103,392</b>	<b>2,945,726</b>	<b>8,230</b>	<b>2,937,496</b>	<b>216,906</b>	<b>3,154,402</b>	<b>3,099,394</b>	<b>55,008</b>	<b>456,484</b>	<b>413,693</b>	<b>466,713</b>	<b>612,100</b>	<b>1,948,990</b>
7	Násik ...	{ Rayatwari ... Other Government ... Alienated ...	1,877,856 ..... 168,073	18,271 ..... 1,471	1,859,585 ..... 168,449	317,607 ..... 16,989	2,177,192 ..... 125,433	2,176,792 ..... 125,382	400 ..... 56	110,443 ..... 9,863	36,025 ..... 8,617	759,917 ..... 2,299	311,742 ..... 21,856	1,218,126 ..... 42,635
	<b>Total ...</b>	<b>3,563,391</b>	<b>1,937,776</b>	<b>19,742</b>	<b>1,968,034</b>	<b>334,506</b>	<b>2,302,630</b>	<b>2,302,174</b>	<b>456</b>	<b>120,305</b>	<b>44,642</b>	<b>762,216</b>	<b>333,598</b>	<b>1,260,761</b>
8	Ahmednagar ...	{ Rayatwari ... Other Government ... Alienated ...	2,436,478 ..... 444,282	30,556 ..... 1,597	2,405,922 ..... 317,000	297,839 ..... 45,848	2,703,761 ..... 362,848	2,703,263 ..... 362,822	498 ..... 20	63,954 ..... 12,984	6,632 ..... 3,705	436,861 ..... 393	358,337 ..... 65,352	965,504 ..... 61,434
	<b>Total ...</b>	<b>4,113,847</b>	<b>2,755,075</b>	<b>32,153</b>	<b>2,722,922</b>	<b>343,687</b>	<b>3,066,609</b>	<b>3,066,085</b>	<b>524</b>	<b>76,938</b>	<b>9,357</b>	<b>537,254</b>	<b>423,689</b>	<b>1,047,233</b>
9	Poona ...	{ Rayatwari ... Other Government ... Alienated ...	1,810,572 ..... 462,123	61,441 ..... 11,358	1,749,131 ..... 369,091	325,181 ..... 57,112	2,074,312 ..... 366,193	2,073,891 ..... 366,128	420 ..... 65	32,808 ..... 1,593	253 ..... 77	393,143 ..... 1,253	359,510 ..... 93,007	785,779 ..... 95,930
	<b>Total ...</b>	<b>3,322,154</b>	<b>2,131,011</b>	<b>72,799</b>	<b>2,058,212</b>	<b>382,293</b>	<b>2,440,505</b>	<b>2,440,020</b>	<b>485</b>	<b>34,401</b>	<b>335</b>	<b>394,396</b>	<b>452,517</b>	<b>881,649</b>
0	Sholápur ...	{ Rayatwari ... Other Government ... Alienated ...	2,012,633 ..... 160,748	27,289 ..... 2,208	1,985,349 ..... 148,542	294,699 ..... 29,474	2,280,041 ..... 176,016	2,279,746 ..... 174,597	295 ..... 100	14,673 ..... .....	8,632 ..... .....	177,484 ..... .....	212,124 ..... .....	417,913 ..... .....

11	Sátára ...	{ Rayatwari ... Other Government ... Alienated ...	2,460,320 494,897	1,560,154 334,107	02,869 20,286	1,473,285 307,831	300,332 100,487	1,773,017 403,363	1,773,627 408,363	290 .....	80,211 220	8,138 9,811	421,035 12,403	226,410 64,095	686,403 86,529
	Total ...		2,955,217	1,900,321	119,155	1,781,166	401,119	2,182,285	2,181,995	290	30,431	17,949	434,038	290,514	772,932
<i>III.—Karnatak.</i>															
12	Belgaum ...	{ Rayatwari ... Other Government ... Alienated ...	2,278,759 540,390	1,448,464 335,159	23,617 3,179	1,419,847 331,980	239,241 74,283	1,659,088 406,263	1,657,637 405,966	1,451 297	64,098 46,685	18,779 1,598	389,428 25,300	147,356 60,544	619,671 134,127
	Total ...		2,819,149	1,783,623	31,796	1,751,827	313,524	2,065,351	2,063,603	1,748	110,783	20,377	414,738	207,900	753,798
13	Bijápúr... ..	{ Rayatwari ... Other Government ... Alienated ...	3,205,692 395,537	2,463,133 235,503	5,746 358	2,457,437 235,145	290,938 44,773	2,748,375 329,913	2,748,268 329,894	107 24	105,610 12,447	19,575 1,153	162,451 27,544	169,681 24,440	457,317 65,619
	Total ...		3,601,229	2,748,686	6,104	2,742,582	335,711	3,078,293	3,078,162	131	118,057	20,763	189,995	194,121	522,936
14	Dhárwár ... ..	{ Rayatwari ... Other Government ... Alienated ...	2,639,250 180,871	1,965,945 109,677	25,513 1,623	1,940,432 108,054	232,316 29,626	2,173,248 137,680	2,173,096 137,488	152 192	49,128 12,359	2 14,715	276,488 .....	190,384 16,117	516,002 43,191
	Total ...		2,870,121	2,075,622	27,136	2,048,486	262,442	2,310,928	2,310,584	344	61,487	14,717	276,488	206,501	559,193
<i>IV.—Konkan.</i>															
15	Thána ... ..	{ Rayatwari ... Other Government ... Alienated ...	9,369,733 12,495 33,852	527,920 2,217 8,537	5,965 12 56	521,955 2,205 8,481	483,910 1,430 10,662	1,010,865 3,635 19,043	1,006,973 3,491 13,917	3,392 144 126	44,705 1 1	73,217 7,620 6,119	464,552 463 1,303	775,394 776 7,336	1,357,868 5,860 14,899
	Total ...		2,415,080	538,674	6,033	532,641	500,902	1,033,543	1,029,381	4,162	44,707	86,956	466,318	783,556	1,381,537
16	Kolába ... ..	{ Rayatwari ... Other Government ... Alienated ...	571,562 531,744 3,466	179,781 166,430 1,148	5,339 5,360 16	174,442 161,070 1,132	114,233 140,046 1,072	288,680 301,116 2,204	287,142 300,830 2,204	1,538 280 .....	3,722 154 .....	35,776 5,226 608	125,976 81,506 .....	117,403 143,744 654	282,882 230,828 1,262
	Total ...		1,106,772	347,359	10,715	336,644	255,356	592,000	590,176	1,824	3,874	41,610	207,482	261,806	514,772
17	Ratnágiri ... ..	{ Rayatwari ... Other Government ... Alienated ...	133,215 1,617,915 33,724	44,467 454,226 17,910	5,020 31,358 1,644	39,447 422,863 16,266	43,033 719,253 7,374	82,480 1,142,126 23,640	82,408 1,142,073 23,640	72 48 .....	325 562 1	1,712 6,181 964	4,726 19,271 .....	43,972 449,775 9,119	50,735 475,739 10,034
	Total ...		1,784,854	516,603	38,022	478,581	769,665	1,248,246	1,248,126	120	888	8,857	23,997	502,866	536,608
18	Kánara... ..	{ Rayatwari ... Other Government ... Alienated ...	2,435,365 ..... .....	246,872 ..... .....	12,355 ..... .....	234,517 ..... .....	80,941 ..... .....	815,458 ..... .....	314,982 ..... .....	476 ..... .....	61,229 ..... .....	1,423 ..... .....	1,858,054 ..... .....	199,196 ..... .....	2,119,907 ..... .....
	Total ...		2,435,365	246,872	12,355	234,517	80,941	315,458	314,982	476	61,229	1,423	1,858,054	199,196	2,119,907
	Total A ...	{ Rayatwari ... Other Government ... Alienated ...	37,758,275 4,187,508 3,222,269	22,071,133 1,516,201 2,123,708	471,842 58,639 52,418	21,599,340 1,457,562 2,070,290	3,697,333 1,332,797 500,623	25,296,078 2,790,359 2,576,813	25,267,800 2,739,754 2,575,469	28,878 50,005 944	1,334,211 23,492 107,550	653,471 177,109 55,911	6,030,123 283,392 71,245	4,443,790 910,656 416,760	12,461,597 1,397,149 645,456
	Total ...		45,168,052	25,716,091	582,899	25,133,192	5,530,658	30,663,350	30,583,423	80,427	1,467,753	886,491	6,384,762	5,765,196	14,504,202
<i>B.—SIND.</i>															
19	Karáchi ... ..		4,973,692	418,148	24,725	393,423	397,961	791,384	486,392	304,992	53,222	603,709	110,678	3,414,699	4,182,308
20	Hyderabad... ..		5,669,789	848,320	15,211	833,109	1,311,636	2,144,745	1,641,463	503,232	343,276	1,589,193	55,748	1,536,827	3,525,044
21	Shikárpur... ..		4,297,714	1,073,621	163,691	909,930	625,542	1,535,472	986,285	549,187	136,148	1,541,354	316,521	768,219	2,762,242
22	Upper Sind Frontier		817,541	186,841	10,262	176,579	340,567	517,146	202,707	314,439	32,025	110,270	48,468	109,632	300,395
23	Thar and Párkar ...		8,488,494	651,591	8,869	642,722	573,776	1,216,498	660,597	553,901	.....	.....	.....	7,271,996	7,271,996
	Total B. ...		24,247,230	3,178,521	222,758	2,955,763	3,249,482	6,205,245	3,977,444	2,227,801	564,671	3,814,526	531,415	13,101,373	18,041,985
	GRAND TOTAL ...		69,415,282	28,894,612	805,657	28,088,955	8,780,140	36,869,095	34,560,867	2,308,228	2,032,424	4,731,017	6,916,177	18,806,569	32,546,187

4

23

III.—Crops, 1889-90.

I.—CEREALS.

No.	District.	Jowári (Great Millet). Sorghum vulgare, &c.	Báiri (Spiked Millet). Pennisetum Typhoidum.	Paddy (Bhá), Oryza sativa.	Wheat (Gahn). Triticum aestivum.	Barley (Jav, Sátu). Hordeum vulgare.	Maize (Maka), Zea mays.	Kodra (Harik), Paepalum scrobiculatum.	Ráji (Náji), Eleusine coracana.	Ráje, Káng (Italian Millet), Panicum Italicum.	Varai (Sáva and Barac). Panicum miliaceum, P. miliare.	Ranri, Barti, Panicum flavillum.	Bhádi, Panicum pilosum.	Amaranth (Rájeira). Amaranthus frutescens.	Others.	Total I.
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A.—BOMBAY PRESIDENCY PROPER.																
I.—Gujarát.																
1	Ahmadabad	167,168 160,062 13,261	140,678 95,081 5,666	65,256 5,634 1,316	81,413 84,026 3,767	13,937 5,405 285	2,608 642 202	12,207 8,703 109	2,314 587 200	83 325	4,698 2,844 1,173	6,674 14,364 624	.....	29	.....	487,032 377,753 26,563
	Total	340,471	241,315	62,286	169,206	19,627	3,452	21,199	3,101	408	8,605	21,652	.....	26	.....	891,348
2	Kaira	48,113 13,247	160,292 47,241	103,461 12,026	16,413 1,139	6,166 392	310 10	82,301 35,562	7,71 8,55	340 37	398 203	1,645 177	.....	60 24	2	468,002 119,552
	Total	62,360	207,533	116,387	17,552	6,558	320	117,863	56,326	377	601	1,822	.....	114	11	587,884
3	Panch Maháls	2,915 2,482 286	29,689 8,194 4,166	34,926 11,302 3,938	15,066 1,651 477	944 405 15	69,399 14,253 3,365	16,320 6,774 2,070	10,328 3,512 1,295	35	1,741 716 40	12,148 2,409 1,394	108 400 33	20	1,946 317 45	195,545 62,081 17,133
	Total	5,683	42,049	50,166	17,194	1,364	87,017	24,164	15,135	35	2,586	16,451	627	20	2,308	264,799
4	Broach	128,868 197	17,368 4	19,479 33	54,794 25	.....	9	10,049	240	30	240	4	.....	21	1	231,112 259
	Total	129,065	17,372	19,512	54,819	.....	9	10,049	240	30	240	4	.....	21	1	231,371
5	Surat	117,685 1,979 3,029	7,934 15 20	101,738 950 286	23,299 43	.....	2	31,480 243 112	13,342 91 56	1	63	1,567	111	2	240	297,464 3,329 3,563
	Total	122,693	7,969	102,983	23,341	.....	2	31,835	13,489	1	63	1,567	111	2	240	304,296
II.—Deccan.																
6	Khándesh	550,444 2,683 19,252	708,456 6,004 11,653	14,193 9,678 889	207,984 7,871 3,632	4	2,778 174 140	2,191 2,298	9,088 2,019 308	447 14	4,166 599 201	1,679 2,214 47	1,126 444 42	278	29	15,00,781 31,006 36,103
	Total	572,379	724,073	24,760	219,487	4	3,098	4,489	11,413	461	4,986	3,840	1,612	311	37	1,570,950
7	Násik	141,147 ..... 4,815	759,698 ..... 34,724	44,752 ..... 3,210	309,620 ..... 32,368	.....	2,878 ..... 90	.....	144,766 ..... 7,075	186 ..... 6	45,213 ..... 1,841	713 ..... .....	3,202 ..... 283	107	.....	1,451,254 ..... 64,412
	Total	145,962	794,422	47,962	340,988	.....	2,968	2	151,841	192	47,054	713	3,485	107	.....	1,535,696
8	Ahmadnagar	863,390 ..... 153,973	880,970 ..... 79,267	12,781 ..... 103	215,425 ..... 22,709	121 ..... 14	943 ..... 178	190	29,399 ..... .....	1,577 ..... 244	13,117 ..... 54	9	5,499 ..... 6	407	800	2,024,637 ..... 258,589
	Total	1,017,363	960,237	12,883	238,133	135	1,119	190	29,391	1,821	13,171	9	5,494	424	856	2,281,226
9	Poona	759,427 ..... 120,721	470,477 ..... 105,632	55,679 ..... 6,744	89,112 ..... 20,980	963 ..... 211	1,723 ..... 56	30	55,628 ..... 5,513	2,188 ..... 303	34,038 ..... 2,857	110	7,149 ..... 627	381	3,599	1,440,382 ..... 294,244
	Total	880,148	576,109	62,423	120,092	1,174	1,779	30	61,339	2,471	36,895	110	7,149	381	3,599	1,440,382

Acros.

10	Sholapur	{ Rayatwari ... Other Government ... Alienated ...	1,143,166 86,841	290,714 25,454	20,014 850	56,989 4,052	1,167 194	12,734 1,003	22 .....	63 .....	1,369 53	1,480 71	..... .....	232 .....	56 .....	8,233 759	1,537,138 118,778
		Total	1,229,506	316,168	21,764	61,041	1,361	13,737	22	63	1,422	1,551	.....	232	57	8,992	1,655,916
11	Sátara ...	{ Rayatwari ... Other Government ... Alienated ...	429,008 92,865	505,568 83,129	29,149 12,021	58,711 13,389	4,317 928	7,927 2,065	167 .....	53,212 10,568	22,330 8,179	39,911 12,374	12 .....	..... .....	472 284	1,783 412	1,152,565 242,214
		Total	521,871	588,697	41,170	72,100	5,245	9,992	167	69,780	30,509	52,285	12	.....	756	2,195	1,394,779
<i>III.—Karnatak.</i>																	
12	Belgaum	{ Rayatwari ... Other Government ... Alienated ...	615,615 157,685	89,246 32,724	103,937 8,286	106,008 18,825	313 41	5,616 1,440	164 15	48,766 7,477	69,718 11,461	26,220 5,006	61 18	..... .....	14 .....	1 21	1,055,339 242,909
		Total	773,330	121,970	112,223	124,833	354	7,086	179	55,843	71,179	31,226	79	.....	14	22	1,298,338
13	Bijapur	{ Rayatwari ... Other Government ... Alienated ...	1,159,144 140,491	326,835 28,770	10,698 609	166,588 16,264	9 7	592 132	38 .....	116 .....	24,077 4,398	6,572 819	..... .....	..... .....	3 .....	7 .....	1,094,679 191,591
		Total	1,299,635	355,605	11,397	182,852	16	724	38	127	28,475	7,391	.....	.....	3	7	1,886,270
14	Dhárwár	{ Rayatwari ... Other Government ... Alienated ...	661,465 35,004	4,987 414	137,537 17,338	272,047 10,459	221 .....	29 8	33 .....	42,412 4,498	86,381 5,561	30,257 2,333	..... .....	..... .....	..... .....	..... .....	1,135,200 75,610
		Total	696,469	5,401	154,875	282,506	22	32	33	46,940	91,942	32,590	.....	.....	.....	.....	1,210,810
<i>IV.—Konkan.</i>																	
15	Thána ...	{ Rayatwari ... Other Government ... Alienated ...	30 .....	..... .....	827,515 1,807 7,462	143 ..... .....	..... ..... .....	88 ..... .....	13,825 ..... 21	73,618 110 346	..... ..... .....	33,282 28 170	..... ..... .....	..... ..... .....	..... ..... .....	..... ..... .....	448,499 2,000 7,999
		Total	30	.....	336,784	143	.....	86	13,846	74,074	.....	33,535	.....	.....	.....	.....	458,498
16	Kolába...	{ Rayatwari ... Other Government ... Alienated ...	..... .....	..... .....	139,306 56,829 963	..... ..... .....	..... ..... .....	..... ..... .....	2,497 16,081 .....	13,177 42,652 75	..... ..... .....	10,897 33,649 77	..... ..... .....	..... ..... .....	..... ..... .....	..... ..... .....	165,877 149,211 1,115
		Total	.....	.....	197,098	.....	.....	.....	18,578	55,904	.....	44,623	.....	.....	.....	.....	316,203
17	Ratnágiri	{ Rayatwari ... Other Government ... Alienated ...	..... .....	..... .....	13,317 118,191 4,937	..... ..... .....	..... ..... .....	..... ..... .....	7,115 90,093 2,744	8,720 95,570 3,838	..... ..... .....	4,717 69,654 2,769	..... ..... .....	..... ..... .....	..... ..... .....	98 .....	33,869 373,513 14,283
		Total	.....	.....	136,355	.....	.....	.....	99,952	108,128	2	77,140	.....	.....	.....	98	421,675
18	Kánara...	{ Rayatwari ... Other Government ... Alienated ...	923 .....	..... .....	193,457 .....	..... .....	..... .....	..... .....	8 .....	..... .....	0,062 .....	108 360	..... .....	..... .....	..... .....	..... .....	200,918 .....
		Total	923	.....	193,457	.....	.....	8	.....	6,062	108	360	.....	.....	.....	.....	200,918
	Total A.	{ Rayatwari ... Other Government ... Alienated ...	6,639,525 180,650 827,713	4,390,912 156,599 411,409	1,418,095 217,209 69,121	1,682,612 94,754 146,921	27,963 6,202 1,695	107,672 15,079 8,073	178,721 158,844 5,071	553,238 153,396 47,562	198,850 373 30,205	257,289 107,883 29,794	24,522 19,654 2,083	17,416 930 191	1,677 24 337	16,671 432 1,563	15,570,363 1,112,009 1,533,143
		Total	7,697,883	4,958,920	1,704,495	1,924,287	35,860	131,429	342,636	759,196	229,433	394,971	46,259	19,337	2,238	18,666	18,265,605
<i>B.—SIND.</i>																	
19	Karáchi ...	.....	66,398	32,199	172,144	42,259	17,533	746	.....	1,566	34	63	.....	.....	.....	.....	332,992
20	Hyderabad...	.....	118,560	277,564	163,745	44,103	5,935	350	.....	51	15	389	.....	.....	.....	1	610,713
21	Shikárpur ...	.....	299,138	20,101	218,176	252,971	3,003	15	.....	43	789	11	.....	.....	596	794,843	
22	Upper Sind Frontier	.....	91,263	8,418	12,461	15,592	194	8	.....	.....	537	145	.....	.....	.....	.....	131,618
23	Thar and Párkár ...	.....	6,629	430,104	90,018	32,346	475	.....	.....	.....	.....	26	.....	.....	.....	.....	559,598
	Total B.	.....	584,988	768,386	656,544	387,271	27,190	1,119	.....	1,660	1,375	634	.....	.....	.....	597	2,429,764
	Grand Total	.....	8,282,876	5,727,306	2,361,029	2,311,558	63,050	132,548	342,636	760,856	230,808	395,605	46,259	19,337	2,238	19,263	20,695,369

114

III—Crops, 1889-90—continued.

No.	District.	II.—PULSES.													III.—ORCHARD AND GARDEN PRODUCE.				IV.—DRUGS AND NARCOTICS.						Total IV.				
		Tur (Pigeon Pea), <i>Cajanus indicus</i> .	Gram (Chana), <i>Cicer arietinum</i> .	Mung (Green Gram), <i>Phaseolus mungo</i> .	Urad (Black Gram), <i>Phaseolus radiatus</i> .	Moth (Kidney Bean), <i>Phaseolus aconitifolius</i> .	Vil (Large fruited Dolichos), <i>Dolichos lablab</i> .	Chavli (small fruited Dolichos), <i>Dolichos catang</i> .	Kulith (Horse Gram), <i>Dolichos uniflorus</i> .	Field Pea (Vátane), <i>Pisum sativum</i> .	Lentil (Masur), <i>Ervum lens</i> .	Chickling Vetch (Lákh Lákh), <i>Lathyrus sativus</i> .	Field Vetch (Gurár), <i>Cyanopsis psoralides</i> .	Others.	Total II.	A.—Vegetables (Roots and Tubers).	B.—Green Vegetables.	C.—Green Fodder.	D.—Fruit Trees.	Total III.	Tobacco (Tambákhá), <i>Nicotiana tabacum</i> .	Rháng, Gángá (Indian Hemp), <i>Cannabis sativa</i> .	Opium (Aó), <i>Papaver somniferum</i> .	Coffee (Káfi, Bánd), <i>Coffea Arabica</i> .		Tea (Cháha), <i>Thea sinensis</i> .	Chinchoin, <i>Chinchoin officinale</i> .	Others.	Total IV.
1		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	
		Acres.													Acres.				Acres.						Acres.				
<b>A.—BOMBAY PRESIDENCY PROPER.</b>																													
<i>I.—Gujarát.</i>																													
1	Almadabad	Rayatwári ... 1,074 Other Government ... 233 Alienated ...	4,846 6,126 303	4,340 5,899 553	1,825 2,919 185	25,008 10,784 641	84 23 20	813 634 10	68 4,536 7.0					8,502 2,834 83	42,570 40,012 2,557	630 302	2,030 761 20	204 3,016 20	1,067 150 20	3,016 5,129 98	2,215 324 9								2,215 324 9
	Total	1,957	11,275	10,792	4,989	43,425	99	957	5,354					6,311	85,159	838	2,843	4,229	1,233	9,143	2,548								2,548
2	Kaira	Rayatwári ... 17,923 Other Government ... 8,504 Alienated ...	3,758 627	3,228 455	605 122	23,334 5,403	503 134	4,119 154						8,526 3,302	62,140 18,931	400 100	865 202	4,880 750	108 60	6,363 1,277	7,875 11,111								7,875 11,111
	Total	26,427	4,385	3,681	817	28,827	752	4,273						11,913	81,080	626	1,147	5,630	237	7,640	18,986								18,986
3	Panch Maháls	Rayatwári ... 3,846 Other Government ... 1,650 Alienated ... 825	42,305 6,899 1,458	2,101 877 381	4,808 1,611 227	1,767 1,061 849	50 93 17	115 367 111	33 1,048 60	606 ...	...	...	...	755 171 128	56,506 13,748 4,056	120 85	102 30 4	304 81 58	20 2 1	726 148 63	522 185 20								522 185 20
	Total	6,357	50,602	3,419	6,646	3,667	165	593	33	1,774				1,054	74,310	205	226	483	23	937	727								727
4	Broach	Rayatwári ... 17,803 Other Government ... 29 Alienated ...	1,426	267	11	2,928	932	262		814		37,338 138		804	62,147 166	249	1,014	22,617	357	24,837	2,913								2,913
	Total	17,831	1,426	267	11	2,988	932	262		814		37,476		2	62,313	249	1,614	22,617	357	21,837	2,918								2,918
5	Surat	Rayatwári ... 26,805 Other Government ... 41 Alienated ... 27	2,304 2 ...	3,520 19	2,488 17	404 1	40,599 383 31	809 1 2	...	2,332 15	6 26 10	3,621 20 10		2,104 38 6	85,094 700 112	416 1	1,993 21 4	...	773 2 1	3,177 24 5	805 8 5	17						822 8 5	
	Total	27,081	2,306	3,580	2,505	405	41,018	812		2,347	6	3,657		2,239	85,956	417	2,013	...	776	3,206	818	17							835
<i>II.—Deccan.</i>																													
6	Khándesh	Rayatwári ... 54,042 Other Government ... 1,837 Alienated ... 1,923	29,067 4,579 1,543	5,350 1 94	20,274 499 532	2,643 55	174 5	804 10	58,853 210 236	2,215 14 53	734 4 7	160			175,021 7,174 4,458	1,063 4 864	3,297 10 200	270 2 ...	2,775 8 245	7,085 92 917	8,321 1 144	54						8,375 1 144	
	Total	57,802	35,789	5,451	21,309	2,698	179	904	59,334	2,282	745	160			186,653	2,011	3,563	272	3,078	8,924	3,466	54							3,520
7	Násik	Rayatwári ... 23,643 Other Government ... Alienated ... 1,500	63,011 ...	992 6	21,961 650	1,150 3	10 7	113 ...	67,246 2,436	1,930 174	8,252 1,118	3,146 286			191,454 11,602	3,434 840	2,922 206	543 82	1,855 143	8,748 1,361	856 81	10						866 61	
	Total	25,233	68,403	998	22,611	1,153	17	113	69,682	2,104	9,370	3,432			203,116	4,278	3,218	615	1,998	10,104	937	16							947
	(Rayatwári ...	85,834	89,916	8,025	1,901	17,210	848	78	35,942	1,057	429	134		30	101,413	1,904	1,141	1,477	1,040	6,468	3,218	674							3,593
	(Rayatwári ...	759,427	...	1,750	...	8	...	4,686	...	...	...	...		...	28,660	167	89	130	130	522	432	154							583
	Poona	Rayatwári ... Other Government ... Alienated ...	...	...	...	...	...	...	...	...	...	...	...	39	219,973	2,071	1,230	1,613	2,076	6,990	3,650	830							4,480
	Total	880,148	576,108,992	4,663	280	23,530	1,423	1,270	...	...	...	...		...	141,211	11,019	1,095	3,014	2,000	18,687	714	2							716



III.—Crops, 1889-90—continued.

No.	District.	V.—CONDIMENTS AND SPICES.																	VI.—STARCHES.			VII.—SUGAR.			
		Cardamom (Veldode), Elettaria cardamomum.	Chillies (Mirchya), Cap- sicum frutescens.	Ginger (A'le), Zingiber Officinale.	Black Pepper (Mirri), Piper nigrum.	Petch-leaves (Páne), Piper-betel.	Betelnut (Supári), Areca-catechu.	Turmeric (Halad), Cur- cuma longa.	Fennel (Bad- shep), Fimipinella anisum.	Dill-seed (Bálant-shep), Anethum sowa.	Coriander (Dhane), Coriandrum sativum.	Cumin (Jire), Cuminum cyminum.	Ajwan-seed (Ova), Py- chotis s'jowan.	Fenugreek (Methi), Trigonella fenumgre- cum.	Common Mustard (Rái), Sinapis Indica.	Garlic (Lasun), Allium sativum.	Others.	Total V.	Arrowroot, Maranta arundinacea, Curcuma angustifolia, &c.	Others.	Total VI.	Sugarcane (Us, Sherdi), Saccharum officinarum.	Others.	Total VII.	
1		44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	
<b>A.—BOMBAY PRESIDENCY PROPER.</b>																						Acres.			Acres.
<i>I.—Gujarát.</i>																									
1	Ahmadabad ...		1,736 469 33	262				5	78	2		3		361	6	41		2,494 469 33				737 734		737 734	
	Total ...		2,238	262				5	78	2		3		361	6	41		2,996				1,471		1,471	
2	Kaira ...		773 247	63 33				10	73			434 1,063		84 11	35	72 59	134 21	1,678 1,424				271 274		271 274	
	Total ...		1,020	96				10	73			1,487		95	35	131	155	3,102				545		545	
3	Panch Maháls...		445 236 1	11 1						13	4	37		24 30		7 52		537 323 1				159 25 6		159 25 6	
	Total ...		682	12						13	4	37		54		59		861				190		190	
4	Broach ...		210	20				17		11	46			17	9	34	1	365				143		143	
	Total ...		210	20				17		11	46			17	9	34	1	365				143		143	
5	Surat ...		735 26 35	99 1 1				73 2		2	6		32	184	62	111	19	1,319 27 39				4,360 67 11		4,360 67 11	
	Total ...		796	101				74		2	6		38	184	82	111	19	1,413				4,438		4,438	
<i>II.—Deccan.</i>																									
6	Khándesh ...		8,095 8 131	11		226		61 41	673 35	4,017 85	9,444 61		1,685 32	172 6	152 76	111 40		21,967 8 512				1,755 82		1,755 82	
	Total ...		8,234	11		231		122	908	4,102	9,505		1,717	178	228	151		25,367				1,837		1,837	
7	Násik ...		4,515 397	10 2		140	1	34	8		8		1	701	2	393		5,900 953				7,281 759		7,281 759	
	Total ...		4,912	12		167	1	34	8		5		1	1,194	2	416		6,752				8,040		8,040	
8	Ahmadnagar ...		5,719 707			308	1				6			6	15	129		6,243 743				2,816 161		2,816 161	
	Total ...		6,426			398	1				6			6	15	134		6,986				2,977		2,977	
9	Poona ...		8,575 1,530	33		390		27 3	25		348			2	4	788	30	10,213 2,194	2		2	6,721 827		6,721 827	
	Total ...		10,105	33		878		30	25		348			2	4	788	30	12,407	2	2		7,548		7,548	

10	Sholápur	Rayatwári	8,415			273		690		168	54		81		9,681			3,001	3,001					
		Other Government	524			2				29		1			556			187	187					
		Alienated																						
		Total	8,939			273	2	690		197	54	1	81		10,237			3,188	3,188					
11	Sátára	Rayatwári	10,983	25		832	6	1,772	119	625	37	41	562	1	14,503			9,786	9,786					
		Other Government	2,972	47		72		573	17	194	7		87		3,969			2,846	2,846					
		Alienated																						
		Total	13,955	72		404	6	2,345	136	819	44	41	649	1	18,472			12,632	12,632					
<i>III.—Karnátok.</i>																								
12	Bélgau	Rayatwári	14,534			84		217	44	1,240		150	148	1,060	17,477			8,547	8,547					
		Other Government	3,137			112	6	50	45	709		8	6	216	4,289			2,866	2,866					
		Alienated																						
		Total	17,671			196	6	267	89	1,949		158	154	1,276	21,766			11,413	11,413					
13	Bijápur	Rayatwári	3,039			53		7	2	12		8	4	115	3,235			1,058	1,058					
		Other Government	387			2		1		2				19	411			161	161					
		Alienated																						
		Total	3,426			55		8	2	14		3	4	134	3,646			1,219	1,219					
14	Dhárwár	Rayatwári	40,091	7		1,221	511	29	2	329	69	128	155	726	43,269			5,701	5,701					
		Other Government	1,857			47	55			2			12		1,973			616	616					
		Alienated																						
		Total	41,948	7		1,268	566	29	2	331	69	128	167	726	45,242			6,317	6,317					
<i>IV.—Konkan.</i>																								
15	Thána	Rayatwári	349	187		194	3	31		588			3	1	1,356	2	2	1,339	1,339					
		Other Government	6												6									
		Alienated																						
		Total	355	187		194	3	31		588			3	1	1,362	2	2	1,339	1,339					
16	Kolába	Rayatwári	45			23	458			144					670			44	44					
		Other Government	5			1				2					8			25	25					
		Alienated																						
		Total	50			23	459			146					678			69	69					
17	Ratnágiri	Rayatwári	324			433									757	15	15	30	30					
		Other Government	2,369	25		1,293	21								3,708	15	15	732	732					
		Alienated	197			28									225			215	215					
		Total	2,890	25		1,754	21								4,690	30	30	977	977					
18	Kánara	Rayatwári	995	243	5	1,290	263	9,333	62	6			1	4	120	12,322		3,390	3,390					
		Other Government																						
		Alienated																						
		Total	995	243	5	1,290	263	9,333	62	6			1	4	120	12,322		3,390	3,390					
Total A.		Rayatwári	995	108,826	733	1,290	3,557	10,745	3,054	1,224	4,045	12,967	474	1,884	1,873	616	4,225	306	156,814	19	19	57,139	57,139	
		Other Government		3,366	60		1,294	1,294	21		85	6	1,053		41		111	21	5,973	15	15	1,857	1,857	
		Alienated		11,903	50		793	92	670	97		1,011		39	508	94	549		15,898	8	8	8,737	8,737	
		Total	995	124,100	843	1,290	4,350	12,131	3,745	1,321	4,130	13,984	1,527	1,923	2,422	710	4,885	327	178,683	37	37	67,733	67,733	
<i>B.—SIND.</i>																								
19	Karáchi		31						8															
20	Hyderabad		183						6	108	1		8,421	22	9	8,662		8	8	1,416	1,416			
21	Shikárpur		145						11	3		25	1,456	34	13	1,778				892	892			
22	Upper Sind Frontier		2							1			1	82	18	1,976		13	13	565	565			
23	Thar and Párkar		14										2			69				11	11			
																60				11	11			
		Total B.	375						25	4	1,807	149	1	25	9,890	139	40	12,545		21	21	2,895	2,895	
Grand Total			995	124,375	843	1,290	4,350	12,131	3,745	1,346	4,134	15,881	1,676	1,924	2,447	10,600	5,024	367	191,228	37	21	58	70,628	70,628

M.



III.—Crops, 1889-90—concluded.

No.	District.	VIII.—OIL-SEEDS.									IX.—DYES.					X.—FIBRES.							XI.—MISCELLANEOUS.	Gross Area cropped.	Deduct Area cropped more than once.	Remainder Net Area cropped.	
		Sesame (Nil), Sesamum Indicum.	Linseed (Alsi, Javaz), Linum usitatissimum.	Castor-oil Seed (Erandiya), Ricinus communis.	Safflower Seed (Kardaj), Carthamus tinctorius.	Rape (Shiras), Brassica napus.	Niger-seed (Khuriant), Verbesina setiva.	Ground-nut (Bhumbug), Arachis hypogea.	Cocconut (Kobbare), Coccus nucifera.	Others.	Total VIII.	Indigo (Nil, Gul), Indigofera tinctoria.	Safflower (Kusumba), Carthamus Pictus.	Morinda (Al, Surangi), Morinda citrifolia.	Others.	Total IX.	Cotton (Kapus), Gossypium herbaceum.	Bomby Hemp (San, Tag), Crotilaria juncea.	Hemp (Ambadi, Sheria), Hibiscus cannabinus.	Jute.	Rhea.	Others.					Total X.
1		67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
		Acres.									Acres.					Acres.							Acres.	Acres.	Acres.		
<b>A.—BOMBAY PRESIDENCY PROPER.</b>																											
<b>I.—Gujarat.</b>																											
1	Abmadabad	15,355 11,388 1,403	1,347 308 35	5,504 2,844 35	58 84 ...	461 1,412 ...	...	1	...	...	22,726 16,096 1,438	66 ...	756 23 ...	...	...	822 23 ...	189,054 160,000 9,008	805 750 830	35 30 ...	...	...	...	139,854 161,980 9,333	302 18 10	702,708 602,268 40,031	17,092 6,894 271	895,618 595,874 39,760
	Total	28,146	1,715	8,383	142	1,873	...	1	...	...	40,260	66	779	...	...	845	308,957	1,885	65	...	...	...	310,907	330	1,345,007	24,257	1,320,750
2	Kaira	4,061 1,091 ...	216 ...	3,632 669 ...	1,406 175 ...	15 ...	...	...	...	...	10,230 2,635 ...	145 120 ...	422 24 ...	...	...	567 144 ...	5,012 4,065 ...	68 1 ...	1,099 519 ...	...	...	...	7,979 4,585 ...	17 13 ...	565,131 160,176 ...	18,340 5,248 ...	546,782 154,928 ...
	Total	6,652	216	4,301	1,581	15	...	...	...	...	12,765	265	446	...	...	711	9,977	69	2,518	...	...	...	12,564	30	725,307	23,597	701,710
3	Panch Mahals	17,999 1,492 583	25 ...	1,001 237 181	...	451 192 25	6,021 1,299 649	...	...	...	25,496 8,210 1,438	...	4 ...	...	...	4	161 401 8	1,564 1,054 90	844 130 73	...	...	...	2,069 1,585 171	...	291,604 71,305 22,858	87,026 9,249 2,131	224,578 62,067 20,767
	Total	20,073	25	1,419	...	658	7,909	...	...	...	30,144	...	4	...	...	4	570	2,708	547	...	...	...	3,825	...	375,797	68,405	307,392
4	Broach	14,275 38 ...	...	1,851 2 ...	...	...	...	...	...	...	16,128 40 ...	630 ...	25 ...	...	...	655	256,890 441 ...	3 ...	...	...	...	...	256,898 441 ...	69 ...	595,270 906 ...	952 ...	594,318 906 ...
	Total	14,313	...	1,853	...	...	...	...	...	...	16,166	630	25	...	...	655	257,331	8	...	...	...	...	257,339	69	596,176	952	595,224
5	Surat	2,651 4 12	...	34,832 313 54	...	6 ...	328 168 11 3	168 11 3	...	...	37,505 328 69	...	4 ...	...	...	4	91,947 1,125 86	1,742 5 8	55 ...	...	...	...	93,744 1,130 44	102 ...	523,610 5,174 3,787	51,434 499 20	472,176 5,174 3,767
	Total	2,667	...	34,699	...	6	328	202	...	...	37,902	...	4	...	...	4	93,108	1,755	55	...	...	...	94,918	102	533,070	51,953	481,117
<b>II.—Deccan.</b>																											
6	Khândesh	73,102 4,747 1,970	28,071 1,432 770	4,550 364 44	2,137 ...	...	6,079 967 183	4,006 3 48	...	...	118,025 7,513 3,015	1,593 ...	1 ...	432 ...	...	2,024 ...	183,967 3,945 24,806	1,209 269 58	3,462 3 102	...	...	...	988,459 4,216 24,966	35 ...	2,822,629 53,000 70,197	8,008 20 202	2,814,521 52,980 69,995
	Total	79,909	30,273	4,958	2,137	...	7,219	4,057	...	...	128,553	1,593	1	432	...	2,026	1,012,738	1,635	3,567	...	...	...	1,017,841	35	2,945,726	8,230	2,937,496
	Násik	26,861 Other Govt. 1,480	35,354 2,376	2,636 3	7,922 543	...	109,054 4,992	11,737 869	...	...	193,564 10,263	...	...	...	...	...	16,332 217	2,490 213	23 ...	...	...	...	18,850 430	9 ...	1,877,856 109,920	18,271 1,471	1,859,585 108,449
	Total	28,341	37,730	2,639	8,465	...	114,046	12,606	...	...	203,827	...	...	...	...	...	16,549	2,703	28	...	...	...	19,280	9	1,987,776	19,742	1,968,034
	Ahmadnagar	14,254 Other Govt. 2,101	8,758 1,396	273 1	66,410 13,507	...	29,935 144	3,285 112	2 ...	...	142,997 17,260	309 60	...	...	...	...	50,155 14,865	347 8	7,172 741	...	...	...	57,674 14,114	29 10	2,436,478 318,597	30,556 1,597	2,405,922 317,000
	Total	16,355	10,183	274	99,917	...	30,129	3,397	2	...	160,257	359	...	...	...	359	63,520	355	7,913	...	...	...	71,788	39	2,755,075	32,153	2,722,922
	Poona	2,028 Other Govt. 1,194	862 144	142 5	89,541 11,812	...	36,613 4,571	7,943 2,009	...	230 35	137,357 19,600	...	...	...	...	...	823 69	421 85	3,530 842	...	...	...	4,776 505	508 626	1,810,572 329,438	61,441 11,359	1,749,131 309,081
	Total	3,220	1,006	147	101,353	...	41,184	10,042	...	265	157,217	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

10	Sholapur	{ Rayatwari... Other Govt. Alienated ...	9,228 ... 988	27,529 ... 1,157	8,700 ... 635	121,110 ... 9,125	...	17,388 ... 1,389	34,285 ... 2,939	...	...	218,240 ... 10,140	57	214	...	...	271	7,675 ... 470	207 ... 11	24,291 ... 803	...	...	18	32,191 ... 1,344	33	2,012,638 ... 150,748	27,289 ... 2,206	1,085,349 ... 148,542	
	Total	...	10,216	28,686	9,235	130,245	...	18,774	37,224	...	...	234,380	57	214	...	...	271	8,145	218	25,154	...	...	18	33,535	36	2,163,386	29,495	2,133,891	
11	Sátara	{ Rayatwari... Other Govt. Alienated ...	242 ... 43	2,140 ... 473	647 ... 152	23,300 ... 3,645	...	16,964 ... 3,901	45,973 ... 14,747	...	...	88,206 ... 22,961	...	...	...	...	...	5,672 ... 369	4,077 ... 952	6,351 ... 1,347	...	...	...	16,100 ... 2,608	116 ... 27	1,568,154 ... 334,167	92,869 ... 26,286	1,473,235 ... 307,881	
	Total	...	285	2,613	799	25,945	...	20,865	60,720	...	...	111,227	...	...	...	...	...	6,041	5,029	7,698	...	...	...	18,708	143	1,900,321	119,155	1,781,166	
III.—Karnatak.																													
12	Belgaum	{ Rayatwari... Other Govt. Alienated ...	6,027 ... 1,037	1,894 ... 236	8,689 ... 2,853	30,947 ... 8,820	...	3,020 ... 520	10,676 ... 2,236	...	...	61,253 ... 15,702	...	...	...	...	...	141,084 ... 21,703	2,035 ... 642	2,790 ... 490	...	...	...	125,905 ... 22,835	54 ... 1	1,448,464 ... 335,159	28,617 ... 3,179	1,119,847 ... 231,980	
	Total	...	7,064	2,130	11,542	39,767	...	3,540	12,912	...	...	76,955	...	...	...	...	...	142,787	2,677	3,280	...	...	...	148,744	67	1,783,623	31,796	1,751,827	
13	Bijapur	{ Rayatwari... Other Govt. Alienated ...	31,123 ... 2,943	35,082 ... 2,983	8,672 ... 1,242	63,907 ... 6,555	...	19,989 ... 1,491	81 ... 7	...	...	158,914 ... 15,221	7	...	...	...	...	351,559 ... 47,296	63 ... 17	13,821 ... 1,286	...	...	...	365,418 ... 48,541	15 ... 1	2,463,189 ... 285,503	5,746 ... 338	2,457,437 ... 285,145	
	Total	...	34,066	38,065	9,914	70,522	...	21,430	85	...	...	174,135	7	...	...	...	...	393,855	80	15,057	...	...	...	413,992	16	2,748,686	6,104	2,742,582	
14	Dhárwár	{ Rayatwari... Other Govt. Alienated ...	9,646 ... 290	20,042 ... 893	17,508 ... 894	41,885 ... 1,458	...	3,879 ... 851	...	...	...	92,760 ... 3,891	...	...	...	...	...	481,565 ... 15,282	167 ... 12	4,823 ... 285	...	...	...	486,555 ... 15,579	22 ... 1	1,965,945 ... 109,677	25,513 ... 1,623	1,940,432 ... 108,054	
	Total	...	9,936	20,940	18,402	43,343	...	4,030	...	...	...	96,651	...	...	...	...	...	496,817	179	5,108	...	...	...	502,134	23	2,075,622	27,136	2,048,486	
IV.—Konkan.																													
15	Tháua	{ Rayatwari... Other Govt. Alienated ...	5,385 ... 12	...	2,667 ... ...	2 ... ...	34	13,750 ... 16	...	...	...	43	21,881 ... 104	...	...	...	...	...	3,389 ... ...	2,041 ... ...	...	...	...	6,336 ... ...	22 ... ...	527,920 ... 2,217	5,945 ... 12	521,955 ... 2,205	
	Total	...	5,401	...	2,667	2	34	13,870	...	...	...	43	22,017	...	...	...	...	...	3,389	2,941	...	...	...	6,320	22	538,674	6,033	532,641	
16	Kolába	{ Rayatwari... Other Govt. Alienated ...	1,085 ... 4,327	...	41 ... 6	...	...	...	35	...	...	101	1,227 ... 4,367	...	...	...	...	...	191 ... 402	1 ... ...	...	...	...	192 ... 401	1 ... ...	179,781 ... 106,430	5,339 ... 5,309	174,442 ... 161,070	
	Total	...	5,412	...	46	...	...	35	...	...	101	5,594	...	...	...	...	...	...	593	1	...	...	...	594	1	347,359	10,715	336,644	
17	Ratnágiri	{ Rayatwari... Other Govt. Alienated ...	1,979 ... 20,978	...	...	...	...	...	...	...	...	1,979 ... 20,978	...	...	...	...	...	...	422 ... 4,512	...	10	...	...	4,522 ... 63	...	454,226 ... 17,919	31,958 ... 1,644	422,863 ... 16,266	
	Total	...	23,910	...	...	...	...	...	...	...	...	23,910	...	...	...	...	...	...	4,997	10	...	...	...	5,007	131	516,603	38,022	478,581	
18	Kánara	{ Rayatwari... Other Govt. Alienated ...	129 ... ...	4 ... ...	227 ... ...	...	...	68	...	...	...	289	717 ... ...	...	...	...	...	...	70 ... ...	51 ... ...	...	...	...	121 ... ...	58 ... ...	246,872 ... ...	12,355 ... ...	234,517 ... ...	
	Total	...	129	4	227	...	...	68	...	...	289	717	...	...	...	...	...	...	70	51	...	...	...	121	58	246,872	12,355	234,517	
	Total A.	{ Rayatwari... Other Govt. Alienated ...	236,417 ... 44,677	161,854 ... 1,800	101,072 ... 4,434	467,685 ... 250	967	262,928 ... 1,594	118,175 ... 2,317	2	663	1,349,266 ... 55,095	2,807 ... 120	1,426 ... 47	432	...	...	4,665 ... 167	2,512,815 ... 170,877	19,275 ... 6,992	71,694 ... 692	...	...	2,603,806 ... 178,561	1,523 ... 31	22,071,182 ... 1,516,201	471,842 ... 57,639	21,599,349 ... 1,467,562	
	Total	...	296,095	173,586	111,505	523,419	2,586	283,537	141,249	2	698	1,532,677	2,977	1,473	432	...	4,882	2,816,315	28,766	77,865	...	...	...	2,922,968	2,145	23,716,091	582,899	23,133,192	
B.—SIND.																													
19	Karachi	...	6,497	...	59	...	10,328	...	...	...	19,468	36,352	53	1	...	...	54	785	151	...	...	...	...	936	1	418,148	24,725	393,423	
20	Hyderabad	...	50,084	...	...	...	11,195	...	...	...	38,182	99,461	8,779	2	...	...	7	8,786	306	...	...	...	...	76,725	14	848,320	15,211	833,109	
21	Shikárpur	...	20,765	2	65,930	...	...	...	...	...	73,466	160,163	3,453	...	...	...	458	3,911	56	...	...	...	...	7,694	152	1,073,621	163,691	909,930	
22	Upper Sind Frontier	...	30,648	8,270	...	...	2,450	...	...	...	41,368	141	...	...	...	...	...	141	...	16	...	...	...	1,727	107	186,841	10,262	176,579	
23	Thar and Párkár	...	8,226	...	...	...	512	...	...	...	62,919	71,657	350	1	...	...	...	351	...	24	...	...	...	13,300	47	651,591	8,869	642,722	
	Total B.	...	116,220	8,272	65,989	...	24,485	...	...	...	194,035	409,001	12,776	4	...	465	13,245	99,827	513	42	...	...	...	100,382	321	3,178,521	222,758	2,955,763	
	Grand Total	...	412,315	181,858	177,494	523,419	27,071	283,537	141,249	2	194,733	1,941,678	15,753	1,477	432	465	18,127	2,916,142	29,279	77,907	...	...	...	3,023,350	2,466	28,894,612	805,657	28,088,955	

IV.—Irrigation, 1889-90.

No.	District.	Net Area cropped.	Area irrigated from Canals.	Area irrigated from other sources.	Total Area irrigated.	CROPPING OF IRRIGATED AREA.							Deduct Area cropped with irrigation more than once.	Balance net irrigated Area.	
						Wheat.	Rice.	Other Cereals and Pulses.	Sugarcane.	Other Food Crops.	Non-food Crops.	Fodder Crops.			Total.
						6	7	8	9	10	11	12			13
<b>A.—BOMBAY PRESIDENCY PROPER.</b>		Acres.			Acres.								Acres.	Acres.	Acres.
<i>I.—Gujarat.</i>															
1	Ahmadabad ...	685,016 596,374 88,700	2,978 90 ....	85,882 22,080 1,445	88,855 22,170 1,445	11,024 12,011 650	10,006 2,325 441	12,087 2,817 217	737 734 ....	8,874 2,981 218	2,323 303 5	125 974 20	47,130 22,185 1,451	8,281 15 6	33,855 22,170 1,445
	Total ...	1,320,750	3,063	59,407	62,470	24,185	19,732	15,121	1,471	6,423	2,721	1,119	70,772	8,302	62,470
2	Kaira ...	546,782 154,928 ....	4,936 .... ....	22,936 13,512 ....	27,872 13,512 ....	4,824 941 ....	8,536 175 ....	6,590 1,125 ....	271 274 ....	8,523 2,278 ....	5,716 6,690 ....	437 384 ....	29,937 13,867 ....	2,065 355 ....	27,872 13,512 ....
	Total ...	701,710	4,936	36,448	41,384	5,765	8,711	7,715	545	5,801	14,446	821	43,804	2,420	41,384
3	Panch Mahals ...	224,578 82,037 20,757	.... .... 5	1,515 384 6	1,515 384 11	534 244 ....	116 .... ....	241 .... ....	159 25 6	244 107 5	221 8 ....	.... .... ....	1,515 354 11	.... .... ....	1,515 354 11
	Total ...	307,392	5	1,905	1,910	778	116	241	190	356	229	...	1,910	...	1,910
4	Broach ...	594,818 906 ....	.... .... ....	954 .... ....	954 .... ....	2 .... ....	113 .... ....	4 .... ....	130 .... ....	485 .... ....	255 .... ....	2 .... ....	991 .... ....	37 .... ....	954 .... ....
	Total ...	595,224	...	954	954	2	113	4	131	485	255	2	991	37	954
5	Surat ...	472,176 5,174 8,767	.... .... ....	10,219 103 16	10,219 103 16	31 .... ....	3,293 .... ....	116 .... ....	4,360 68 10	1,636 19 3	923 16 3	.... .... ....	10,359 103 16	14 .... ....	10,219 103 16
	Total ...	481,117	...	10,338	10,338	31	3,293	116	4,438	1,658	942	...	10,478	140	10,338
<i>II.—Deccan.</i>															
6	Khândesh ...	2,814,521 59,930 69,995	10,183 1 298	25,700 57 1,048	35,883 58 1,346	11,139 33 153	1,739 .... 77	4,400 .... 87	1,755 .... 81	8,024 24 904	9,638 2 193	270 .... 2	37,635 58 1,497	1,752 .... 151	35,883 58 1,346
	Total ...	2,937,496	10,482	26,805	37,287	11,324	1,866	4,487	1,836	9,552	9,853	272	39,190	1,903	37,287
7	Násik... ..	1,859,585 108,449 ....	24,451 2,013 ....	40,404 3,247 ....	64,855 5,200 ....	23,503 1,200 ....	2,616 123 ....	13,527 983 ....	6,878 721 ....	12,779 1,056 ....	11,201 940 ....	1,104 89 ....	71,609 6,017 ....	6,753 757 ....	64,855 5,200 ....
	Total ...	1,968,034	26,464	43,651	70,115	24,703	2,744	14,510	7,599	14,735	12,141	1,193	77,625	7,510	70,115
8	Ahmadnagar... ..	2,405,922 317,000 ....	4,926 65 ....	74,041 9,477 ....	75,967 9,542 ....	29,307 3,710 ....	704 65 ....	32,721 4,406 ....	2,107 169 ....	15,009 1,501 ....	6,198 592 ....	1,908 130 ....	83,134 10,573 ....	9,167 1,081 ....	73,967 9,542 ....
	Total ...	2,722,922	4,991	83,518	88,509	33,026	769	37,127	2,357	16,510	6,790	2,128	98,707	10,198	88,509
9	Poona ...	1,749,131 303,081 ....	29,779 3,762 ....	64,559 7,890 ....	94,338 11,562 ....	23,350 3,104 ....	936 58 ....	42,269 4,222 ....	6,181 807 ....	25,171 3,319 ....	4,827 712 ....	2,632 288 ....	105,767 12,537 ....	11,019 975 ....	94,338 11,562 ....
	Total ...	2,058,212	33,541	72,359	105,900	26,454	994	46,492	6,988	28,519	5,539	2,918	117,804	11,994	105,900

10	Sholapur	{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	1,985,849 1,48,542 Total ...	8,827 279 9,106	78,618 4,662 78,280	82,445 4,941 87,386	32,412 2,546 34,958	3,957 155 4,112	39,864 2,764 42,628	3,001 187 3,188	7,603 230 7,833	19,463 966 20,434	414 29 442	106,719 6,876 113,595	24,274 1,035 26,209	82,445 4,941 87,386	
11	Sátara	{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	1,473,285 307,891 Total ...	6,830 873 7,703	75,483 21,418 96,901	82,313 22,291 104,604	21,116 5,327 26,473	4,223 1,721 5,944	21,579 3,482 25,061	9,653 2,858 12,511	12,342 3,813 16,155	27,994 7,618 35,612	796 109 905	97,733 24,928 122,661	15,420 2,637 18,057	82,313 22,291 104,604	
<i>III.—Karnatak.</i>																	
12	Belgaum	{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	1,419,847 231,980 Total ...	2,136 1,549 3,685	31,463 8,375 39,838	33,599 9,024 43,523	2,100 901 3,001	7,858 295 8,153	5,975 2,369 8,344	8,431 2,795 11,226	9,502 2,975 12,477	1,249 1,015 2,264	71 52 123	35,186 10,402 45,588	1,587 478 2,065	33,599 9,024 43,523	
13	Bijapur	{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	2,457,437 235,145 Total ...	652 3 655	7,922 1,234 9,156	8,574 1,237 9,811	1,460 229 1,689	1,346 130 1,476	824 123 952	1,058 160 1,218	3,146 442 3,588	1,681 230 1,911	128 35 163	9,643 1,354 10,997	1,069 117 1,186	8,574 1,237 9,811	
14	Dhárwár	{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	1,940,432 108,054 Total ...	7,259 258 7,517	77,369 8,601 85,970	84,628 8,889 93,517	24 ..... 24	73,708 7,995 81,703	454 ..... 454	5,429 490 5,919	3,121 239 3,360	2,615 170 2,785	2 ..... 2	85,353 8,894 94,247	725 5 730	84,628 8,889 93,517	
<i>IV.—Konkan.</i>																	
15	Thána	{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	521,955 2,205 8,481 Total ...	..... ..... ..... .....	5,018 7 53 5,078	5,018 7 53 5,078	..... ..... ..... .....	..... ..... ..... .....	..... ..... ..... .....	1,332 ..... ..... 1,332	3,538 7 53 3,598	143 ..... ..... 143	42 ..... ..... 42	5,055 7 53 5,115	37 ..... ..... 37	5,018 7 53 5,078	
16	Kolába	{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	174,442 161,070 1,132 Total ...	..... ..... ..... .....	1,805 33 ..... 1,838	1,805 33 ..... 1,838	..... ..... ..... .....	..... ..... ..... .....	1 ..... ..... 1	88 12 ..... 50	1,474 17 ..... 1,491	292 4 ..... 296	..... ..... ..... .....	1,805 33 ..... 1,838	..... ..... ..... .....	1,805 33 ..... 1,838	
17	Ratnágiri	{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	39,447 422,868 16,266 Total ...	22 1,163 11 1,196	922 4,620 188 5,730	944 5,783 199 6,926	..... ..... ..... .....	771 2,113 153 3,037	62 234 3 299	1 338 4 343	76 3,046 39 3,201	34 12 ..... 46	..... ..... ..... .....	944 5,783 199 6,926	..... ..... ..... .....	944 5,783 199 6,926	
18	Kánara	{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	234,517 ..... ..... Total ...	..... ..... ..... .....	26,729 ..... ..... 26,729	26,729 ..... ..... 26,729	..... ..... ..... .....	13,966 ..... ..... 13,966	381 ..... ..... 381	2,732 ..... ..... 2,732	7,256 ..... ..... 7,256	2,395 ..... ..... 2,395	..... ..... ..... .....	26,730 ..... ..... 26,730	1 ..... ..... 1	26,729 ..... ..... 26,729	
Total A.			{ Rayatwari .. .. . Other Government .. .. . Alienated .. .. .	21,599,340 1,437,562 2,076,290 Total ...	102,974 1,254 9,148 113,374	576,539 40,796 67,570 684,905	679,513 42,050 76,716 792,279	160,856 13,828 17,729 192,413	140,898 4,176 11,218 156,729	181,086 4,176 18,661 203,923	54,343 1,451 8,279 64,073	119,403 9,125 15,726 142,998	8,021 1,358 751 10,130	761,540 42,420 84,808 889,068	82,327 370 8,092 90,789	679,513 42,050 76,716 798,279	
<i>B.—SIND.</i>																	
19	Karáchi	.....	393,423	302,286	91,137	393,423	42,259	172,144	142,257	1,416	5,812	46,427	7,833	418,148	24,725	393,423	
20	Hyderabad	.....	833,109	777,194	49,268	826,462	43,805	163,745	420,771	891	12,466	185,037	14,774	841,489	15,027	826,462	
21	Shikárpur	.....	909,930	645,057	264,873	909,930	252,971	218,176	411,064	565	14,474	175,272	1,099	1,073,621	163,691	909,930	
22	Upper Sind Frontier	.....	176,579	166,357	10,222	176,579	15,592	12,461	113,958	11	1,307	43,508	4	186,841	10,262	176,579	
23	Thar and Párkar	.....	642,722	238,302	49	238,351	32,229	90,018	56,699	11	607	85,476	389	265,429	7,078	238,351	
Total B.			2,955,763	2,149,196	415,549	2,564,745	386,856	656,544	1,144,749	2,894	34,666	535,720	24,099	2,783,528	220,783	2,564,745	
Grand Total			28,088,955	2,262,570	1,100,454	3,363,024	579,269	813,273	1,348,672	66,967	177,664	654,522	34,229	3,674,596	311,572	3,363,024	

AN

V.—Agricultural Stock, 1889-90.

CATTLE AND OTHER QUADRUPEDS.

No.	District.	CATTLE AND OTHER QUADRUPEDS.										PLOUGHS.		CARTS.					
		Plough Cattle.		Bulls for breeding purposes.		Oxen and He-Bufferoes for other purposes.		Milk Cattle.		Young Stock.		Total Cattle.	Horses and Ponies.	Sheep.	Goats.	Small.	Large, i.e. over two Bullocks.	For riding.	For carrying loads.
		Oxen.	He-Bufferoes.	Bulls.	Bull Bufferoes.	Oxen.	He-Bufferoes.	Cows.	She-Bufferoes.	Calves.	Buffalo Calves.								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
A.—BOMBAY PRESIDENCY PROPER.																			
I.—Gujarát.																			
1	Ahmadabad	Rayatwári .. 82,200 Other Government .. 54,065 Alienated .. 5,485	32 35 2	314 187 64	865 93 18	2,408 1,104 142	370 235 34	49,318 36,668 2,085	59,776 25,713 2,832	27,003 10,597 1,429	27,226 11,807 1,250	248,222 148,604 14,241	3,121 2,605 306	24,227 21,903 2,200	12,764 13,708 641	34,524 2,208 2,402	0 26 81	820 194 57	13,054 7,897 954
	Total	141,780	69	565	476	3,744	639	88,971	87,321	45,119	40,283	408,967	6,032	48,336	27,173	66,167	441	1,074	21,937
2	Kaira	Rayatwári .. 94,414 Other Government .. 22,846 Alienated ..	15 12 ..	222 18 ..	270 175 ..	733 231 ..	93 78 ..	40,870 2,957 ..	73,739 35,001 ..	31,510 3,048 ..	51,230 20,617 ..	292,613 65,583 ..	1,762 342 ..	6,890 2,617 ..	26,510 4,975 ..	49,154 13,738 ..	..	790 450 ..	19,317 8,074 ..
	Total	117,260	27	240	454	964	171	43,336	108,739	35,158	71,847	378,196	2,104	9,503	31,515	62,892	2	1,246	27,591
3	Panch Maháls	Rayatwári .. 57,252 Other Government .. 22,460 Alienated .. 11,147	13 8 10	432 94 93	214 54 44	1,501 384 205	35 47 10	47,100 19,058 9,664	14,728 5,758 2,537	43,783 16,743 8,386	8,950 3,465 1,453	174,008 68,071 83,509	1,865 748 242	2,926 3,160 342	17,317 6,710 3,504	29,633 11,210 5,598	..	131 67 5	5,209 2,306 1,114
	Total	90,859	31	619	312	2,090	92	75,822	23,073	68,912	13,868	275,678	2,855	6,438	27,623	45,447	..	206	8,869
4	Broach	Rayatwári .. 55,131 Other Government .. Alienated ..	13 .. ..	77 .. ..	98 .. ..	399 .. ..	60 .. ..	10,709 .. ..	28,656 .. ..	13,050 .. ..	22,610 .. ..	130,803 .. ..	2,444 .. ..	21,383 .. ..	16,830 .. ..	26,768 .. ..	..	3,291 .. ..	15,763 .. ..
	Total	55,131	13	77	98	399	60	10,709	28,656	13,050	22,610	130,803	2,444	21,383	16,830	26,768	..	3,291	15,763
5	Surat	Rayatwári .. 98,904 Other Government .. 643 Alienated .. 678	3,914 51 7	285 3 2	218 2 ..	5,428 15 2	213 .. ..	64,280 711 377	41,422 310 272	73,177 874 424	31,584 224 109	319,431 2,839 1,911	950 2 2	31,566 43 15	67,024 300 62	47,151 340 301	870 7 1	8,020 50 61	27,452 223 224
	Total	100,225	3,972	290	220	5,445	213	65,374	42,010	74,475	31,977	324,201	963	31,624	67,454	47,851	887	8,137	27,929
II.—Deccan.																			
6	Khándesh	Rayatwári .. 325,796 Other Government .. 19,133 Alienated .. 9,664	1,628 71 31	6,493 81 129	751 25 33	19,673 635 784	2,490 83 102	174,167 15,174 6,724	95,521 2,730 2,701	120,274 10,440 3,215	49,581 1,305 1,359	796,383 49,044 22,740	20,778 340 641	35,089 49 1,221	129,330 2,614 3,642	92,323 7,967 1,983	18,547 64 951	3,514 294 802	60,099 2,517 1,293
	Total	354,593	1,730	6,703	809	21,090	2,634	194,070	100,958	133,935	52,245	868,767	21,709	36,359	135,589	102,273	19,628	34,610	64,844
7	Násik	Rayatwári .. 192,350 Other Government .. Alienated .. 13,238	22,024 .. 1,428	2,610 .. 197	190 .. 8	10,425 .. 475	620 .. 23	137,144 .. 7,081	24,804 .. 1,384	79,178 .. 4,130	12,733 .. 626	482,087 .. 23,509	12,290 .. 793	89,294 .. 5,823	97,980 .. 5,564	47,880 .. 2,705	23,058 .. 1,970	10,152 .. 600	20,479 .. 1,440
	Total	205,588	23,452	2,807	198	10,900	652	144,225	26,188	83,317	13,359	510,686	13,083	95,117	103,858	50,585	24,034	10,877	21,919
8	Ahmadnagar	Rayatwári .. 250,247 Other Government .. Alienated .. 29,582	5,901 .. 144	757 .. 69	106 .. 15	6,929 .. 698	1,073 .. 128	171,723 .. 19,033	29,808 .. 2,680	110,110 .. 13,021	15,674 .. 1,387	592,788 .. 60,019	19,767 .. 2,400	241,663 .. 32,616	136,000 .. 16,409	23,711 .. 6,267	83,336 .. 4,212	10,974 .. 1,020	15,699 .. 1,645
	Total	279,829	6,045	826	184	7,827	1,201	190,806	32,497	122,131	17,061	653,407	22,173	274,279	153,102	28,978	42,548	12,003	17,344
9	Poona	Rayatwári .. 205,771 Other Government .. Alienated .. 41,803	7,425 .. 432	715 .. 48	245 .. 16	6,133 .. 824	692 .. 61	125,790 .. 22,521	34,406 .. 6,131	76,393 .. 11,904	19,018 .. 2,717	478,654 .. 86,547	11,228 .. 1,774	213,479 .. 22,914	82,828 .. 12,204	25,660 .. 2,702	24,927 .. 4,732	2,900 .. 308	17,842 .. 4,163
	Total	247,574	7,857	763	261	6,957	733	148,317	42,597	88,387	21,735	665,201	13,002	236,393	95,032	28,362	28,650	3,208	22,610

10	Sholapur ...	Other Government ..	179,157	10,127	721	278	7,353	2,893	107,017	34,936	95,389	23,080	400,961	11,249	249,460	73,981	3,740	15,661	531	11,479
		Alienated ..	12,429	991	132	21	387	113	8,187	3,008	6,435	1,617	32,220	1,792	26,853	6,875	306	1,136	32	519
		Total ...	191,586	11,118	853	299	7,745	3,011	115,204	36,944	101,824	24,597	493,181	12,041	276,313	80,856	4,046	16,697	563	11,997
11	Sátára ...	Rayatwari ..	190,268	16,410	281	145	4,468	986	114,154	59,883	77,664	38,111	502,368	12,782	316,209	69,234	19,570	19,316	764	18,088
		Other Government ..	44,162	4,498	164	49	965	214	25,711	15,082	17,268	8,878	118,989	2,006	54,825	14,901	6,633	4,250	151	4,342
		Alienated ..	234,430	20,906	445	194	5,431	1,200	139,865	74,965	94,932	46,989	619,357	14,788	371,034	84,135	25,203	23,566	915	22,430
<i>III.—Karnatak.</i>																				
12	Belgaum ...	Rayatwari ..	142,128	37,280	4,632	848	7,794	1,384	93,498	67,224	79,250	42,622	476,600	6,213	182,810	67,305	47,538	9,866	428	24,716
		Other Government ..	25,245	5,007	454	79	777	220	16,789	11,127	14,246	7,486	81,429	1,189	38,848	13,871	6,510	1,825	56	3,119
		Alienated ..	167,373	42,287	5,086	927	8,571	1,604	110,287	78,351	93,496	50,107	558,089	7,402	221,658	80,676	54,048	11,691	484	27,835
13	Bijapur...	Rayatwari ..	172,898	9,531	182	154	5,132	3,420	115,165	54,574	140,602	50,039	560,697	11,109	186,824	118,059	40,072	9,836	158	12,890
		Other Government ..	23,744	1,256	17	18	490	396	16,718	7,256	19,457	6,899	76,250	1,163	27,382	19,185	6,835	1,092	17	1,388
		Alienated ..	196,642	10,787	199	172	5,622	3,815	131,883	61,830	169,059	56,938	636,947	12,272	214,206	136,241	47,807	10,778	175	14,278
14	Dhárwár	Rayatwari ..	196,074	22,884	408	240	11,773	1,536	105,561	71,060	136,314	58,871	604,721	5,182	123,309	84,842	87,851	5,279	457	45,128
		Other Government ..	14,292	2,888	13	12	651	57	9,265	4,893	11,722	4,135	47,918	429	4,196	5,386	6,996	249	17	2,974
		Alienated ..	210,366	25,772	421	252	12,424	1,593	114,826	75,943	148,036	63,006	652,639	5,611	127,505	90,228	94,847	5,528	474	48,102
<i>IV.—Konkan.</i>																				
15	Thána ...	Rayatwari ..	131,592	46,262	1,030	181	6,078	586	115,233	22,706	109,162	18,359	4,50,179	1,281	2,926	43,976	82,140	...	4,097	24,317
		Other Government ..	950	423	381	24	37	...	1,254	165	814	107	4,155	48	107	326	702	...	17	130
		Alienated ..	3,174	715	3	2	94	21	1,286	326	1,191	165	6,967	20	30	685	1,646	...	95	818
Total ...	135,716	47,400	1,414	207	5,209	607	117,773	23,197	111,157	18,621	461,301	1,349	3,063	44,967	84,488	...	4,209	25,265		
16	Kolába ...	Rayatwari ..	37,430	18,486	298	172	2,350	518	32,486	11,491	29,555	8,915	141,701	526	672	14,892	25,198	...	1,156	4,639
		Other Government ..	30,419	11,824	150	62	515	163	26,025	6,509	19,310	4,376	99,343	83	632	10,116	20,342	...	91	659
		Alienated ..	337	216	...	...	...	...	300	54	256	54	1,217	1	...	189	242	...	8	9
Total ...	68,186	30,526	448	234	2,865	671	58,811	18,054	49,121	13,345	242,261	610	1,304	25,197	45,782	...	1,255	5,307		
17	Ratnágiri	Rayatwari ..	12,782	2,707	29	39	1,550	155	7,230	2,633	3,530	1,393	32,048	35	221	2,386	7,663	...	29	865
		Other Government ..	78,660	15,844	510	49	601	314	47,247	11,438	23,366	6,310	184,324	134	2,563	12,216	44,970	...	61	343
		Alienated ..	1,958	557	2	1	...	...	1,136	379	689	227	4,949	5	...	817	1,231	...	20	
Total ...	93,400	19,108	541	89	2,151	469	55,613	14,445	27,575	7,930	221,321	174	2,784	15,419	53,864	...	90	1,228		
18	Kánara...	Rayatwari ..	79,718	26,447	2,334	234	6,142	1,127	79,692	26,948	54,212	10,853	287,707	337	1,517	3,489	46,453	...	86	6,653
		Other Government ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Alienated ..	79,718	26,447	2,334	234	6,142	1,127	79,692	26,948	54,212	10,853	287,707	337	1,517	3,489	46,453	...	86	6,653
Total ...	79,718	26,447	2,334	234	6,142	1,127	79,692	26,948	54,212	10,853	287,707	337	1,517	3,489	46,453	...	86	6,653		
Total A	...	Rayatwari ..	2,504,142	2,31,099	21,820	4,817	1,05,302	18,274	1,590,658	755,376	1,309,236	4,90,849	7,031,631	122,928	1,730,471	1,065,483	740,729	164,690	78,244	344,000
		Other Government ..	229,176	28,288	1,424	484	3,622	890	149,099	87,631	91,788	43,211	640,463	4,352	31,074	51,093	124,572	334	1,236	22,209
		Alienated ..	236,938	18,180	1,387	319	6,692	1,378	145,827	59,709	1,12,872	38,311	621,615	11,669	217,271	102,813	50,360	20,435	3,333	24,062
Grand Total	2,970,256	277,547	24,631	5,620	115,576	20,512	1,885,584	902,716	1,513,896	577,371	8,293,709	138,949	1,978,816	1,219,393	915,661	185,359	82,813	390,271		
<i>B.—SIND.</i>																				
19	Karáchi ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	Hyderabad...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	Shikárpur ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	Upper Sind Frontier	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	Thar and Párkar ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

111

ACCOMPANIMENT A TO RETURN III.  
*Details of Kharif and Rabi under Cereals and Pulses, 1889-90.*

No.	District.	CLASS I.—(CEREALS).														
		Jowari, Sorghum Vulgare.	Bajri, Pennisetum Typhoidum.	Rice.	Wheat.	Barley.	Maize.	Kodra, Paspalum Scrobiculatum.	Rajl, Eleusine Coracana.	Rale, Panicum Italicum.	Varl, P. Miliare.	Banti, P. Navidum.	Bhadil, P. pilosum.	Rajgira, amaranth.	Others.	Total Cereals.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<i>I.—Gujarat.</i>																
1	Ahmadabad	{ Kharif ... 340,471 Rabi .. .. .	{ 241,315 .....	{ 62,286 .....	{ ..... 169,206	{ ..... 19,627	{ 3,462 .....	{ 21,199 .....	{ 3,101 .....	{ ..... 408	{ 8,605 .....	{ 21,652 .....	{ ..... 26	{ ..... 26	{ ..... .....	{ 702,081 189,267
	Total	340,471	241,315	62,286	169,206	19,627	3,452	21,199	3,101	408	8,605	21,652	..	26	..	891,348
2	Kaira	{ Kharif ... 60,830 Rabi ... 1,430	{ 207,478 55	{ 116,387 .....	{ ..... 17,552	{ ..... 6,558	{ 320 .....	{ 117,863 .....	{ 56,326 .....	{ ..... 877	{ ..... 661	{ 1,781 41	{ ..... 114	{ ..... 11	{ ..... 11	{ 561,066 26,788
	Total	62,360	207,533	116,387	17,552	6,558	320	117,863	56,326	377	661	1,822	..	114	11	587,884
3	Panch Mahals	{ Kharif ... 5,681 Rabi ... 2	{ 42,043 6	{ 50,166 .....	{ ..... 17,194	{ ..... 1,364	{ 87,003 14	{ 24,164 .....	{ 15,135 .....	{ 35 .....	{ 2,584 2	{ 16,450 1	{ 627 .....	{ 16 4	{ 2,308 .....	{ 246,212 18,587
	Total	5,683	42,049	50,166	17,194	1,364	87,017	24,164	15,135	35	2,586	16,451	627	20	2,308	264,799
4	Broach	{ Kharif ... 14,262 Rabi ... 114,903	{ 17,372 .....	{ 19,512 .....	{ ..... 54,819	{ ..... .....	{ 9 .....	{ 10,049 .....	{ 237 3	{ 30 .....	{ 249 .....	{ 4 .....	{ ..... 21	{ ..... 1	{ ..... 1	{ 61,746 169,625
	Total	129,065	17,372	19,512	54,819	..	9	10,049	240	30	249	4	..	21	1	231,371
5	Surat	{ Kharif ... 122,173 Rabi ... 520	{ 7,969 .....	{ 102,983 .....	{ ..... 23,341	{ ..... .....	{ 2 .....	{ 31,835 .....	{ 13,489 .....	{ 1 .....	{ 63 .....	{ 1,567 .....	{ 111 .....	{ 2 .....	{ 240 .....	{ 240,435 23,861
	Total	122,693	7,969	102,983	23,341	..	2	31,835	13,489	1	63	1,567	111	2	240	304,296
<i>II.—Deccan.</i>																
6	Khandesh	{ Kharif ... 572,379 Rabi ... .. .	{ 724,073 .....	{ 24,760 .....	{ ..... 219,487	{ ..... 4	{ 3,008 .....	{ 4,489 .....	{ 11,413 .....	{ 461 .....	{ 4,986 .....	{ 3,840 .....	{ 1,612 .....	{ 311 .....	{ 37 .....	{ 1,351,459 219,491
	Total	572,379	724,073	24,760	219,487	4	3,008	4,489	11,413	461	4,986	3,840	1,612	311	37	1,570,950
7	Nasik	{ Kharif ... 130,314 Rabi ... 15,648	{ 794,422 .....	{ 47,962 .....	{ ..... 340,988	{ ..... .....	{ 2,968 .....	{ 2 .....	{ 151,841 .....	{ 192 .....	{ 47,054 .....	{ 713 .....	{ 3,485 .....	{ 107 .....	{ ..... .....	{ 1,179,060 359,636
	Total	145,962	794,422	47,962	340,988	..	2,968	2	151,841	192	47,054	713	3,485	107	..	1,535,696
8	Ahmadnagar	{ Kharif ... ..... Rabi ... 1,017,363	{ 960,237 .....	{ 12,883 .....	{ ..... 238,133	{ ..... 135	{ 1,119 .....	{ 190 .....	{ 29,391 .....	{ 1,821 .....	{ 13,171 .....	{ 9 .....	{ 5,494 .....	{ ..... 424	{ 856 .....	{ 1,025,306 1,258,920
	Total	1,017,363	960,237	12,883	238,133	135	1,119	190	29,391	1,821	13,171	9	5,494	424	856	2,281,226

111 X

9	Poona ...	{ Kharif ... Rabi ...	106,895 778,268	501,327 74,782	62,423	130,092	158 1,016	1,760 29	30	61,339	2,471	36,895	110	7,776	383	3,899	785,456 969,172
		Total ...	880,148	576,109	62,423	130,092	1,174	1,779	30	61,339	2,471	36,895	110	7,776	383	3,899	1,754,628
10	Sholapur ...	{ Kharif ... Rabi ...	1,229,506	316,168	21,764	61,041	1,361	13,737	23	63	1,422	1,551	232	57	8,992	364,008 1,291,908	
		Total ...	1,229,506	316,168	21,764	61,041	1,361	13,737	22	63	1,422	1,551	232	57	8,992	1,655,916	
11	Sátara ...	{ Kharif ... Rabi ...	316,785 206,086	588,897	41,170	72,100	5,245	7,120 2,672	107	69,790	30,509	52,285	12	756	2,195	1,109,476 286,308	
		Total ...	521,871	588,697	41,170	72,100	5,245	9,992	167	69,780	30,509	52,285	12	756	2,195	1,394,779	
<i>III.—Karnatak.</i>																	
12	Belgaum ...	{ Kharif ... Rabi ...	485,898 287,484	121,970	112,223	124,833	2 252	6,843 744	177 3	55,842 1	60,047 2,132	31,220	79	14	1	292,820 415,516	
		Total ...	773,330	121,970	112,223	124,833	354	7,086	179	55,843	71,179	31,226	79	14	22	1,298,338	
13	Bijapur ...	{ Kharif ... Rabi ...	519,807 779,828	358,805	11,397	182,852	16	647 77	38	127	28,779 1,696	7,891	3	5	921,799 964,471		
		Total ...	1,299,635	355,605	11,397	182,852	16	724	38	127	28,475	7,891	3	7	1,886,270		
14	Dhárwár ...	{ Kharif ... Rabi ...	417,389 179,130	5,401	154,875	282,506	22	32	33	46,940	91,942	32,590	...	...	...	744,890 466,920	
		Total ...	596,489	5,401	154,875	282,506	22	32	33	46,940	91,942	32,590	...	...	...	1,210,810	
<i>IV.—Konkan.</i>																	
15	Thána ...	{ Kharif ... Rabi ...	30	336,784	143	86	13,846	74,074	33,535	458,495 2							
		Total ...	30	336,784	143	86	13,846	74,074	33,535	458,498							
16	Kolába ...	{ Kharif ... Rabi ...	197,098	18,578	55,904	44,623	316,203										
		Total ...	197,098	18,578	55,904	44,623	316,203										
17	Ratnágiri ...	{ Kharif ... Rabi ...	136,355	99,952	108,128	2	77,140	98	421,675								
		Total ...	136,355	99,952	108,128	2	77,140	98	421,675								
18	Kánara ...	{ Kharif ... Rabi ...	923	179,850 18,607	6,062	108	360	187,311 18,607									
		Total ...	923	193,457	6,062	108	360	200,918									
Grand Total ...			8,093,895 6,604,003	4,984,077 74,848	1,690,578 13,607	141 1,924,146	317 35,543	127,604 2,735	342,634 2	759,192 4	220,638 8,300	394,211 760	46,217 42	19,337	1,670 568	18,643 28	11,599,529 6,668,076
Total ...			7,697,888	4,958,920	1,704,485	1,924,287	35,860	131,429	342,636	759,196	229,433	394,971	46,259	19,337	2,238	18,666	18,265,605

M  
M



ACCOMPANIMENT A. TO RETURN III—continued.  
 Details of Kharif and Rabi under Cereals and Pulses, 1889-90.

No	District.	CLASS II.—(PULSES).													Total Pulses.
		Tur, <i>Cajanus indicus.</i>	Gram, <i>Cicer arietinum.</i>	Mug. <i>Phaseolus mungo.</i>	Udid, <i>P. radiatus.</i>	Math, <i>P. aconitifolius.</i>	Vál, <i>Dolichos lablab.</i>	Chavli, <i>D. catiáng.</i>	Kulith, <i>D. uniflorus.</i>	Vátáno, <i>Pisum sativum.</i>	Lentil (Masur).	Lákb, Chickling vetch.	Field Vetch (Guvár).	Others.	
	1	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	<i>I.—Gujarát.</i>														Acres.
1	Ahmadabad...	{ Kharif ... 1,957 Rabi ... .. Total ... 1,957	{ .....	{ 10,792 ..... 10,792	{ 4,989 ..... 4,989	{ 43,425 ..... 43,425	{ 99 ..... 99	{ 957 ..... 957	{ 6,354 ..... 6,354	{ .....	{ .....	{ .....	{ 6,311 ..... 6,311	{ .....	{ 73,894 11,275 85,159
2	Kaira ...	{ Kharif ... 26,427 Rabi ... .. Total ... 26,427	{ .....	{ 3,681 ..... 3,681	{ 817 ..... 817	{ 28,827 ..... 28,827	{ 752 ..... 752	{ 4,273 ..... 4,273	{ .....	{ .....	{ .....	{ .....	{ 11,918 ..... 11,918	{ .....	{ 78,695 4,385 81,080
3	Panch Maháls ...	{ Kharif ... 6,357 Rabi ... .. Total ... 6,357	{ .....	{ 3,419 ..... 3,419	{ 6,646 ..... 6,646	{ 3,667 ..... 3,667	{ 165 ..... 165	{ 593 ..... 593	{ 33 ..... 33	{ 1,774 ..... 1,774	{ .....	{ .....	{ 1,054 ..... 1,054	{ .....	{ 21,934 52,376 74,310
4	Broach ...	{ Kharif ... 3,042 Rabi ... .. Total ... 17,831	{ .....	{ 260 7 267	{ 11 ..... 11	{ 2,988 25 2,988	{ 144 788 932	{ 89 178 262	{ .....	{ 814 ..... 814	{ .....	{ 37,476 ..... 37,476	{ 236 68 304	{ 2 ..... 2	{ 6,745 55,563 62,313
5	Surat ...	{ Kharif ... 23,976 Rabi ... .. Total ... 27,081	{ .....	{ 3,477 103 3,580	{ 2,505 ..... 2,505	{ 405 ..... 405	{ 209 40,719 41,018	{ 769 43 812	{ .....	{ 2,347 ..... 2,347	{ 6 ..... 6	{ 3,657 ..... 3,657	{ 2,239 ..... 2,239	{ .....	{ 23,670 62,256 85,956
	<i>II.—Deccan.</i>														
6	Khándesh ...	{ Kharif ... 57,802 Rabi ... .. Total ... 57,802	{ .....	{ 5,451 ..... 5,451	{ 21,309 ..... 21,309	{ 2,698 ..... 2,698	{ 179 ..... 179	{ 904 ..... 904	{ 59,334 ..... 59,334	{ 2,282 ..... 2,282	{ 745 ..... 745	{ 160 ..... 160	{ .....	{ .....	{ 149,422 35,231 186,653
7	Násik ...	{ Kharif ... 25,233 Rabi ... .. Total ... 25,233	{ .....	{ 998 ..... 998	{ 22,611 ..... 22,611	{ 1,153 ..... 1,153	{ 1 ..... 1	{ 113 ..... 113	{ 69,682 ..... 69,682	{ 2,104 ..... 2,104	{ 9,370 ..... 9,370	{ 3,432 ..... 3,432	{ .....	{ .....	{ 119,807 83,309 203,116
8	Ahmadnagar ...	{ Kharif ... 41,077 Rabi ... .. Total ... 41,077	{ .....	{ 8,463 ..... 8,463	{ 1,901 ..... 1,901	{ 18,960 ..... 18,960	{ 851 ..... 851	{ 78 ..... 78	{ 40,628 ..... 40,628	{ 1,057 ..... 1,057	{ 429 ..... 429	{ 134 ..... 134	{ .....	{ 39 ..... 39	{ 113,405 106,563 219,973

11

9	Poona	...	...	{ Kharif ...	23,038	.....	1,836	4,537	21,055	137	21	26, 1	165	6	.....	.....	.....	77,709
				{ Rabi ...	.....	82,575	.....	.....	.....	5,114	80	1,557	1,884	1,376	.....	.....	.....	.....
				Total	23,038	82,575	1,836	4,537	21,055	5,251	294	28,308	2,049	1,382	...	...	...	170,325
10	Sholapur	...	...	{ Kharif ...	79,609	.....	5,832	859	44,094	72	29	17,675	.....	.....	.....	.....	.....	148,170
				{ Rabi ...	.....	67,617	.....	.....	.....	.....	.....	.....	.....	50	74	396	.....	.....
				Total	79,609	67,617	5,832	859	44,094	72	29	17,675	50	74	396	...	10	216,317
11	Sátara	...	...	{ Kharif ...	65,281	.....	12,934	31,781	65,409	4,499	432	48,238	.....	.....	.....	.....	.....	228,575
				{ Rabi ...	.....	96,681	.....	.....	.....	.....	.....	.....	.....	1,445	550	.....	.....	.....
				Total	65,281	96,681	12,934	31,781	65,409	4,499	432	48,238	1,445	550	.....	.....	1	327,251
<i>III.—Karnátak.</i>																		
12	Belgaum	...	...	{ Kharif ...	58,336	.....	7,414	4,182	4,342	273	229	47,337	.....	.....	.....	.....	.....	122,118
				{ Rabi ...	.....	54,853	.....	.....	.....	.....	6,624	.....	.....	5,638	5,280	.....	.....	.....
				Total	58,336	54,853	7,414	4,182	4,342	6,897	229	47,337	5,638	5,280	...	...	...	194,508
13	Bijapur	...	...	{ Kharif ...	111,168	.....	43,176	2	11,735	3,907	4,106	84,147	11	.....	.....	.....	.....	207,552
				{ Rabi ...	.....	53,418	.....	.....	.....	.....	1,005	.....	.....	83	.....	.....	.....	.....
				Total	111,168	53,418	43,176	2	11,735	4,212	4,106	84,147	44	.....	.....	.....	.....	262,008
14	Dhárwár	...	...	{ Kharif ...	49,620	31	32,557	4,937	9,204	4,270	856	38,056	.....	.....	.....	.....	.....	139,631
				{ Rabi ...	1	48,698	5,863	.....	.....	1,510	.....	9	5,909	650	95	.....	.....	.....
				Total	49,621	48,729	38,420	4,918	9,204	5,789	865	45,055	650	95	.....	.....	.....	203,346
<i>IV.—Konkan.</i>																		
15	Thána	...	...	{ Kharif ...	7,103	798	517	21,782	.....	608	4,379	1,796	4	.....	.....	.....	.....	37,307
				{ Rabi ...	616	2,030	83	.....	.....	3,457	.....	.....	.....	139	.....	100	.....	.....
				Total	7,814	2,829	630	21,782	.....	4,265	4,379	1,796	143	.....	100	.....	.....	43,738
16	Koliba	...	...	{ Kharif ...	332	.....	.....	1,889	.....	123	.....	.....	.....	.....	.....	.....	.....	2,314
				{ Rabi ...	1,703	2,859	2,340	5,087	9	7,008	97	.....	10	.....	.....	.....	.....	.....
				Total	2,035	2,859	2,340	6,976	9	7,131	97	10	.....	.....	.....	.....	.....	21,466
17	Ratnágiri	...	...	{ Kharif ...	2,326	92	1,174	9,396	.....	10,138	313	11,961	.....	.....	.....	.....	.....	35,400
				{ Rabi ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
				Total	2,326	92	1,174	9,396	.....	10,138	313	11,961	.....	.....	.....	.....	.....	35,400
18	Kánara	...	...	{ Kharif ...	111	.....	7	370	.....	2	.....	1,583	.....	.....	.....	.....	.....	2,078
				{ Rabi ...	.....	305	1,251	1,362	.....	97	633	375	469	.....	.....	.....	.....	50
				Total	111	305	1,258	1,732	.....	99	633	1,963	469	.....	.....	.....	50	6,620
Grand Total				{ Kharif ...	582,800	916	112,018	139,624	257,937	26,035	18,256	403,580	1,237	1,180	.....	21,754	40	1,595,471
				{ Rabi ...	10,214	689,524	9,606	7,330	31	66,331	1,113	7,941	19,629	16,751	45,355	68	62	884,008
Total				.....	603,104	690,500	151,674	146,954	257,971	92,366	19,369	411,521	20,866	17,931	45,355	21,826	102	2,479,539

ACCOMPANIMENT B. TO RETURN III.

Number of principal Fruit-bearing Trees, 1889-90.

No.	District.	Mango.	Tamarind.	Jack.	Cocoanut.	Toddy Palm.	Date Palm.
<i>I.—Gujarát.</i>							
1	Ahmadabad... ..	44,927	10,313	...	...	43	...
2	Kaira ... ..	217,666	21,226	...	32	15	...
3	Panch Maháls ... ..	40,782	5,565	...	...	131,284	...
4	Broach ... ..	20,418	6,386	8	81	32,746	1,268
5	Surat ... ..	174,415	72,138	3,719	6,522	71,878	625,808
	<b>Total ...</b>	<b>498,208</b>	<b>115,628</b>	<b>3,727</b>	<b>6,635</b>	<b>235,966</b>	<b>627,076</b>
<i>II.—Deccan.</i>							
6	Khándesh ... ..	168,325	12,260	3	99	250	2,262
7	Násik ... ..	221,811	7,245	45	195	38	42,944
8	Ahmadnagar ... ..	64,006	8,612	15	245	...	1,032
9	Poona ... ..	118,861	7,532	740	1,388	8,693	...
10	Sholápur ... ..	31,297	6,453	...	117	2	66,935
11	Sátára ... ..	166,207	11,026	9,832	1,620	...	1
	<b>Total ...</b>	<b>770,507</b>	<b>53,178</b>	<b>10,635</b>	<b>3,664</b>	<b>8,983</b>	<b>113,174</b>
<i>III.—Karnátak.</i>							
12	Belgaum ... ..	116,553	20,462	10,199	1,815	...	7,200
13	Bijápur ... ..	72,224	24,262	47	1,964	116	420,731
14	Dhárwár ... ..	162,096	55,693	8,568	62,702	4	499,435
	<b>Total ...</b>	<b>350,873</b>	<b>100,417</b>	<b>18,814</b>	<b>66,481</b>	<b>120</b>	<b>927,356</b>
<i>IV.—Konkan.</i>							
15	Thána ... ..	171,458	12,825	2,903	87,861	69,362	12,528
16	Kolába ... ..	72,176	4,273	4,394	89,772	19,384	30
17	Ratnágiri ... ..	154,861	9,602	85,660	277,170	...	...
18	Kánara ... ..	110,367	11,954	80,915	1,019,389	...	...
	<b>Total ...</b>	<b>508,862</b>	<b>38,654</b>	<b>174,072</b>	<b>1,474,192</b>	<b>88,746</b>	<b>12,558</b>
	<b>GRAND TOTAL ...</b>	<b>2,128,450</b>	<b>307,877</b>	<b>207,248</b>	<b>1,550,972</b>	<b>333,815</b>	<b>1,680,164</b>

---

STATISTICS.

B.—RAINFALL.

---

## EXPLANATORY REMARKS.

*Rain Periods and their dates.*

Early Rains	...	...	...	...	...	...	1st January—10th April.
Ante-Monsoon—							
11th April to 4th June	...	{	Ashvini	...	...	...	11th April—24th April.
			Bharani	...	...	...	25th April—8th May.
			Krittika	...	...	...	9th May—22nd May.
			Rohini	...	...	...	23rd May—4th June.
Monsoon-Kharif—							
5th June to 14th August.	...	{	Mrig...	...	...	...	5th June—19th June.
			Ardra	...	...	...	20th June—3rd July.
			Punarvasu	...	...	...	4th July—17th July.
			Pushya	...	...	...	18th July—31st July.
			Ashlesha	...	...	...	1st August—14th August.
Monsoon-Rabi—							
15th August to 21st Oct.	...	{	Magha	...	...	...	15th August—27th August.
			Purva	...	...	...	28th August—10th September.
			Uttara	...	...	...	11th September—24th September.
			Hast...	...	...	...	25th September—7th October.
			Chitra	...	...	...	8th October—21st October.
Late Rains—							
22nd Oct. to 30th Nov....	...	{	Svāti...	...	...	...	22nd October—3rd November.
			Vishákha	...	...	...	4th November—17th November.
			Anurádha	...	...	...	18th November—30th November.
December.							

The average given in the tables is that for eleven years ending 1886, except for very few stations. The rainy days are compared with those of the last year.

The anna valuation given in the remarks is on the basis of 16 annas representing an average crop.

## Synopsis of Rainfall Summary, 1889.

District.	KHARIF.		RABI.		General Remarks as to Rain.
	Rain.	Harvest.	Rain.	Harvest.	
West Khándesh ...	Seasonable ...	Good ...	Light ...	Poor ...	Much below average. Hast rain failed. Sindkheda fared worst.
East Khándesh ...	Very seasonable.	Very good ...	Sowing rain good but none after.	Very poor ...	Below average. Cotton and jowári excellent. Oilseeds good.
Násik ...	Short. Long breaks.	Crops fair (except Sinnar and Niphád).	Do. ...	Poor ...	Below average. Injurious Chitra rain in Yeola.
Ahmadnagar ...	Seasonable and good.	Good, but area short in south-east.	Too heavy at first. Too light after.	Fair ...	Up to or above average. Hast and Chitra too heavy.
Poona ...	Late and scant in east except Indápur.	Good in west and in Indápur. Poor elsewhere.	Good at first ...	Fair to average .	Up to or above average. Hast very good. Chitra, however, injuriously heavy.
Sholápur ...	Excellent but harmful harvest rain in Chitra.	Poor; poorest in Karmála and Sângola.	Unseasonable ...	Fair ...	Up to or much above average; but unseasonable owing to heavy Chitra rain.
Sátára ...	Good, especially in Uttara.	Good ...	Hast good, but later rains altogether absent except in Chitra	Do. ...	Above average. Chitra rain at kharif harvest prevented full crop and submerged rabi seedlings.
Belgaum ...	Good, except in Athni, Gokák and Saundatti.	Good, but area short.	Do. ...	Fair to good in tálukas where kharif short.	Up to or above average. Chitra rain very harmful.
Bijápur ...	Excellent, but excessive Chitra rain at harvest.	Fair to good ...	Do. ...	Good ...	Much above average. Chitra especially harmfully excessive.
Dhárwár ...	Late in north and deficient everywhere till Uttara	Fair ...	Do. ...	Fair ...	Up to or above average. Hast rain rather excessive and Chitra following did harm everywhere.
Kánara ...	Excessive ...	Do. ...	Excessive in Chitra.	Not a rabi district.	Much above average.
Ratnágiri ...	Seasonable. Slightly excessive for early rice.	Good ...	Good, but ceased too soon.	Very fair ...	Up to or above average. Chitra rain bad.
Kolába ...	Seasonable and good.	Do. ...	Seasonable ...	Good ...	Average. Chitra rain not excessive or injurious.
Thána ...	Do. ...	Do. ...	Do. ...	Do. ...	Average or a little below.
Surat ...	Do. ...	Do. ...	Do. ...	Do. ...	Much below average.
Broach ...	Do. ...	Excellent. Cotton bumper.	Do. ...	Very good ...	Below average. Locusts in October-November. No injury.
Kaira ...	Seasonable ...	Good ...	Light ...	Fair ...	Up to average. Hast rain very light.
Panch Maháls ...	Seasonable and good.	Very good ...	Hast good ...	Do. ...	Up to average.
Ahmadabad ...	Do. ...	Good ...	Very light ...	Do. ...	Below or up to average. Hast rain scant and rabi area short.

West Khándesh, 1889.

Rain Periods.	DHULIA.		PIMPALNER.		NANDURBÁR.		NAVAPUR.		TALODA.		SHÁHÁDA.		SHIRPUR.		SINDKHERDA.		AMALNER.		PA'ROLA.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
Early Rains ..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..
Ante-Monsoon ..	0·35	3	0·60	1	2·04	2	1·31	2	2·02	3	1·82	3	1·03	4	0·30	2	0·66	4	0·20	2
Monsoon-Kharif ..	11·64	30	7·79	25	9·42	23	18·99	39	20·30	27	9·02	30	10·90	25	4·53	10	15·73	23	16·40	35
Monsoon-Rabi ..	6·26	19	6·20	23	6·15	17	7·03	23	8·33	18	5·97	18	3·39	21	3·02	15	5·63	20	7·26	19
Late Rains ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	17·65	52	11·65	49	17·61	48	27·35	69	30·65	43	17·71	51	15·43	60	7·90	33	22·42	65	23·60	66
Average ..	25·79	54	27·42	48	32·67	55	..	71	34·96	56	31·56	47	27·56	60	22·95	40	28·06	62	32·08	63

*General characteristics.*—A hilly and rugged tract except where the wide black soil plains extend on either side of the Tápti and its tributaries. Rainfall very heavy in the dāngs.

*Remarks.*—Rainfall much below average. Light showers of Rohini in May were useful for preparing the land. Monsoon broke in Mrig in 2nd week of June, with fair showers sufficient to commence partial sowings. General sowing rain came about the middle of July (16th—20th). Subsequent break was favourable for completing kharif sowings and for weeding, and was well relieved by fairly heavy showers of Ashlesha in 2nd week of August. The rainfall of monsoon rabi both in Uttara and Hast in September-October was as a rule light and insufficient. Kharif crops suffered considerably in outturn. Rabi was sown to a small extent, and its outturn was poor. On the whole kharif cotton, jowári and bájri were fairly average crops, being estimated at from 12 to 15 annas; and rábi a poor crop, estimated at 4 to 8 annas. The Collector remarks:—"In a considerable area in the west centre of Khándesh the rainfall was unusually small. Sindkheda was about the centre of this tract, which included, besides that táluka, west Dhulia, east Pimpalner, a large part of Nandurbár, south Sháháda and the greater part of Shirpur. In part of this area there was a good deal of difficulty in getting fodder for cattle." It was also in this part that the crops were especially poor.

East Khándesh, 1889.

Rain Periods.	CHALISGAON.		PÁCHORA.		BRADGAON.		ERANDOL.		CHOPDA.		JALGAON.		JÁMNER.		BRUSÁVAL.		EDALÁBAD.		SÁVDA.		YÁVAL.		RÁVER.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
Early Rains ..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..	In.	..
Ante-Monsoon ..	..	..	0·44	3	0·47	3	..	..	0·47	2	1·59	3	1·70	3	1·49	2	0·50	2	0·65	1	0·58	2	1·01	3
Monsoon-Kharif ..	20·35	31	21·03	33	15·44	40	16·66	41	13·98	33	18·19	42	16·67	40	17·15	26	16·06	28	18·21	23	12·75	23	23·06	29
Monsoon-Rabi ..	9·91	25	8·97	26	8·80	24	9·61	22	7·10	19	9·58	27	9·75	24	6·47	16	7·36	16	6·16	15	5·85	20	6·34	18
Late Rains ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	30·26	56	30·44	62	24·71	67	26·27	63	21·55	54	29·36	72	28·12	67	25·11	44	23·91	46	24·91	39	19·18	50	30·41	50
Average ..	29·70	39	29·51	57	31·29	75	31·12	59	31·58	69	33·42	71	34·84	59	35·18	40	28·78	50	28·95	50	34·44	43	33·56	45

*General characteristics.*—In the north, high hills of the Sátputas. The southern and western portions are also hilly but the hills less high, and continuous. It is drained by the Tápti, the Girna and the Purna. Rainfall larger than in the West Khándesh but less certain.

*Remarks.*—Rainfall generally below average. Regular monsoon broke in Mrig in 2nd week of June, with general heavy fall, sufficient to commence kharif sowing everywhere. The copious fall of Punarvasu and Pushya about the middle of July and subsequent break were very favourable for completion for kharif sowings and for growth of seedlings. August rain was generally favourable for kharif crops and for weeding and hoeing. Purva and Uttara rain in September, though light, was sufficient and seasonable for standing crops. Hast rain in October, though slightly injurious in places to bájri and cotton, was specially useful for rabi sowings. Rabi crops promised well in beginning but they suffered seriously in outturn owing to insufficiency of late rains and absence of dews. On the whole, kharif season was very good,—cotton being an excellent crop, 12 to 18 annas; jowári and bájri fairly average, 10 to 14 annas; oilseeds middling, 8 to 12 annas. Rabi was a poor crop, being estimated at 4 to 6 annas.

Násik, 1889.

Rain Periods.	NÁSÍK.		IGATPURI.		SINNAR.		NIPHÁD.		YEOLA.		NÁNDGAON.		MÁLEGAON.		SATA'NA.		KALVAN.		CHÁNDOR.		DINDORI.		PEINT.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.	
Early Rains ...	...	...	...	...	0'05	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ante-Monsoon ...	0'37	3	1'10	1	0'79	5	0'05	2	0'54	7	0'38	5	0'34	4	0'78	2	3'47	3	0'15	1	1'07	3	...	...
Monsoon-Kharif ...	7'51	46	77'61	65	7'02	45	3'36	21	9'83	29	20'04	29	7'61	36	8'72	16	4'63	31	8'89	30	7'58	39	43'04	64
Monsoon-Rabi ...	15'05	36	40'40	44	15'26	42	11'98	27	14'39	32	17'05	25	6'36	30	8'32	25	13'73	32	14'40	24	12'67	41	21'71	36
Late Rains ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	22'93	83	119'11	110	23'12	93	15'39	50	24'75	63	33'57	59	14'21	70	18'02	43	21'88	66	23'44	55	22'22	83	65'35	100
Average ...	33'74	84	130'08	122	27'21	91	22'68	47	21'88	82	23'13	50	25'36	47	24'11	46	31'82	69	29'48	74	32'43	80	92'30	100

General Characteristics.—The district is divisible into the Desh (or open country) and the Dángs (near the Sahyádris with heavy rainfall and primitive cultivation). The west portions of Násik, Dindori and Igatpuri and the whole of Peint belong to the Dángs.

Remarks.—Rainfall generally below average except at Yeola and Nándgaon. Monsoon broke in 2nd week of June, generally in light showers, sufficient for sowing rice, nágli, &c., in western Dángi talukas and for cotton sowing in Nándgaon. General heavy rain came in Punarvasu and Pushya about the middle of July, sufficient for rice and nágli transplantation in west and for kharif sowings in east. Kharif area was, however, short owing to insufficient rain, in the central talukas of Sinnar, Niphád and Kalvan. Ashlesha and Magha rain in August was seasonable and sufficient for standing crops in Dángi talukas; elsewhere it was very deficient and standing crops began to wither, especially in Niphád where cattle also suffered from scarcity of fodder and drinking water. The needed relief came in Uttara by middle of September; withering crops everywhere revived and fodder prospects much improved. Hast rain in early October was generally seasonable and sufficient for standing kharif crops and for rabi sowing. Chitra rain was generally light except in Yeola where heavy rain (3'24 inches) was slightly injurious to kharif crops and rabi seedlings. Owing to absence of moisture from late rains, the rabi yielded a poor outturn. On the whole kharif season was fair, the outturn being estimated at 10 to 16 annas except in Sinnar and Niphád where the estimates were from 4 to 8 annas. Rabi was estimated at 6 to 12 annas.

Ahmadnagar, 1889.

Rain Periods.	1 NAGAR.		2 PA'RNAR.		3 SHERIGONDA.		4 KARJAT.		5 JÁMKHED.		6 SHEVGAON.		7 NEVA'SA.		8 RA'HURI.		9 KOPARGAON.		10 SANGAMNER.		11 AKOLA.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.	
Early Rains ...	...	...	...	...	...	...	0'19	1	0'10	1	...	...	...	...	...	...	...	...	...	...	...	...
Ante-Monsoon ...	0'67	5	1'67	3	0'14	1	0'22	2	0'84	5	0'71	6	0'76	7	0'35	2	0'84	3	1'01	4	3'55	5
Monsoon-Kharif ...	3'97	26	3'22	17	3'85	16	6'00	11	17'19	30	12'83	33	8'79	25	8'39	13	4'37	23	5'59	22	5'29	26
Monsoon-Rabi ...	18'51	33	20'03	34	16'93	28	16'78	25	16'90	26	17'33	31	17'46	28	17'09	24	11'84	26	17'70	27	15'16	26
Late Rains ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	23'15	64	24'92	64	20'42	45	23'19	39	35'03	62	30'87	70	27'01	60	26'83	44	16'85	52	24'30	53	24'00	57
Average ...	25'11	61	23'16	77	21'52	68	25'38	31	28'95	62	20'84	67	25'42	69	22'86	36	18'41	43	20'86	75	23'00	75

General characteristics.—(1) Desh—Godáveri valley (talukas 6 to 9): rich alluvial plains, growing much wheat. Rainfall very uncertain. Bhima and Ghor valley (talukas 3 and 4) alluvial, but less fertile. Rainfall more capricious. Good fear exceptional. Talukas 1, 2, 5 and 10 lie between these valleys. Alternation of bare hill and treeless plain with occasional fertile well-wooded tracts. Rain more regular. (2) Dángs—Half Akola has very heavy rain: Half abuts on the Desh. The record shows the fall of the plain portion.

Remarks.—Rainfall above average in east and north-west; elsewhere up to average. Ante-monsoon showers were scant. Regular monsoon broke in 2nd week of June, with fairly heavy fall for commencing cotton and tushár (catch crops in rabi lands) sowings in east. But the general sowing rain came by the middle of July. It was heavy in south-east where kharif sowings fall; elsewhere only sufficient to allow partial sowings. August rain was very scant, except in Jámkhed in south-east, and crops began to wither for want of moisture, and fodder became scarce. Relief, however, came early in September, the heavy fall of Purva and Uttara being sufficient and seasonable for sowing rabi and to revive the withering kharif. The heavy fall of Hast and Chitra in October was slightly injurious to ripening bájri and retarded rabi sowing. The sowing, however, was completed under subsequent break, but the crops, especially those grown in lighter soil, suffered in outturn for want of moisture from late rains. Season was fair on the whole. Outturn of tushár crops was fairly good—10 to 14 annas in east; elsewhere very poor—2 to 4 annas. Kharif crops fairly good in west and north-east where the outturn was 10 to 14 annas, but poor in south, 4 to 6 annas. Rabi crops generally fair and outturn varied from 7 to 12 annas.



Rain Periods.	POONA.		PAUD.		VADGAON.		LONA'VLL.		KHED.		GHODA.		JUNNAR.		SIRUR.		SA'EVAD.		SUPA.		BA'RA'MATI.		INDAPUR.		
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	
Early Rains ...	0.02	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.11	8
Ante-Monsoon ...	5.13	6	2.31	7	8.42	6	0.42	2	0.57	6	2.62	3	2.51	3	1.27	5	8.61	8	1.82	7	2.08	9	1.32	6	
Monsoon-kharif ...	10.40	30	35.06	65	23.38	67	128.52	71	6.29	48	7.71	35	12.37	43	4.00	30	2.89	20	2.19	12	8.20	12	7.02	23	
Monsoon-Rabi ...	21.94	36	28.82	41	16.39	40	28.46	41	15.29	38	18.95	33	21.55	37	17.07	27	16.31	26	16.40	26	19.92	33	25.21	31	
Late Rains ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total ...	37.49	82	66.19	118	48.69	103	155.40	114	22.15	92	29.28	71	35.43	52	22.72	54	26.16	77	20.41	45	25.20	53	23.66	66	
Average ...	31.06	90	60.16	108	64.93	101	158.04	124	24.66	98	30.14	104	28.67	58	21.73	64	23.25	81	20.32	40	22.72	60	24.78	71	

*General characteristics.*—The district varies from a heavy certain rainfall to a most scant capricious one. Sure rain is enjoyed by the west portions of Junnar, Khed, Haveli and all of Mával. A moderate but regular rainfall characterizes the central belt, while the Bhimthadi and Indapur talukás are uncertain and irregular like the adjoining talukás of Sholapur.

*Remarks.*—Rainfall generally up to average but above average at Junnar and Indapur. Ante-monsoon showers in Rohini were useful for commencing rice and nágli sowing in Mával and for preparing land in the Desh. Regular monsoon broke with Mrig. The fall in June, though moderate, was sufficient and seasonable for kharif sowings in Mával; in the Desh sowings retarded. July rain, though generally light, was sufficient for rice and nágli transplantation in Mával, but in the Desh it was very scant and sowings partial except at Indapur, where exceptionally heavy rain (5 inches) fell in Punarvasu. August rain was seasonable and sufficient in Mával, but most deficient in the Desh, where kharif crops began to wither where sown and cattle suffered from scarcity of fodder and drinking water. In south-east relief came earlier with Purva rain and general heavy rain fell all over in Uttara about the middle of September. The withering kharif crops much benefited, fodder prospects improved and rabi sowing begun. The heavy Hast rain in October was beneficial to rabi on the whole, though slightly harmful to reaped as well as standing bájri in places. The continuous heavy fall of Chitra was therefore quite unnecessary, damaging bájri and delaying rabi sowing. The rabi, however, suffered in outturn for want of moisture from the late rains. Season was fair on the whole. Kharif outturn was estimated at 12 to 16 annas in west and in east at 8 to 12 annas in parts of Purandhar and Indapur and at 4 to 8 annas elsewhere. Rabi outturn of jowári, wheat and gram was 8 to 12 annas and kardai 14 annas.

Sholapur, 1889.

Rain Periods.	SHOLÁPUR.		BA'BSL.		MA'DHA.		KARMA'LA.		PANDHARPUR.		SA'NGOLA.		MA'LSIRAS.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
Early Rains ...	0.11	1	0.08	1	0.17	1	0.04	1	0.02	1	...	...	...	...
Ante-Monsoon ...	1.45	7	0.92	13	2.64	4	1.27	6	1.49	9	2.14	5	1.91	4
Monsoon-kharif ...	11.84	35	13.33	42	12.37	26	8.92	27	9.85	30	8.09	11	8.05	9
Monsoon-Rabi ...	19.82	22	17.57	36	23.50	29	25.89	34	17.59	28	16.95	22	24.28	21
Late Rains ...	...	...	0.04	1	...	...	...	...	...	...	...	...	...	...
Total ...	33.22	65	31.94	93	38.68	60	36.12	68	28.95	68	23.08	38	34.24	34
Average ...	33.33	64	32.35	84	27.89	72	26.32	87	27.65	62	22.99	45	21.07	49

*General characteristics.*—The isolated taluka of Bási is richest, and has the surest rain; but the rainfall is scanty all over the district, and very capricious.

*Remarks.*—Rainfall much above average in Mádhá, Karmála and Málsiras; elsewhere up to average. Preparatory showers fell fairly well. Monsoon broke in 2nd week of June but the fall was not sufficient for kharif sowing. Heavy sowing rain came about the middle of July all over the district and kharif sown to usual extent except in west. August rain (Ashlesha and Magha) was everywhere scanty and young crops began to wither in places. Relief came with general heavy fall of Purva in early September. Uttara and Hast rains, though slightly excessive in places, were generally favourable for standing crops and sufficient for rabi sowing. But abnormally heavy fall of Chitra in middle of October was very injurious, damaging reaped and ripening kharif and delaying rabi sowing. No rain fell in November and December, and the rabi, especially jowári, suffered in outturn for want of sufficient moisture. Though the annual rainfall was above or up to average, the season was only fair owing to unseasonableness of the fall. The kharif outturn variously estimated at 6 to 12 annas, and specially poor in Karmála and Sàngola (4 to 6 annas). Rabi outturn estimated at 8 to 12 annas.

Sa'tara, 1889.

Rain Periods.	SA'TARA.		KOREGAON.		WAI.		KHAN-DA'LA.		MEDHA.		MA'LCOLM-PETH.		PA'TAN.		KARAD.		PETH.		SHIRA'LA.		DAHIVADI.		VADU'J.		VITA.		TA'SGAON.		
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	
	In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		
Early Rains ...	0.02	5	...	...	...	...	...	...	0.12	1	0.08	1	0.37	2	0.55	2	...	...	0.90	1	0.24	1	0.35	1	...	...	...	...	
Ante-Monsoon ...	6.19	13	3.98	9	3.30	12	3.27	7	3.05	8	2.18	9	2.19	9	4.32	13	4.40	12	5.20	10	3.07	9	1.78	10	3.17	7	2.93	14	
Monsoon-Kharif ...	17.05	51	6.73	18	10.82	49	3.94	15	20.03	67	185.81	70	30.35	67	8.09	44	7.07	40	15.54	45	2.57	20	2.51	14	3.98	16	3.87	23	
Monsoon-Rabi ...	22.35	45	21.38	36	17.26	46	18.21	30	23.12	40	67.83	60	24.47	37	23.13	43	19.08	35	21.29	39	23.84	31	23.17	29	29.55	32	18.07	41	
Late Rains ...	...	...	...	...	...	...	...	...	...	...	0.08	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.02	1
	40.21	114	32.09	63	31.47	107	25.42	62	55.32	106	255.08	141	63.38	105	41.98	107	30.64	87	43.02	95	30.62	61	27.81	54	36.70	55	24.80	84	
Average ...	40.84	123	27.68	81	32.47	113	21.45	43	70.49	118	268.08	146	67.85	103	31.64	122	29.43	101	37.88	80	20.51	71	21.85	71	24.71	67	23.49	96	

*General characteristics.*—Western Belt—Parts of Jávli, Pátan, Wái, Sátara and Válva, hilly. Regular and heavy rainfall. Central Belt—East portions of above and all Koregaon and Karád. Rich, well-watered valleys. Eastern Belt—The rest chiefly a waving plain and of poor land. Uncertain rainfall. But south portion of Tásgaon rich well-wooded plains.

*Remarks.*—Rainfall generally above average, but slightly below average in Medha and Pátan in west and Tásgaon in south-east. Ante-monsoon showers were unusually favourable for preparing land. Monsoon set in with Mrig in 2nd week of June and the rainfall was sufficient and seasonable for rice, nágli and other kharif sowings in west. But in the south-eastern tálukas kharif sowings delayed, until heavy rain came in Pushya (18th—31st July). Kharif area was not full in east. Ashlesha and Magha rain in August, though sufficient to keep up standing crops in good condition in west, was very deficient in east where sown crops began to wither and much anxiety felt. Here relief came at end of Purva in early September. General heavy rain fell in Uttara which was highly beneficial for rabi sowing and revived withering kharif. Hast rain in early October was also throughout beneficial. But abnormally heavy rain in Chitra in the middle of October was very injurious, damaging reaped as well as ripened hájri and submerging rabi seedlings in places. Rabi sowings completed in early November and crops promised well at first, but owing to the total absence of late rains combined with severe cold, the rabi considerably suffered in outturn. Season was fair on the whole. Kharif outturn estimated at 11 to 14 annas. Rabi outturn was only moderate—8 to 10 annas.

Belgaum, 1889.

Rain Periods.	BELGAUM.		CHANDGAD.		KHA'NA-PUR.		SAMPGAON.		SAUNDATTI.		MURGOD.		GOKAK.		CHIKODI.		HUKERI.		A'THNI.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	In.		In.		In.		In.		In.		In.		In.		In.		In.		In.	
Early Rains ...	0.15	1	...	...	...	...	...	...	0.08	2	...	...	...	...	0.71	3	...	...	0.05	1
Ante-Monsoon ...	7.25	21	8.21	10	7.70	17	7.21	15	1.34	13	2.39	7	6.38	15	4.12	13	6.81	15	7.27	15
Monsoon-Kharif ...	23.31	66	64.63	71	34.94	69	9.31	44	4.01	26	4.98	16	3.84	29	6.34	38	6.41	27	8.06	31
Monsoon-Rabi ...	24.49	51	24.11	42	18.34	48	18.62	40	19.82	34	19.42	30	19.32	37	18.79	39	17.68	29	15.51	39
Late Rains ...	0.20	1	0.34	1	0.45	2	0.19	1	0.51	1	0.70	2	0.66	2	0.35	2	0.15	1	...	...
Total ...	55.40	140	97.29	124	61.43	136	35.33	100	25.76	76	27.49	55	30.20	82	30.31	95	31.03	72	25.80	86
Average ...	46.80	134	95.98	108	64.68	120	28.14	89	24.47	94	24.40	71	23.79	83	27.65	84	21.80	68	24.42	75

*General characteristics.*—Near the Sahyádris the rain of the south-west monsoon is very constant and heavy (Belgaum and Khánápur). Further east, Chikodi, Gokák and Sampgaon, it is fitful. The eastern tálukas show a fitful fall, but this is supplemented by a scanty supply from the north-east monsoon (which comes generally in October and later).

*Remarks.*—Rainfall up to or above the average. Ante-monsoon showers very favourable for preparing land and for commencing early sowings of rice, nágli, &c., in south-west. Regular monsoon set in with Mrig in 2nd week of June and the fall was seasonable and sufficient in south-west for sowing and transplanting rice, nágli, &c. Elsewhere kharif rain was deficient and sowings not full. August rain was generally scanty, especially in Saundatti and Gokák and kharif crops began to wither in places. Timely relief came in September in Purva and Uttara. The withering crops revived and cotton sowing seasonably done. The Hast rains in early October were favourable for gram and wheat sowing, but the abnormally heavy rain in Chitra in middle of October was injurious to standing kharif as also to rabi seedlings. Rabi sowing completed in early November, but the crops suffered in outturn from insufficiency of moisture from late rains. Season on the whole fairly good. Kharif outturn generally estimated at 10 to 16 annas, but in the north it was poor, from 4 to 6 annas. Rabi crops, especially wheat, gram and cotton, were good in Chikodi, Gokák, Paragad and Sampgaon, the outturn being estimated at 12 to 16 annas, elsewhere rabi outturn was 8 to 10 annas.

## Bijápúr, 1839.

Rain Periods.	Bijápur.		Indi.		Sindgi.		Bá'ge-va'dl.		Mudde-birá'l.		Bá'galkot.		Bilgi.		Bá'dá'mi.		Hungund.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	In.		In.		In.		In.		In.		In.		In.		In.		In.	
Early Rains .. .. .	0'02	2	0'19	1	0'30	2	0'05	1	..	..	..	..	0'30	1	..	..	0'05	
Ante-Monsoon .. .. .	5'16	16	2'69	9	1'73	7	3'07	7	2'70	9	2'40	10	2'10	4	1'44	5	2'52	7
Monsoon-Kharif.. .. .	7'11	26	9'14	25	10'23	38	10'45	21	10'36	29	4'05	36	5'40	13	6'36	25	7'03	26
Monsoon Rabi .. .. .	23'70	45	19'43	30	13'44	34	16'98	33	29'02	32	17'00	34	17'90	34	23'50	23	18'35	33
Late Rains .. .. .	0'05	1	0'10	1	0'11	1	0'08	1	0'23	2	0'43	2	0'48	2	..	..	0'23	2
Total .. .. .	36'04	90	31'55	66	25'93	63	30'63	63	42'07	72	23'88	82	27'18	54	33'30	58	29'48	69
Average .. .. .	26'79	102	25'73	65	25'71	63	25'02	75	23'46	60	24'07	77	22'93	43	26'51	40	25'32	72

*General characteristics.*—This district receives its rain from both the south-west and the north-east monsoon. Hungund enjoys an even and generally sure rainfall. Bá'galkot and Bá'dá'mi fare well as a rule. The rich plains of the Krisbna and Don valleys are uncertain. The north talukas of Bijápúr, Indi and Sindgi have capricious and light rainfall.

*Remarks.*—Rainfall generally much above average. Ante-monsoon showers throughout favourable for preparing land. Monsoon broke about 9th June with general heavy fall, sufficient to commence kharif sowing in most places. July rain was favourable for pushing kharif sowing though not enough for its completion in some talukas. Ashlesha and Magha rain in August was very deficient and young kharif crops began to wither and cotton sowing retarded. Relief, however, came with Purva in early September. The Uttara and Hast rain was most seasonable and sufficient for cotton and other rabi sowing. But the abnormally heavy rain of Chitra in middle of October (as much as 15 inches in Muddebihal), was highly injurious, damaging standing bá'jri and retarding rabi sowing. In Hungund standing crops on the Malaprabha banks were washed away by heavy floods. The subsequent break was favourable for completing rabi sowing. But owing to insufficient moisture from late rains rabi crops suffered in outturn. On the whole season fair and better than that of last year. Kharif outturn was better in north-west where estimated at 10 to 14 annas; elsewhere about 9 annas. Rabi outturn estimated at 8 to 12 annas.

## Dhárwár, 1839.

Rain Periods.	Dhárwár.		Mudde-birá'l.		Hubli.		Kal-gatgi.		Bankápur.		Há'ngal.		Kod.		Bá'wren-nur.		Karajgi.		Gadag.		Mudde-birá'l.		Navalgund.		Nargund.		R.
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	
	In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		
Early Rains .. .. .	0'02	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Ante-Monsoon.. .. .	3'87	14	5'42	14	5'17	13	4'12	12	2'20	7	3'36	10	5'02	11	4'93	6	3'40	8	2'30	8	2'23	4	2'97	9	6'23	8	2'54
Monsoon-Kharif .. .. .	8'40	40	12'00	31	6'59	35	18'17	54	7'23	33	18'75	45	10'24	43	6'66	25	4'01	33	7'77	30	4'33	13	3'00	15	2'70	10	7'62
Monsoon-Rabi .. .. .	25'73	44	16'40	30	16'14	42	15'64	35	10'00	26	16'60	37	11'59	30	16'67	25	15'91	32	19'70	32	17'17	23	20'93	25	17'58	26	25'32
Late Rains .. .. .	0'62	3	0'40	2	0'50	1	0'87	2	0'51	1	0'22	1	0'80	2	0'50	2	0'03	1	0'96	2	1'00	1	..	..	0'30	1	0'16
Total .. .. .	38'64	102	34'62	77	28'40	91	38'80	103	19'99	67	38'93	93	27'65	66	23'76	58	23'95	74	30'79	72	25'90	41	26'90	49	26'66	45	35'65
Average .. .. .	22'95	115	34'34	114	27'03	83	30'14	108	28'29	77	37'34	96	27'70	81	23'82	67	27'21	70	26'98	70	17'61	43	25'36	54	23'56	43	23'77

*General characteristics.*—The district is composed of hilly tracts—the malál growing rice and hill grains (Há'ngal, Kalghatgi and Kod) and the black-soil plains growing cotton and wheat (Gadag, Ron, Navalgund and Hubli), or cotton, but no wheat (Karajgi and Ránebennur). The Dhárwár and Bankápur Talukas are partly malád. The soil of the malád is red and gravelly, but the rainfall is steady and comparatively heavy. It is more sure and seasonable the further to the west. The proverb says: 'Good rain won't give a big crop, nor will bad rain bring famine.' This is in comparison to the fertile black-soil plains, where with good seasonable rains the produce is very large, but where the fall is irregular and uncertain, and where there is always risk of drought.

*Remarks.*—Rainfall generally up to or above average except at Bankápur. Ante-monsoon showers were abundant and beneficial to early sowings of rice, sava, &c., in the malád. Monsoon commenced early in June with fairly heavy rain in western talukas where kharif sowings of rice, jowari, tili and rále were seasonably done; but in north and east sowing rain both in June and July was generally deficient and kharif area not full. August rain was very deficient throughout the district. Rice in the malád and other kharif crops elsewhere badly suffered for want of moisture, and scarcity of fodder and drinking water felt in most places. Early relief came in Purva in parts, but general relief came with the heavy fall in Uttara (middle of September). Withering kharif revived and cotton sowing commenced. Hast rain, though rather heavy in places, was on the whole seasonable and sufficient for rabi sowing. But the Chitra rain about the middle of October was injuriously heavy in places. The rabi suffered in outturn as elsewhere from insufficient moisture from late rains. Season was on the whole fair. Kharif outturn was estimated at an average of 9 annas. Of rabi crops cotton was mostly affected with blight, and jowari stunted in its growth and the average outturn estimated at 7 and 9 annas respectively. Wheat and gram were better and the outturn estimated at 10 annas.

## Kánara, 1889.

Rain Periods.	KÁRWA'R.		ANNOLA.		KUMTA.		HONÁVAR.		BHÁTKAL.		HALIVÁ'L.		SUPA.		YELLÁ'PUR.		MUNDGOD.		SIRSI.		SIDDA'PUR.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
Early Rains .. ..	In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.	
Ante-Monsoon .. ..	19'14	8	17'31	7	17'14	5	10'25	9	15'40	9	8'20	16	10'07	14	9'52	13	3'86	14	7'30	17	6'75	10
Monsoon-Kharif .. ..	103'52	71	103'26	71	119'57	69	111'61	70	125'00	71	23'47	63	62'57	60	54'65	70	19'35	67	62'94	70	74'73	71
Monsoon-Rabi .. ..	52'23	43	44'20	40	61'91	46	49'27	44	43'24	50	22'97	52	24'25	49	26'82	51	15'90	39	36'65	49	36'85	53
Late Rains .. ..	0'04	1	..	..	0'33	1	0'42	1	0'25	3	0'34	2	0'35	2	0'34	1	0'30	2	0'41	2	0'56	2
Total .. ..	179'98	123	164'86	118	199'12	123	177'57	125	184'10	134	64'98	133	97'28	132	91'33	135	39'41	122	107'36	133	118'99	137
Average .. ..	116'62	121	121'46	98	133'11	118	128'38	119	140'91	130	44'87	126	69'18	129	61'56	135	41'25	119	61'94	130	68'93	125

*General characteristics.*—A hilly and thickly wooded district, divided into two parts by a broken and irregular range of hills. The lowland or coast tract has the heavier rainfall; in the upland the fall rapidly decreases with the distance from the Sahyádrí crest.

*Remarks.*—Rainfall much above average except in Yellápur and Mundgod. South-west monsoon set in on 2nd June with heavy rain, excessively heavy on coast where rice seed either rotted or, having been washed over, had to be resown in places. In July and August rain fell almost daily and was on the whole seasonable and sufficient for transplantation and weeding, though in some places above Ghát (Haliyál and Mundgod) the rain was slightly deficient for transplantation. There was a short but general break in Purva, but heavy rain fell again in Uttara and Hast, generally favourable, though injuriously excessive to crops in lowlying lands on coast. But the continuous heavy fall in Chitra about the middle of October was unnecessarily heavy and injurious to reaped as well as standing crops, especially on coast where there was already an excess of moisture. On the whole rice gave a fair outturn throughout the district, being estimated at from 10 to 16 annas and in the above Ghát tálnkas the yield of betelnut and other garden produce was also favourable.

## Ratnágiri, 1889.

Rain Periods.	RATNA'-GIRI.		VENGURLA.		MÁLVAN.		DEVGAD.		RA'JA'PUR.		SANGA-MESHVAR.		CHIFLUN.		GUHA'GAR.		KHED.		DA'POLI.		MANDAN-GAD.		
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	
Early Rains .. ..	0'01	1	..	..	..	..	..	..	..	..	..	..	..	..	..	0'01	1	0'08	1	..	..	..	..
Ante-Monsoon .. ..	5'73	7	11'72	4	10'93	5	7'72	6	5'50	6	6'23	7	1'91	4	1'93	4	1'08	4	1'04	3	0'20	1	
Monsoon-Kharif .. ..	81'77	63	89'24	70	78'24	63	71'15	69	110'10	71	115'35	70	117'74	70	100'01	67	112'79	70	110'57	69	120'97	69	
Monsoon-Rabi .. ..	19'46	40	30'53	46	28'42	39	24'54	36	37'74	43	32'41	54	36'25	47	17'30	38	37'05	41	22'82	37	29'62	48	
Late Rains .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Total .. ..	106'97	116	131'49	120	117'59	112	103'41	111	153'34	120	153'99	131	155'90	121	119'25	110	150'05	118	134'43	109	150'79	118	
Average .. ..	100'73	103	141'48	113	89'57	102	87'50	96	127'91	103	145'57	128	146'04	114	100'84	94	130'52	110	132'04	110	150'79	113	

*General characteristics.*—The district is formed by a narrow belt of lowland; though hilly and rugged as a whole, the valleys are more open near the Sahyádris than towards the centre, and these again fall into nearly level plateaus towards the centre. The rainfall is abundant and regular, being considerably heavier inland than on the coast.

*Remarks.*—Rainfall generally above or up to average. Regular monsoon broke on 2nd June and rain fell continuously for nearly three months, being throughout seasonable and sufficient for ploughing and for transplantation of rice and nágli. The short break in Purva was generally favourable for weeding. Uttara and Hast rain in September, though beneficial to *mahan* or late crops, was slightly injurious to ripening *halve* or early crops. Chitra rain in the middle of October, though not so excessive as in Kánara, was injuriously heavy to early crops which were being reaped in all places. Rice was laid and reaping delayed for a time. Late rice slightly suffered for want of sufficient rain at earing time. Season fairly good on the whole. Outturn of early crops was estimated at 10 to 13 annas and that of late crops at 10 to 12 annas. Harik outturn estimated at 11 annas.

## Kolaba, 1889.

Rain Periods.	ALIBA'G.		PANVEL.		URAN.		PUR.		ROHA.		MA'NGAON.		MARA'D.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
Early Rains ...	In.		In.		In.		In.		In.		In.		In.	
Ante-Monsoon...	0.16	4	0.10	3	0.15	2	0.36	3	0.03	1	0.38	2	0.84	3
Monsoon-Kharif ...	71.43	67	85.01	67	62.57	63	70.08	64	90.34	64	104.29	68	88.00	66
Monsoon-Rabi...	14.42	40	20.43	42	17.14	36	32.06	39	30.67	37	30.92	45	37.13	49
Late Rains ...														
Total ...	86.01	111	105.54	112	79.86	101	103.10	106	127.04	102	135.58	115	126.93	118
Average ...	84.79	99	110.50	114	95.48	78	114.04	107	122.27	87	127.59	120	130.59	115

*General characteristics.*—A rugged belt of country from 15 to 30 miles broad. Rainfall abundant and regular, being heavier in parts towards the Sabyádris.

*Remarks.*—Rainfall generally up to average except in Uran petha. Monsoon set in with Mrig about 5th June and rain fell heavily except in north, generally sufficient for kharif sowing. Copious rain came with A'rdra (20th June) and continued till the end of Magha (27th August), most seasonable and sufficient for ploughing, transplantation and weeding throughout the district. There was a short break with occasional light showers in Purva. Uttara and Hast rain in latter part of September and in early October was very beneficial to standing crops. Chitra rain in the middle of October, though unnecessary, was not injuriously heavy as in Ratnágiri and Kánara. On the whole season was good. Outturn of rice and varkas crops such as nágli, vari, &c., was estimated at 14 annas. Rabi outturn was estimated at 12 to 14 annas.

## Thána, 1889.

Rain Periods.	THA'NA.		KALTA'N.		KARJAT.		MA'THE-RA'N.		KHA'LA'-PUR.		MURBA'D.		SHA'NA'-PUR.		MOKHA'DA.		BHIWEDI.		BASSHIN.		VA'DA.		MA'NIM.		DA'NA'NT.		UMBAGAOJ.		
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	
Early Rains..	In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		In.		
Ante-Monsoon ..	0.03	1	0.01	1			0.51	2	0.38	2			0.12	2	0.81	3										0.17	1	0.44	1
Monsoon-Kharif ..	81.96	70	78.19	67	90.31	68	167.42	69	82.92	67	72.61	60	60.85	68	58.29	60	83.69	63	70.17	63	64.08	53	61.11	59	67.39	56	63.65	58	
Monsoon-Rabi ..	14.74	39	19.24	40	35.13	40	62.36	40	35.13	44	36.84	36	26.23	37	37.66	40	14.76	33	9.04	31	17.41	34	12.74	31	10.21	28	4.61	21	
Late Rains ..																													
Total ..	96.73	110	97.44	108	125.48	109	230.29	117	118.43	113	109.45	97	86.20	107	96.76	108	98.85	96	79.21	94	81.49	80	73.83	80	67.77	84	63.70	86	
Average ..	99.12	105	100.73	101	126.91	108	209.71	124	122.09	102	98.15	85	111.34	98	100.92	101	101.79	102	78.85	92	95.96	93	62.67	89	71.39	82	64.83	86	

*General characteristics.*—Rainfall abundant, being considerably more inland than on the coast and less towards the north than towards the south.

*Remarks.*—Rainfall slightly below or up to average. Monsoon broke generally on 5th June in Mrig, and a week later in north; and rain fell in light showers, generally sufficient for kharif sowing. Heavy rain came in A'rdra at end of June and transplantation commenced in places. Rain fell almost daily in July and August and was on the whole seasonable and sufficient for ploughing, transplantation and weeding. Purva rain in early September was very light, especially in north, where crops slightly suffered, but Uttara and Hast rain was throughout beneficial to late crops, though slightly excessive and injurious to early crops in south-east. Very little damage was caused by Chitra rain, as the fall was moderate. On the whole season was favourable. Outturn of kharif crops was estimated at 12 to 14 annas and that of rabi crops at 10 to 12 annas.

## Surat, 1889.

Rain Periods.	SURAT.		OLPÁD.		RÁ'NDER.		MÁ'NDVI.		BÁRDOLI.		VÁLOD.		JALÁ'LPUR.		CHIRULLI.		DULSÁR.		PÁ'RDÍ.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	In.		In.		In.		In.		In.		In.		In.		In.		In.		In.	
Early Rains ...	0·12	1	...	...	0·07	1	0·12	1	...	...	...	...	...	...	...	...	...	...	...	...
Ante-Monsoon ...	0·28	2	0·76	2	0·11	1	...	...	0·18	1	0·25	2	0·30	2	0·11	1	0·47	2	0·15	1
Monsoon-Kharif ...	30·29	47	28·62	28	28·90	46	27·59	49	29·49	50	31·00	49	36·50	48	44·14	46	40·34	51	53·65	57
Monsoon-Rabi ...	9·53	27	5·45	17	7·81	24	7·30	24	6·10	34	4·70	22	8·88	21	8·20	21	9·32	23	10·29	33
Late Rains ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	40·22	77	34·83	47	34·08	72	35·01	74	35·77	85	36·85	73	45·74	71	52·51	68	50·13	81	60·09	91
Average ...	44·06	61	35·52	56	42·06	52	65·27	61	53·82	68	61·31	68	58·06	69	77·63	68	74·43	64	71·49	73

*General characteristics.*—Western portion all along the coast poor sandy soil; central belt with rich soil and moderate rainfall; further to the east dāngs with heavy rainfall but light soil. As a rule rain lighter on the coast than inland.

*Remarks.*—Rainfall up to average in Chorási, Olpád and Párdi talukas; elsewhere much below average. Monsoon broke in 2nd week of June with fair showers, and partial sowings of rice and other kharif crops commenced. Árdra rain was sufficient for completing early sowings in south, but in north rain was scanty and sowings retarded. General heavy rain came in Punarvasu and Pushya in July and was throughout seasonable and sufficient for rice transplantation and for completing sowings of juár, bájri and cotton. August rain, though sufficient for cotton and juár, was insufficient for rice. Uttara and Hast rain in September, though not heavy, was sufficient and seasonable to crops except rice which slightly suffered in outturn. The Chitra rain in October did some damage to reaped rice and cut grass in Párdi. Season fairly good on the whole. Kharif outturn of juár and bájri was estimated at 13 annas, rice 12 annas and cotton 10 annas. Rabi outturn of wheat and gram was estimated at 9 annas.

## Broach, 1889.

Rain Periods.	BROACH.		ANKLESHWAR.		HÁ'NSOT.		VÁ'GRA.		A'MOD.		JAMBUSAR.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	In.		In.		In.		In.		In.		In.	
Early Rains ...	0·15	1	0·05	1	...	...	0·01	1	...	...	...	...
Ante-Monsoon ...	0·82	4	0·88	3	0·57	3	0·38	2	0·60	3	0·55	2
Monsoon-Kharif ...	25·15	38	23·96	37	26·50	23	19·77	30	20·71	30	20·79	36
Monsoon-Rabi ...	7·61	14	5·90	17	7·62	13	6·58	20	8·73	24	6·67	19
Late Rains ...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	33·73	57	30·79	58	34·69	39	26·74	53	30·04	57	28·01	57
Average ...	44·21	47	41·41	38	34·24	28	30·61	39	41·75	32	39·46	38

*General characteristics.*—Rich alluvial plains growing cotton and wheat. Rainfall moderate but sure, being as a rule more plentiful in the Broach Táluka. The rainfall is supplemented by heavy dews from October to December.

*Remarks.*—Rainfall generally below average except in Hánsot. There were light showers at end of May, but the Mrig rain in early June was very scanty, except at Hánsot and sowings generally retarded till end of June when fair rain of Árdra fell all over and was sufficient to begin kharif sowings. Copious rain fell in July in Punarvasu and Pushya and was throughout seasonable and sufficient for kharif sowings. The heavy Áshlesha rain in 1st half of August was generally favourable to standing crops, though slightly injurious to young bájri and cotton which had to be resown in places. A short but general break followed which was very favourable for weeding, resowing and for healthy growth of crops. Again at end of August fair rain of Magha fell all over the district. Purva and Uttara rain in September was rather deficient for rice, especially in Jambusar in north. But Hast rain was everywhere good for standing kharif crops as also for rabi cultivation. At end of October and in early November large flights of locusts passed through the district, but no appreciable damage was done to the crops. Season very good on the whole, and cotton, the staple of the district, yielded a bumper crop. The Collector remarks:—"The cotton and wheat crops were especially successful this season and have contributed greatly to relieve the cultivators from the embarrassed condition brought about by previous bad seasons. The cotton crops were such as had not been seen for very many years past."

## Kaira, 1889.

Rain Periods.	KAIRA.		MRIMAD-ARAD.		MÁYAR.		NADIA'D.		KAPADVANG.		TUÁBRA.		ÁNAND.		BORSAD.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	In.		In.		In.		In.		In.		In.		In.		In.	
Early rains .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	0·04	1	..	..
Ante-Monsoon .. .. .	3·08	3	2·08	3	1·80	3	2·31	3	2·68	3	2·74	5	2·83	4	1·51	3
Monsoon-Kharif .. .. .	31·09	46	22·15	33	20·33	42	23·44	42	21·97	34	21·94	33	22·15	41	22·46	36
Monsoon-Rabi .. .. .	7·05	17	8·55	15	8·96	12	12·04	19	8·97	20	5·13	19	4·80	24	9·47	21
Late Rains .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total .. .. .	41·22	66	33·63	66	40·09	57	37·79	64	33·62	57	29·51	59	30·84	70	33·44	60
Average .. .. .	37·13	44	34·24	33	37·93	30	37·27	52	34·57	50	26·66	42	28·44	40	27·89	45

*General characteristics.*—The district is mostly one unbroken alluvial plain. In the north and north-east patches of rich rice land; the centre, a tract of most fertile soil yielding the choicest crops; and westward a bare though well cultivated tract of rice land.

*Remarks.*—Rainfall generally up to average, except in south-eastern talukas along the banks of the Máhi where it was below the average. The preparatory showers of Rohini at end of May were throughout favourable. Monsoon broke in 2nd week of June and sowings of rice, kodra, bávto, &c., begun in most places but general sowing rain came in A'rdra at end of June. July rain was everywhere favourable for kharif sowing and rice transplantation. Caterpillars which were doing damage in many parts were destroyed by the heavy fall of Pushya and rice had to be resown in places where seedlings were eaten up. The Ashlesha rain in 1st half of August was very beneficial for transplantation of late sown rice. Heavy rain of Magha at end of August, though slightly excessive and injurious to bájri and tobacco in places, was beneficial to rice. Very little rain fell in September, and all crops, and especially the better varieties of rice, suffered in outturn. Hast rain in early October was also light and though it damaged reaped bájri and rice in places, was very beneficial to late rice and bávto and to rabi crops in general. Thus the season which at first promised well, turned out only fair owing to deficiency of late rains. The outturn was estimated as under: Bájri, rice, tur, tobacco and sugarcane at 12 annas; kodra and cotton at 11 annas; bávto, juár, barley and pulses at 10 annas and wheat at 9 annas.

## Panch Maháls, 1889.

Rain Periods.	GODHRA.		KÁLOL.		HÁLOL.		DOHAD.		JHÁLOD.		JAMBUGHODA.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	In.		In.		In.		In.		In.		In.	
Early Rains ...	0·06	1	0·10	1	0·07	1	0·07	1	0·18	1	0·06	1
Ante-Monsoon ...	3·19	4	3·17	5	1·38	6	2·37	4	2·67	3	2·76	4
Monsoon-Kharif ..	22·89	44	20·89	39	24·42	42	19·51	34	13·84	33	37·30	47
Monsoon-Rabi ...	9·88	21	11·50	20	12·12	20	10·69	16	10·43	20	9·57	23
Late-Rains ...	..	..	..	..	..	..	..	..	..	..	..	..
Total ...	36·02	70	35·66	65	37·99	69	32·64	55	27·12	57	49·69	75
Average ...	43·24	54	40·20	50	47·97	51	32·56	43	32·65	26	50·69	64

*General characteristics.*—Rainfall lighter and later in the east than in the western division.

*Remarks.*—Rainfall slightly below or up to average. Ante-monsoon showers were unusually good. Regular monsoon broke in 2nd week of June with fair showers sufficient to commence early sowings of rice, maize, &c. General sowing rain came in A'rdra at end of June. In July and August rain fell at seasonable intervals and was on the whole sufficient and favourable for full kharif sowing and rice transplantation. But the fall of Purva and Uttara in September was very deficient, especially for rice. Relief came with Hast in early October. This Hast rain, though it damaged reaped kharif, was very beneficial to late kharif crops and made the rabi safe. There were no late rains and kharif crops were successfully harvested. Season was on the whole good, much better than that of previous year. Outturn of maize—the staple of the district, was estimated at 17 annas, rice 15 annas and other kharif crops from 12 to 16 annas. Rabi outturn was estimated at 10 to 16 annas.

XXXV

## Ahmadabad, 1889.

Rain Periods.	AHMADABAD.		PARA'NTI'J.		MODÁSA.		SA'NAND.		VIRANGA'M.		DHOLKA.		DHANDHUKA.		GOGHA.	
	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	In.		In.		In.		In.		In.		In.		In.		In.	
Early Rains..	..	..	0'06	1	0'07	1	..	..	..	..	..	..	..	..	..	..
Ante-Monsoon ..	1'30	3	1'14	3	1'65	6	2'06	5	3'53	2	2'61	3	1'65	3	0'95	4
Monsoon-Kharif ..	13'83	36	25'41	39	25'58	44	14'03	44	16'15	30	23'07	42	20'63	30	20'17	39
Monsoon Rabi ..	4'76	14	2'65	14	4'45	19	3'95	20	1'99	18	8'43	18	4'79	14	5'96	20
Late Rains ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	24'89	62	29'26	57	31'75	69	20'04	69	21'67	56	34'11	63	27'07	47	27'08	62
Average ..	29'92	29	30'08	38	37'32	50	31'00	40	28'22	49	36'30	44	27'02	38	27'35	42

*General characteristics.*—Except in the hilly parts of Modása, where the supply is sometimes considerable, the rainfall throughout the district is generally very light.

*Remarks.*—Rainfall generally below average except in south where it was up to average. Fair preparatory showers of Rohini fell at end of May and there were local showers of Mrig in some places in north, where early sowings of rice, bájri, &c., commenced. But general sowing rain came late in ardra at end of June. July rain was everywhere seasonable and sufficient for full kharif sowings of juár, bájri, cotton, maize, &c., and for rice transplanted. August rain was also on the whole sufficient and seasonable. But the fall in September and October in Uttara and Hast was scant, and the ripening crops, especially rice, suffered in outturn except where helped by irrigation. Owing to the failure of late rains rabi was not sown to usual extent and the crops were only fair. Season on the whole fairly good, and outturn "much better than that of the preceding year." Kharif outturn of juár and bájri was generally good (14 to 18 annas) except in Dholka and Dhandhuka, where only 8 to 10 annas. Rice fair in north (12 to 14 annas); elsewhere poor (6 to 8 annas). Rabi outturn was generally estimated at 10 to 16 annas.



APPENDIX A.

(Referred to in para. 33.)

Exports of Indian Wheat from Bombay to all Ports beyond the Presidency from 1880—1890.

Months.	YEAR.										
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
January ...	2,927	21,768	85,674	31,019	15,285	41,846	31,424	44,235	12,000	47,591	22,795
February ...	1,626	19,275	40,239	25,403	15,933	32,366	24,484	21,379	14,419	18,567	7,653
March ...	3,407	20,000	30,557	29,516	14,997	45,824	28,402	26,595	23,729	26,949	9,191
April ...	4,985	32,481	30,390	37,503	15,230	38,933	71,581	75,325	67,400	30,619	36,907
May ...	17,110	42,428	67,886	76,205	44,831	56,871	124,232	101,018	118,586	41,828	49,386
June ...	19,407	52,236	37,111	82,881	54,894	66,602	56,341	113,946	66,165	15,934	26,745
July ...	15,055	47,369	19,334	55,921	65,437	33,379	38,715	20,172	32,841	20,382	25,562
August ...	7,832	28,172	5,396	32,425	45,546	38,004	52,896	12,657	32,472	23,129	15,362
September ...	4,193	35,132	13,797	36,265	30,974	48,975	55,461	14,778	29,514	17,796	.....
October ...	6,527	48,835	22,317	18,466	19,045	52,808	51,166	14,106	46,241	21,390	.....
November ...	8,652	76,714	34,159	29,319	28,038	59,598	37,584	17,383	28,058	17,716	.....
December ...	22,991	48,559	32,703	34,508	27,806	53,977	53,433	11,129	23,022	31,569	.....
Total ...	114,712	472,969	419,694	489,431	378,016	569,183	625,719	472,723	494,537	313,510	.. ..

## APPENDIX B.

(Referred to in para. 33.)

*Exports of Indian Wheat from Karachi to all Ports beyond the Presidency from 1880—1890.*

Months.	YEAR.										
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
January ...	1,487	1,163	16,794	8,161	8,832	12,023	27,926	4,420	1,325	29,514	27,607
February ...	4,677	409	5,390	19,158	14,438	21,745	13,619	2,090	1,794	10,074	18,174
March ...	2,792	182	2,296	15,767	21,110	31,204	13,542	304	1,111	11,365	11,409
April ...	1,160	820	3,105	20,356	8,533	19,648	7,975	20	461	19,271	7,656
May ...	1,819	1,647	5,276	4,830	6,752	12,511	12,326	1,539	4,995	11,186	12,012
June ...	893	1,055	7,833	21,289	9,683	13,612	20,531	7,621	15,313	24,137	18,746
July ...	808	3,439	7,516	39,198	14,001	29,768	24,299	7,698	15,921	46,366	54,553
August ...	217	2,300	8,282	33,013	23,733	35,476	11,331	2,098	19,826	32,209	46,919
September ...	172	7,809	10,012	11,946	18,343	28,716	17,563	181	24,291	28,263	... ..
October ...	351	12,207	11,023	11,815	21,326	40,741	18,781	3,081	17,836	34,647	.....
November ...	955	18,575	23,571	17,264	27,331	30,376	4,487	3,609	25,765	52,626	.....
December ...	647	20,280	16,910	14,551	18,869	46,116	6,581	2,960	24,842	49,068	.....
Total ...	15,978	69,686	118,008	217,348	192,951	321,936	178,961	35,621	153,430	348,726	.....

## APPENDIX C.

*(Referred to in para. 73.)**Introduction of Cream Separators.*

In 1888 the Dairy Supply Company, Limited, asked for information with reference to dairying in India. My *locum tenens*, Mr. Muir-Mackenzie, suggested the desirability of the deputation to Bombay of an Agent, with separators and other machinery, pointing out the insufficiency of the ghi supply of the country and the large importations of foreign cheese and butter and giving his opinion that the separator would lead to economy. At the end of 1889 the Company deputed Mr. Henry A. Howman, a gentleman farmer, who has long been interested in improvements in dairying, and a dairy assistant, with instructions to "ascertain by trial whether the cream separator is needed in India, and whether it can be profitably utilized in the manufacture of ghi." Mr. Howman made an extended tour in various Presidencies, visiting certain agricultural shows and centres of ghi-manufacture, having first taken advice from the Directors of the Agricultural Departments. In February 1890, I met him at the Nadiád Show and assisted in certain trials, designed to ascertain whether the customary products of milk in India can be made from separated milk. It was proved that "ták", a by-product in native ghi-making, can be made from separated milk, as easily as from the residue of milk after butter has been churned. Attention was paid to this minor point simply because it will take time to accustom the people to new products. It is obvious that "ták" is made, because the people cannot separate milk from cream without boiling or souring. Fresh separated milk is superior to sour "ták", but as long as "ták" is preferred, it can be made.

2. Máwa or khawa is another favourite product, made from whole milk. It is milk dessicated and sweetened with pounded sugar. At Nadiád and afterwards, it was shown that máwa can be made from separated milk, the cream being saved for butter or ghi. The product is of course inferior to máwa from whole milk, but again the possibility of making palatable máwa from separated milk and thus placing a máwa within the means of persons now unable to afford it, has been demonstrated. In the market, much of the máwa sold is made from partially skimmed milk and it is sometimes admixed with flour. Máwa made from separated milk is not inferior to this.

3. It has been demonstrated that as much ghi can be made from cream separated from a given quantity of milk as from an equal quantity of whole milk. The quality is superior and the residue is sweet fresh separated milk containing all the sugar and solids of the milk in lieu of a soured residue of ták (buttermilk). In time, separated milk must replace much whole milk now consumed as a beverage or for cooking or for making máwa; and the cream, saved, will go towards increasing the available supply of ghi. This will especially be the case in large towns.

4. Encouraged by the experimental results, I solicited sanction to retain the services of Mr. Howman's assistant, Mr. Keventer, a trained dairyman, for one year from the middle of June, and to purchase the 'Windsor' and 'Baby' separators together with cheese and butter-making machinery.

A ready demand for the fresh cream, superior butter and cream cheeses, arose among the European population of Poona during the rains. A less ready demand has arisen for the separated milk, but after a time, it was very easy and still is, to dispose of all the separated milk manufactured, at profitable though low prices. It does not pay me so far to purchase milk in large cities to manufacture ghi, because the price of ghi is weight for weight less than that of butter, though a given quantity of butter will not yield more than 80 per cent. of ghi. The reason is that ghi is made in villages where there is no sale for milk. It must not be supposed from this remark that ghi is necessarily a further product from butter, as "butter" is understood among Europeans. Butter is made from cream and after churning is carefully and frequently washed to get rid of the buttermilk which contains fermentable ingredients which would prevent the butter from keeping. To make ghi, the butter fat is collected with unavoidably a considerable admixture of buttermilk, containing casein and milk sugar. It is then heated over a slow fire to drive off the water, but this process does not drive off either casein or milk sugar. The addition of water is studiously avoided. The result is that ghi thus made contains fermentable products. The best keeping ghi would be made from well washed butter, but the quantity would be less and the price would be raised proportionately. Nevertheless such ghi would in time find a regular use among Europeans, who from long experience of the inferior, dirty, adulterated stuff procurable as ghi from the market have contracted a most reasonable prejudice against ghi, which is most unreasonable against really good ghi, for cooking.

I have now established a working dairy in Bombay with the result that some purchasers of separators have already been found. Without Mr. Keventer's assistance to set up the machines and to instruct purchasers in their manipulation it would be rash to expect that purchasers would ever be found. Considerable interest has already been excited in Bombay not only among the Europeans and Parsis, but among professional butter and sweetmeat

makers. Some facts have come to light. One that ice-creams as sold by confectioners are wrongly so called being made of whole milk with perhaps some cream added. Confectioners are not therefore greatly tempted by the new facilities offered and will not be till a better quality of "ice-cream" is in demand.

5. The importations of cheese are large and hitherto no demand for cheese has arisen among Hindus, because for cheese making the milk is coagulated with animal rennet and all animal products save milk are prohibited. It has long been known that the berry of "Withania coagulans" which grows wild in Sind and is called the Pueria berry has the property of coagulating milk.

Under my instructions, Mr. Keventer has made careful experiments with the berry. The information on record was that "one ounce of the fruit of *W. coagulans* and 1 quart of boiling water make a decoction, one table spoonful of which will coagulate a gallon of warm milk in about half an hour." After many trials, Mr. Keventer has succeeded in coagulating milk with the vegetable rennet. He has found the best results from using the following recipe: "Dissolve 4 ounces of common salt in a quart of water, warm the solution to 110°F and pour the heated solution into a vessel containing 5 ounces of the berry. After 24 hours, strain. Eight ounces or nearly  $\frac{1}{2}$  pint of the extract will curdle 2 gallons of milk at 86°F."

He reports that this extract coagulates milk as perfectly as the commonly used animal rennet. When milk is coagulated with *Withania* rennet and the whey filtered off, the filtrate (whey) gives no precipitate with acetic acid, showing that no casein is left in the whey, and that the coagulation is perfect.

It will take years to teach the Hindu to avail himself of this hitherto unknown because forbidden, product, but its utility to the field labourer is especially evident.

Cheese has been made from whole milk with animal rennet; but much has to be studied as regards its ripening in this country before it can be put freely into the market.

Curd cheese from separated milk, a nutritious and cheap food, has been successfully made.

6. Enquiry has arisen as to the possibility of making butter as well as cheese to supply the local demand for tinned butter and foreign cheese. There is little difficulty in the way. All that is wanted is the capital to manufacture in places, where milk is cheap, on a sufficiently large scale. The Industrial Association of Western India has wisely taken the matter into consideration. There is money to be made in it and it is hoped that private individuals will soon recognize the fact.

7. I have offered to undertake the departmental supply of cow's milk and buffalo butter to the Military Hospitals in Poona in order to secure a regular demand to enable me to extend my experiments with various milking breeds of cattle. Sanction is still awaited, but Mr. Keventer has proved that both cow's and buffalo's milk in this country are superior to the average milk in England, as the following analysis will show:—

Analysis of Buffalo's milk in Poona.				Average Analysis of Cow's milk in England.			
Water	...	...	82.78	Water	...	...	87.25
Fat	...	...	7.05	Fat	...	...	3.50
Casein	...	...	5.31	Casein	...	...	3.50
Sugar and salts	...	...	4.86	Sugar and salts	...	..	5.75
			100.00				100.00

The proportions of casein and of butter fat are very high. The results of the analysis are corroborated by practical results with the separator. On the average at Poona, 8 gallons of buffalo's and cow's milk have given 6 and 4 lbs. of butter respectively. This richness of milk would hardly be credited if it were not proved by repeated estimations.

8. Mr. Howman, before leaving for England, lent a separator to the European General Hospital, Bombay. The results were satisfactory. Dr. Collie wrote: "By passing the whole milk through the separator, sufficient cream is obtained to make all the butter required in the hospital and the separated milk is utilized for cooking as well as for those patients who are kept exclusively on milk diet. Given this way, buffalo milk loses its peculiar flavour so distasteful to many, is more agreeable to the patients, and appears to be more easily digested." Dr. Collie has indented for a complete set of dairy machines for the use of the hospital.

I may add that separated milk has been found very useful in the Scottish Orphanage at Máhim, whence the following testimony is received:—

"Apart from its dietetic values the separated milk enables us to save one-third of the tea and sugar formerly consumed without increasing the milk bill."

Mr. Howman left on record a scheme for dairy work in India, suggesting the lines on which the enquiries and experiments should be made to ascertain the standard by which Indian milk should be judged for purity, *i. e.*, freedom from water and the normal standard of butter fats.