## IRRIGATION REVENUE REPORT

OF THE
BOMBAY PRESIDENCY,

EXCLUDING SIND;
1894-95.

PARTS I \& II.

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# IRRIGATION REVENUE REPORT, BOMDBAY PRESIDENCY (EXCLUDING SIND), 

## 1894-95.

## PART I. <br> COMPRISING WORKS FOR WHICH. CAPITAL AND REVENUE ACCOUNTS ARE KEPT.

Works in operation.

## GENERAL REMARKS.

The following list includes all the works in operntion, 36 in number.



[^0]2. The total capital outlay during and up to the end of the year was as follows:-

| Main Heads, | To end of 1893.94. | Daring 1891-93. | To end of 1994.93. |
| :---: | :---: | :---: | :---: |
| A.-Direct Charges. | Rs. | Rs. | Rs. |
| I.-Works ... ... ... | 1,96,53,725 | 1,73,357 | 1,98,27,083 |
| IL-Establishment... ... ... | 44,65,074 | 36,118 | 45,01,132 |
| III. - Tools and Plant ... ... | 5,00,965 | $-1,203$ | 4,93,412 |
| 1V.-Suspense ... ... | ...... | ...... | ...... |
| Profit and Loss ... ... | ...... | ...... | ...... |
| Total A ... | 2,46,19,764 | 2,07,952 | 2,48,27,716 |
| Deduct-Receipts on Capital Account | 35,109 | 116 | 35,205 |
| Net Total, A.-Direct Charges ... | 2,45,84,655 | 2,07,836 | 2,47,92,491 |
| B.-Indirect Clarges. |  |  |  |
| Capitalization... ... ... ... | 3,62,376 |  | 5,24,208 |
| Loss by Exchange .... ... | 7,005,753 | -1.7,0:6 | \%,00,815 |
| Total, B.-Indirect Charges ... | 11,58,135 | 1,66,888 | 13,25,023 |
| Grand Total A and B ... | 2,57,42,730 | 3,74,724 | 2,01,17,514 |

3. The following abstract shows the details of the above:-

|  | $\begin{aligned} & \text { Namber } \\ & \text { Works. } \end{aligned}$ | Expenortier, 1894.95. |  |  | Total Expenditure. Direct and Indirect, 1804.95 . | Amnint of mnetioned Estimatos. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Lirect. | Indrect. | Total. |  |  |
| Najor Forks. <br> (ln operation .. | 2 | $\underset{\substack{\text { Rs: } \\ 1,10,109}}{ }$ | $\underset{\mathrm{j}, 36,116}{\mathrm{Rs}_{\mathrm{s}}}$ | $\underset{\mathbf{2 , 4 6 , 5 2 5}}{\mathrm{Rs}_{\mathrm{s}}}$ | $\xrightarrow{\text { Rs. }} 76,41,862$ | $\stackrel{\text { Rs. }}{82,32,709}$ |
| Protective Works ... $\left\{\begin{array}{l}\text { In abseyance ... }\end{array}\right.$ | 2 | 166 | 25 | 191 | 1,03,319 | 17,42,810 |
| Total | 4 | 1,10,575 | 1,36,441 | 2,46,716 | 77,45,18] | 99,75,579 |
| Eroluctive Works ... In operation .. | 7 | 81,193 | 3,197 | 84,390 | 1,02,36,333 | 1,08,45,341 |
| In operation ... | 26 | 11,540 | 13,667 | 25,223 | 61,50,810 | 63,95,171 |
| Minor Works ... $\cdot .0\left\{\begin{array}{l}\text { In abeyance ... }\end{array}\right.$ | 1 | ... |  |  | 1,90,284 | 1,91,995 |
| Total | \%7 | 11,546 | 13,677 | 25,223 | 63,41,124 | 65,87,166 |
| I'rovincial Minor Works ...In operation ... | 1 | 4,322 | 13,873 | 38,396 | * 11,94,876 | 12,33,013 |
| Graud Total ... | 39 | 2,07,836 | 1,66,888 | 3,74,724 | 2,61,17,514 | 2,66,41,039 |

* Including expenditure charged to " $35-$ Conatruction of Protective Irrigation Works."

The number of works in operation is 36 , the same as in the previous year. The Chankápur and Máladevi Tanks and the Gokák Canal, 2nd Section, are still in abeyance. Government have ordered further investigations in regard to the Chankápur Tank and the requisite survey is in hand. A report on the result of this survey is awaited. The question of the storage works at Samrád for the development of irrigation under the Lákh and Ojhar Canals is still under consideration. A rough project was submitted to Government in May 1895 but it has been returned for further revision.

The greater portion of the Capital expenditure during the year was on the Nira Canal, a Protective Work, and on the Mutha Canals, a Productive Work, the outlay on which is being incurred from the ordinary Revenues and charged to the head "Minor Works and Navigation."

On the Nira Canal the work done was chiefly on the Bhatghar Reservoir. The masoonry has been practically finished. What remained of the top corbelling has been done and all the hand railing finally put up, with the exception of the portion over the south waste weir which would interfere with the erection of the gates. All the gates required for the south waste weir were supplied from Bombay by Messrs. Gabagan \& Co. and before the end of the year all except five sluices had their frames fixed in position ready for final cementing. The whole of the south waste weir will be in working order before the monsoon of 1895-96. The north waste weir automatic gates were all in working order by the end of July, and under a head of 3 feet above crest level worked extremely satisfactorily. At Vir a masonry and concrete protective wall was substituted for the pitching below the subsidiary weir on the Left bank of the Nira as an efficient protection against the erosive action of the floods.

On the Mutha Canals the greater portion of the expenditure was on the alterations and improvements to the Poona Water-Supply, and the works which were in progress last year were completed, except a portion of the roofing of the pure water tanks which is in progress. The works were carried out -without interfering with the supply to the City and Cantonment. The new filters are complete and in perfect working order.

Interest Account.
4. The Interest Account to end of the year stands as follows:-

5. The gross revenue realised from all sources during the year, after

Rèंenue. deducting refund of revenue (Rs. 4,430), was Rs. $5,63,482$, of which Rs. $5,49,871$ were direct, and R: 13,611 indirect, receipts. The net revenue actually realised was Rs, $2,12,550$.

The gross revenue showis a decrease of Rs, 10,26t, and the net rerenue a decrease of Rs. 73,772.

Area under command and irrigable area.
6. The gross area under command was. 885,342 acres and the irrigable area at present is 315,694 acres.
7. The financial results of the year by main heads were as follors :-

|  | $\underset{\text { Inrigatod. }}{\text { Aras }}$ | Heverie Rializio. |  |  | Workiug Expeubes. | Net Revenus. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Direct Receipts. | Share of Land Ro vецие. | Totas, |  |  |
| Class I,- Works for which Capital and Revenue decounts are kept. | Acre日, | Rs, | R8. | Rs. | Es. | R. |
| Major W orks $\quad \ldots\left\{\begin{array}{l}\text { Protective Works } \\ \text { Productive Works }\end{array}\right.$ | $\begin{aligned} & 32,596 \\ & 25,111 \end{aligned}$ | $\begin{array}{r} 94,548 \\ \mathbf{3 , 5 1 , 8 9 6} \end{array}$ | 7\%771 | $\begin{array}{r} 94,548 \\ \mathbf{3}, 59,467 \end{array}$ | $\begin{array}{r} 82,048 \\ 1,48,643 \end{array}$ | $\begin{array}{r} 12,500 \\ 2,10,-24 \end{array}$ |
| Total | 60,707 | 4,46,444 | 7,571 | 4,54,036 | 2,30,691 | 2,23,324 |
| Minor Works ... Provincial Minor Worki and and | $\begin{array}{r} 20,3 \mathbf{3 2 4} \\ 4,363 \end{array}$ | $\begin{aligned} & 86,671 \\ & 16,756 \end{aligned}$ | 6,040 $\cdots$ | $\begin{aligned} & 92,7] 1 \\ & 16,756 \end{aligned}$ | $\begin{array}{r} 1,14,573 \\ 6,662 \end{array}$ | $\begin{array}{r} -21,862 \\ 11,004 \end{array}$ |
| Total Class I ... | 85,394 | 5,49,871 | 13,611 | 5,63,462 | 3,50,026 | 2,12,656 |

The area shown as irrigated includes an area of 1,157 acres on which a consolidated land and water assessment is levied, and which is derived from old works on which expenditure on improvements only has been incurred.
8. The figures showing areas irrigated, revenue assessed and realized, and

Areas irrigated. working expenses, as compared with former years, are as follows:-


There was an increase of 4,287 acres in the total area irrigated as compared with the previous year, but the area was still considerably less than that of 1891-92, though the assessment is larger.

The increase of 4,257 was distributed over the several classes of works as follows:-

| Protective Works | ... | Acren. |  |
| :---: | :---: | :---: | :---: |
|  |  | ... | 2,810 |
| Productive , ... | ..' | ... | 2,150 |
| Minor \#" ... | - | ... | -799 |
| Do. Prorincial... | ... | ... | 128 |
|  |  | ... | 4,287 |

Under Protective Works the Nira Canal shows an increase of 3,867 acres and the Mhasvad Tank a decrease of 1,057 acres. Under Productive Worss, the Mutha Canals account for an increase of 1,823 acres, and the balance is the net result of increases and decreases under the remaining works. A large number of Minor Works show a decrease, the most noticeable being the Ojhar Canal and the Shirsuphal Tank.

Distribation of area.
9. The total area irrigated was distributed as
follows :-

|  |  | Kharif. | Rabi. | Total. |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Acres. | Acres. | Acres. |
| $1893-94$ | $\cdots$ | 45,300 | 34,650 | 79,950 |
| $1894-95$ | $\cdots$ | 41,314 | 42,923 | 84,237 |

The kharif area shows a decrease which was more than made up in the rabi season. The differences in areas as compared with those of the previous year have been explained in the review of the annual statement of irrigation and rainfall.
10. The area irrigated was in excess of the area

Difference between area applied for and area irrigated. applied for, the figures being 84,237 and 73,990 acres, respectively.
The area irrigated includes 1,762 acres of the permanent garden irrigation under the Lower Pánjhra River Works. Eliminating these figures the area irrigated is reduced to 82,475 acres. The excess in the measured area over that applied for was chiefly on the Nira Canal, the difference arising from the cultivators entering in their applications only the minimum area they can be charged for and irrigating generally much more. Similarly, it is stated to be due in other cases to their ignorance of the areas of their holdings and consequent inability to estimate correctly the area they propose to irrigate. The reports of the individual works contain the necessary explanations on this point:

Distribation of rainfall.
11. The following table contrasts the distribution of rainfall in each month for the last five years :-

|  | 1.-Works having an unfalling Supply. |  |  |  |  | II.-Works dependent on Local Rainfall. |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1800.01. | 1891-82. | 1892-93. | 1893-94. | 1894.95. | 1890-91. | 1891-92. | 1882-93. | 1893-94. | 1894-95. |
|  | Inches. | Inchat. | Inches. | Inches, | Inches. | Inches. | Inches. | Inohes. | Inches. | Inches. |
| June ... | $5 \cdot 54$ | $2 \cdot 57$ | $5 \cdot 83$ | $9 \cdot 85$ | $3 \cdot 27$ | 4.29 | 2.58 | $8 \cdot 04$ | 6.92 | $2 * 45$ |
| July ... ... | $3 \cdot 32$ | $7 \cdot 11$ | $6 \cdot 36$ | $2 \cdot 05$ | $9 \cdot 30$ | 2.79 | $3 \cdot 86$ | 3.91 | 3.01 | 6.85 |
| August $\quad . .$. | $3 \cdot 08$ | 3.03 | 6.51 | 458 | 1.98 | 3.73 | 3115 | 6.56 | 3.36 | 3.09 |
| September * ... | 5000 | 2.93 | $9 \cdot 13$ | $2 \cdot 43$ | 6.30 | 480 | $2 \cdot 78$ | 7.87 | $4 \cdot 04$ | 6.65 |
| Total | 16.94 | 15.64 | 27.83 | 18.91 | 20.85 | 15.61 | 12.39 | 26.38 | 17:33 | 19.04 |
| Ratis: |  |  |  |  |  |  |  |  |  |  |
| Octuber ... ... | 3.09 | $3 \cdot 25$ | $5 \cdot 14$ | $2 \cdot 24$ | 4.77 | $2 \cdot 45$ | $3 \cdot 81$ | 8.77 | $4 \cdot 33$ | $3 \cdot 04$ |
| November ... ... | $\begin{array}{r}2 \cdot 70 \\ \hline\end{array}$ | $0 \cdot 26$ | ${ }_{0}^{0.34}$ | $1 \cdot 16$ | $0 \cdot 14$ | $3 \cdot 10$ | $0 \cdot 13$ | 0.63 | $0 \cdot 96$ |  |
| December ... | $1 \cdot 17$ | -. | 0.02 | ... | ... | $1 \cdot 94$ | $\cdots$ | ... | ${ }^{\circ}$ | 0.01 |
| January .'. | ... | $\cdots$ | ..0 | $\cdots$ | ... | 0.01 | ... | $\ldots$ | ... | ... |
| Total | 6.96 | 3.51 | 5•50 | $3 \cdot 40$ | 4.91 | 7.50 | 4.04 | $9 \cdot 40$ | $5 \cdot 09$ | 3.05 |
| Total Kharif and Rabi. | 23:80 | 19.15 | $33 \cdot 33$ | $22 \cdot 31$ | 25.76 | 23.11 | 16.43 | 35.78 | 22.42 | . $22 \cdot 09$ |

The rainfall in the year under report compared with that of the previous year varied in the case of almost all works. On some it was heavier and on others lighter.

The average in the troo seasons, taking all the works together, was $23 \cdot 13$ inches as compared with $22 \cdot 74$ inches in 1893-94.

в 1340-b

Colloctions of Revenue. lows:- The state of the collections was as fol.


The remissions and refunds together amount to Rs. 4,673.
The total amount, Rs. 40,417 unrealized at the close of the year, shows an increase; this total is made up of the following :-

|  |  | Rs. |  |
| :---: | :---: | :---: | :---: |
| Matha Canals | ... | ... | 22,359 |
| Khári Cut | . | ... | 8,051 |
| Bhátodi Tank ... | ... | ..' | 2,339 |
| Kadva River Works | ... | ... | 1,454 |
| Jámda Canals ... | .. | $\cdots$ | 1,191 |
| Hathmati Camal ... | $\cdots$ | . | 1,113 |
| Other Works | ... | ... | 3,910 |
|  | Total |  | 40,417 |

The outstanding balance on the Mutha Canals, which is heaviest, includes (Rs. 9,564 ) bills for water-rates for March 1895, prepared at the end of the month; omitting this item, the balance represents the unrealized amount on account of irrigation, the greater portion of which has since been recovered, and it is hoped there is now no balance outstanding.

On the Khári Cut, out of the balance of Ks. 8,051, Rs. 3,635 have since been collected, and steps are in progress for recovery of the balances.

Under the Bhátodi tank it is reported that several villagers complained of double assessment and refused to pay the amount due from them. The unrealized balance is also attributed to late submission of some of the demand statements; the matter is being enquired into and the necessity for early submission of the demand statements will be impressed on the officers concerned.

Most of the balance on the Kadva River Works has since been recovered, while on the Jámda Canal the whole has since been collected.

On the Hathmati Canal the outstandings were due to the inability of the cultivators to pay before the close of the jear. The amounts have since been realized in full,

In some cases the outstanding balances are represented to be due to the inability of the cultivators to pay the water-rates and land assessments at one and the same time, and the Revenue Department are taking the necessary steps for their recovery.
13. The total working expenses for the year amoanted to Rs. $3,50,926$ Working expenses. against Rs. 2,87,418 in the previous year, showing an increase of Rs. 63,508 distributed as follows:-


Under Major Works, Protective Works show a decrease of Rs. 2,059, while Productive Works show an increase of Rs. 19,718. The working expenses under Ninor Works Imperial show an increase of Rs. 46,239.

The decrease under Protective Works is made up of a decrease of Rs. 8,459 on the Nira Canal and un increase of Rs. 6,400 on the Mhasvad Tank. The increase under Productive Works is made up of increases on the Lower Panjhra River Works, Kadva River Works, Lakh Canal, Mutha Canals and the Krishna Canal, the Mutha Canals showing the largest increase (Rs. 12,498). The Ekruk Tank shows a decrease of Rs. 14,361. The Minor Works which principally account for the increase are the Ojhar Canal (Rs. 21,958), Bhatudi Tank (Rs. 8,133) and Yerla River Works (Rs. 17,805).

The working expenses of the Nira Canal iuclude a sum of Rs. 1,770 for special repairs, which consisted of strengthening the banks by puddled earth cores in places where they were found to be unsafe or leaky, due to the nature of the soil of which they were originally made. It is stated that in a couple of years all these leaky places will be made perfectly sound. The working expenses amounted to Rs. 53,588 as compared with Rs. 62,047 in the previous year. With 96 miles of main canal in operation this gives a rate of 553.21 per mile and includes the maintenance of 132 miles of distributaries. The cost of maintenance per acre irrigated was Rs, $1 \cdot 89$ against $2 \cdot 53$ and $3 \cdot 22$ of the two previous years.

There was a large increase on the Mhasvad Tank due to special expenditure of Rs. 11,198 incurred during the year under review under head "Extensions and Improvements" on remaking a portion of the dam with better material. The work was necessitated on account of damage crused by leakage.

On the Lower Panjhra River Works the increase was in a great measure due to the charge for construction establishment being now apportioned equally on all revenue works in proportion to the outlay on works and repairs on each, and to a large refund of revenue which was assessed at penal rate on lands at Mudhi and Mandal, which had been degraded from bágáyat to jiráyat. There has however been a considerable decrease on the 2nd Class revenue works, the charge on which used to be very heavy under the former method of apportionment. The same reason accounts for the increase under the Kadva River Works and the Lakh Canal, that on the last being also partly due to special silt clearance.

The expenditure on account of working expenses of the Mrutha Canal amounted to Rs. 79,709 against Rs, 67,211 in the previous year, including all charges. Out of Rs. 79,709, Rs. 29,765 are debitable to maintenance of water-supply and the balance Rs. 49,944 to maintenance of irrigation. The excess in the expen-
diture as compared with the previous year was due to increase in cost of maintenance of the Poona water-supply, special repairs to the water wheel and pumping by steam during alterations being necessary. The chief increase is however in the cost of Establishment and Tools and Plant. The establishment charges were heavier owing to decrease in Capital outlay and the.revised rule ordering 18 instead of 20 per cent. as the charge to capital. The increase in tools and plant was due to the cost of new meters and component parts of meters required for the Poona water-supply.

The increase under the Krishna Canal was on collection charges due to increased realizations of the year.

The increase in Minor Works and Navigation is chjefly in establishment charges on most of the works due to the introduction of the rules, vide Government Resolution No. 280 A. I-1903, dated 14th December 1894, referred to above, the Ojhar Canal and Bhatodi Tank showing the most noticeable increases, solely due to that cause. The large increase in the case of the Yerla River Works is attributed to the expenditure incurred on the reconstruction of the Nehr dam and debited to the revenue account.

The percentage of working expenses on gross assessed revenue was $59 \cdot 10$ against $48^{\circ} 59$ in the previous year, and the rate per acre was 4.17 against $3 \cdot 59$ in the previous year.

- Charges under principal heads.

14. The following table contrasts the charges under the principal heads with those of the two previous years:-


The establishment charges, divided between 'Direction and Accounts' and ' Executive,' compare as follows with those for the previous year:-

15. The following table gives the details of the

Detail of working. , working expenses of some of the principal works :-

| Nameg of Worke. | $\begin{gathered} \text { Average } \\ \text { incidence of } \\ \text { Water.rate } \\ \text { pat Acre. } \end{gathered}$ | Cost of Meastrzurat. |  | Wormiso Exprnses <br>  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | ${ }_{\substack{\text { Total } \\ \text { Cost }}}^{\text {cta }}$ | $\begin{gathered} \text { Per } \\ \text { Acrea } \end{gathered}$ | Per mile of Hain Canal | (1) $\begin{gathered}\text { Per Acree } \\ \text { Irigated. }\end{gathered}$ |
|  |  |  | Rs. | Rs, a. p. | Rs. |
|  | 3.20 | 1,844 | 01 | $4 \dot{8} 5$ | $1 \cdot 64$ |
| Hirathmati Canal '... | $2 \cdot 50$ | ${ }^{1} 141$ | 0.0 6 | 259 | 1.29 |
| Kádra River Works | 3/80 | 291 | ${ }_{0} 118$ | 599 | $5 \cdot 23$ |
| Pravara River Works-Lákh Canal. | $3 \cdot 44$ | 32 | $\begin{array}{llll}0 & 1 & 8\end{array}$ | 517 | $38 \cdot 36$ |
| Matha Canals ... . ... | 13.81 | 1,368 | $\begin{array}{llll}0 & 2 & 2\end{array}$ | 787 | 6.87 |
| Krishns Canal ... ... | 9.50 | 767 |  |  |  |
| Jámda Canals $\cdots$ | 6.55 3.03 | 49 118 | $\begin{array}{llll}0 & 1 & 11 \\ 0 & 1 & 9\end{array}$ | 219 1,341 | ${ }_{16}{ }^{7} 514$ |
| Pravara River Works-Ojhar Canal. | 3.03 | 118 | 019 | 1,341 315 | 16.51 1.05 |
| Gokak Canal, 1st Section ... | 2.73 | 749 | $\begin{array}{llll}0 & 2 \\ 0 & \\ 0 & \\ 0 & 1\end{array}$ | 315 | 2.05 |
| Upper M1án River Works ... | ${ }_{4}^{516}$ | 175 | $\begin{array}{llll}0 & 2 & \\ 0 & 1 & \\ 0 & 11\end{array}$ | 216 307 | - $2 \cdot 9.92$ |
| Rewarí Canal | 4.27 | 187 36 | $\begin{array}{lllll}0 & 1 & 11 \\ 0 & 1 & 7\end{array}$ | 307 119 | 1.90 |
| Chikhli ${ }^{\prime \prime}$... | 4.88 5.87 | 36 162 | 0 0 0 $\cdot 1178$ | 119 340 | ${ }_{2}^{1961}$ |
| Tanks. |  |  |  |  |  |
| Mhaspad Tank ... | $3 \cdot 28$ | 610 | 023 | 441 | 6.29 |
| Ekrúk Tank ... | $4 \cdot 09$ | 557 | ${ }_{0} 028$ | 225 | 3.27 |
| Bhatodi Tank ... | $3 \cdot 22$ | 30 | 0310 | 239 | $6 \cdot 34$ |
| Mátoba Tank ... | $7 \cdot 00$ | 81 | 0011 | 210 | $2 \cdot 51$ |
| Shirsuphal Tank ... | $6 \cdot 10$ | 16 | $\begin{array}{lll}0 & 1 & 5\end{array}$ | 232 | 16.37 |
| Bhádalvádi Tank... | $2 \cdot 25$ | 19 | 010 | 160 | $5 \cdot 20$ |
| Maini Tank | 3.98. | 224 | $0 \cdot 29$ | 375 | 2.71 |
| Madag Tank | $2 \cdot 42$ | ... | ... | 160 | :156 |

The cost of measurement per acre was generally less than last year. The works in the Sátára District show a reduction of nearly 52 per cent. The high rate of measurement on the Bhatodi Tank is explained to be due to the fields being at a distance from each other and to the incompetence as a surveyor of the canal inspector. It is proposed to have the measurements made by a special measurer in future,

On the Madag Tank the land under command having been subdivided into pot numbers of suitable sizes no special measuring establishment was employed.

The varying ratio of working cost on the different works is due to the varging nature of the works themselves.

15 a. The orders contained in Government Resolution No. 172 A. I. -454 , dated 15th September 1879 required that special sanction of Government should be obtained to excesses over prescribed percentages of establishment charges to revenue expenditure. The rules which now govern the debit of establishment charges, however, made these orders unnecessary, and they were accordingly cancelled in Government Resolution No. 213 A. I.-1289, dated 14th August 1895. But it was thought necessary to carefully watch the establishment expenditure on revenue management, and it was directed that the annual revenue reports should furnish information showing for each work :-
(a). The cost of establishment debited to revenue management.
(b). The percentage this bears to the assessed revenue from the irrigation.
(c). Incidence of cost per acre irrigated.

The information furnished in compliance with these orders is shown in the following table:-


It will appear that the percentages of revenue establishment on assessed revenue from irrigation water rates are high on Hartala, Mhasva and Kasurdi Tanks and the Jamda Canals. The Executive Engineer for Irrigation Kháadesh reports that the high charges on the Hartala and Mhasva Tanks and the Jamda Canals are due to the areas icrigated during the year 1894-95 on these works being smaller than in the previous year, but that, in the interests of efficient management of what irrigation there was, the establishment could not be reduced. The irrigation. in the locality in which these three works are situated has always been and is fitful, and depends largely on the extent of the cultivation of cotton, which can be carried on without canal water. There was no irrigation on the Kasurdi Tank during 1894-95, the tank being dry, and hence the high charge.

The percentage in the case of the Khari Cut Canal is higher than that of the Hathmati Canal as in the former a share of subordinate establishment employed in revenue management is included, while on the Hathmati Canal the work was performed by temporary establishment charged to maintenance. The reasons for this procedure which appears to be exceptional should be furnished.

Enquiries are being made as to the possibility of diminishing the charges on the Maini, Dambal, Medleri, Asundi and Madag Tanks and on the Yerla River Works.
10. The indirect receipts, as shown in Statements $I-C, I V-C$ and II-E, were Rs. 13,611 . If Rs. 5,830 plus Rs. 41,328 on account of supply to the Poona City=Rs. 47,158, being the difference between the value of water issued from the Mutha Canals at normal rates and the value of water supplied at special reduced rates or gratuitously, be taken credit for in the revenue returns of the work as a book credit and be added to the above amount, the earnings of the year will be Rs. $6,40,995$. The Poona Municipality bave not yet accepted the terms offered to them, with the sanction of the Government of India, in the matter of increased supply of water.
17. The net assessed revenue of the year, after deducting working expenses including indirect and all other charges, and neglecting the items, amounting to Rs. 47,158, reforred to in the preceding paragraph, was Rs. 2,42,811 as compared with Rs. $3,04,069$ in 1893-94.

The details of the assessment were as follows :-

|  | Dirgct Revasur |  |  | Indirect Revenua. | Total. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Water Rates. | Other Recipts. | Total. |  |  |
| Major Works. |  |  |  |  | . |
| Protective Works <br> Productive Works | $\begin{aligned} & 1,04,733 \\ & 2,29,641 \end{aligned}$ | $\begin{array}{r} 4,111 \\ 1,31,689 \end{array}$ | $\begin{aligned} & 1,08,844 \\ & 3,61,330 \end{aligned}$ | 7,571 | $\begin{aligned} & 1,08,844 \\ & 3,68,901 \end{aligned}$ |
| Total | 3,34,374 | 1,35,800 | 4,70,174 | 7,571 | 4,77,745 |
| Minor Works ... Provincial Minor Works | 83,480 11,915 | 9,405 5,152 | 92,885 $\mathbf{1 7 , 0 6 7}$ | 6,040 | $\begin{aligned} & 98,925 \\ & 17,067 \end{aligned}$ |
| Grand Total | 4,29,769 | -1,50,357 | 5,80,126 | 13,611 | 5,93,737 |

18. The water-rates in force during the year are shown in Statement I-F.

Water-rates and were the same as in the previous year, with the exceptions that for the Ekruk Tank the perennial rate has been raised to Rs. 12. For the Gokak Canal it has been ordered that the perennial rate shall be raised from Rs. 14 to Rs. 18 in five years and accordingly the rate for the year under report was Rs. 15.
19. The average water-rates per acre of land actually irrigated were :-

20. The water-rate assessments and other receipts compare with those of the previous year as under:-

| Water-rates ... ... | $\begin{gathered} 1993.94 . \\ \cdot \mathrm{Rs} . \\ \ldots . . \\ 4,29,408 \end{gathered}$ | $\begin{array}{r} 189.09 .9 . \\ \text { R. } \end{array}$ |
| :---: | :---: | :---: |
| Other Receipts- -.. |  |  |
| Plantations | ... 6,198 | 4,024 |
| Water-power ... | ... 20,760 | 10,920 |
| Water-sapply to towns | ... 97,077 | 98,779 |
| Miscellaneous | ... 25,065 | 36,634 |
| Share of land revenue | 1,49,100 | 1,50,357 |
| . | 1,62,079 | 1,63,968 |
|  | 5,91,487 | 5,98,737 |

The above comparison shows an increase under all heads except Plantations and Water power.

The assessments of water-rates are nearly the same as those of the previous year. The figures for the several works show increases and decreases due to the variation in the area of irrigation, the decrease which was chiefly on the Mhasvad Tank (Rs. 7,623) Shirsuphal Tank (Rs. 2,557) and Bhádalvadi Tank (Rs, 3,675 ) having been counterbalanced by the increase on the Nira Canal (Rs. 7,161) Krishna canal (Rs. 2,291) Khari Cut (Rs. 2,345) and the Yerla River Works (Rs. 1,736) ; of the decrease on plantations the most noticeable was on the Hartála Tank (Rs. 541) and the Jamda Canals (Rs. 1,201) due to the sale of babul trees not having been effected before the close of the year. The decrease under water power is solely on the Gokak Canals and is nominsl. The assessment for the year was Rs. 9,840, but half of this sum was paid in advance last year and therefore was taken credit for in that year.

Under Miscellaneous revenue the increase was almost wholly under Major Works.

| Crop acreages. |  | 21. The principal crop acreages irrigated during 1893-94 and $1894-95$ were as follows:- |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | 1893.94 | 1894.95. | Incresse |
|  |  |  |  |  | Acres. | Acres. | Acres. |
| Gardens and o | rds | ... | ... | ... | 3,367 | 3,009 | -358 |
| Sugarcane | $\ldots$ | ... | ... | .. | 13,063 | 14,624 | + 1,561 |
| Wheat . | ... | $\cdots$ | ... | ... | 10,856 | 8,833 | -2,023 |
| Rice ... | ... | $\therefore$ | .-. | $\cdots$ | 5,217 | 6,187 1,924 | +970 -107 |
| Maize... | ... | $\cdots$ | , | ... | 11,604 | 1,924 19,955 | -107 +8351 |
| Jowárí | ... | ... | ... | ... | 11,604 | 19,955 | $+8,351$ +834 |
| Bájri... | ... | ... | $\cdots$ | ... | 4,378 | 6,722 5990 | + 2,344 |
| Gram, \&c. | ... | ... | ... | ... | 5,830 | 5,990 | +100 -7306 |
| Ground-nuts | ... | ... | ... | ... | 16,390 | 9,084 | -7,306 |
| Condiments | ... | - | $\cdots$ | $\cdots$ | 2,935 | 3,309 | +374 +594 |
| Fodder | ... |  | ... | ... | 593 | 1,117 | + 524 |

of these the chief crops were:-

| chap |  |  |  |  | Acres. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Sugarcane | ... | ." | ... | ... | 14,624 |
| Wheat | ... | ... | ... | ... | 8,833 |
| Jowári | ... | ... | ... | ... | 19,955 |
| Bájri | ... | ... | ... | ... | 6,722 |
| Gram, \&o. | ... | ... | $\cdots$ | .'. | 5,990 |
| Ground-nats | ... | ... | ... | ... | 9,084 |
| Rice... | ... | ... | ... | ... | 6,187 |

The figures of sugarcane, rice, jowári, bájri, gram, condiments and fodder show an increase. All the other crops show a decrease, the falling off being partioularly noticeable in wheat and ground-nuts. The decrease in wheat is made up of small decreases on several works.

Of the total decrease of 7,306 acres in ground-nuts the Nira Canal contributes 3,743 acres, which the Executive Engineer anticipated, as explained in paragraph 16 of the Nira Canal report, and the Mhasvad Tank 2,115 acres, due to the lowering of the water-level in the tank by cutting 6 feet from a portion of the waste weir to facilitate the remaking of the damaged portion of the dam. This lowering caused a large diminution in the contents of the tank which led to the decrease of the ground-nuts irrigation. The decrease of ground-nut was general over the works in the Sátara District owing to the favourable rainfall of the jear.

The increase in the area of jowári was most noticeable on the following trorks:-

|  |  |  |  | 1893.81. Rs. | $\begin{gathered} 1891.95 \\ \mathbf{R s}_{3} \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Nira Canal | ... | ... | ... | 6,537 | 11,114 |
| Mhasvad Tank | ... | ... | ... | 442 | 2,072 |
| Matha Canals | $\ldots$ | ... | ... | 511 | 1,534 |
| Ekrul Tank | ... | ... | ... | 110 | 823 |

On the Nira Canal it rose from 6,537 acres in 1893-94 to 11,114 acres in 1894-95 which is very satisfactory.

The total estimated value of crops irrigated is shown as Rs. $56,57,235$ against Rs. $58,59,742$ for the previous year and Re. 39,47,775 for 1892-93.
22. In Statement I-E. the duty of water on each work, as well as the basis to which the duties were calculated, \&c, are shown. The results vary very much on different works ; but, as observed in previous years, this is to be expected, as the conditions also vary considerably, and in most of the canals it is necessary to maintain a much larger discharge than is necessary for the area under irrigation owing to the bulk of the land irrigated being frequently situated towards the tail of the canal at a long distance from the head-rorks.

Details of the duty obtained on each carial are given in the body of the report and are generally estimated from the daily discharge observations and the known area of the miscellaneous crops under irrigation during the period.

Special experiments to determine the duty of water per acre for certain crops were carried out during the year with the following results :- $:-$


## PARTII.

TORES FOR WHich only revenue accounts are kept, and agricdutural works.
23. The following shows a comparison of the figures for the year under report with those for 1893-94:-


The area irrigated shows a decrease of 3,486 acres. In the Dhárwár district, there is an increase of three in the number of tanks and still the area irrigated shows a falling off of 3,895 acres. This discrepancy is not explained. The Revenue receipts show an increase of R.s. 1,092 and the expenditure a decrease of Rs, 1,665, the result being an increase under net revenue of Rs. 2,757.
24. The following gives some details of expenditure:-

| , | Expenditurer. |  | Comparigoy. |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 1893-94. | 1894.95. | Increase. | Decrease. |
| . | Rs. | Rs. | Rs. | Rs. |
| Extensions and improvements ... | 50,917 | 65,948 | 15.031 | ..... |
| Maintenance and repairs | 57,346 | 64,871 | 7,525 |  |
| Establishment . ... | 1,15,825 | 93,116 | .....) | 22,703 |
| Tools and Plant .- | 2,065 | 3,147 | 1,083 | ... |
| Total ... | 2,26,153 | 2,27,082 | 923 | ... |
| Share of collection charges .. | 54,418. | 51,824 |  | 2,524 |
| Total | 2,80,571 | 2,08,906 | $\cdots$ | 1,655 - |

- The increase under Extensions and Improvements, Maintenance and Repairs and Tools and Plant shows more extensive operations on second class works. The - decrease under establishment charges is the result of orders regarding the . apportionment of establishment charges referred to in paragrapl 13 above.

Statcment of Canals in the Dombay Presidency, excluding Sind.


Statement of Reservoir Projects in the


## Bombay Presidency, excluding Sind.



Capital Account of Irrigation Worka in Deccan and


- Including expenditure charged to "ss conatruction
B.

Gujarat for and to end of 1894-95.

| To nxd or mein. |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Direet Charges, |  |  |  |  |  | Indirect chargees |  |  | GrandTotal |
| Warks. | Establishment. | Toola and Plant. | Total. | Deduct <br> Receipts <br> on Capltal <br> Account. | Tutal. | Capitalization. | Leave and Pension Allowanceas. | Total. |  |
| 12 | 13 | 14 | 15 | 10 | 17 | 18 | 19 | 20 | 21 |
| $\mathbf{R 8 ,}^{1}$ | Re, | Rr. | Rs. | R. | R 8. | Rs. | hns. | Rs. | R. |
| $\begin{aligned} & 41,62,714 \\ & 15,81,745 \end{aligned}$ | $\begin{array}{r} 10,16,889 \\ 3, \pm 1,888 \end{array}$ | $1,30,038$ 62,800 | 53,09,6+1 $19,86,533$ | 8,009 1,473 | $\begin{aligned} & 83,01,632 \\ & 19,85,060 \end{aligned}$ | $1,34,709$ 7,817 | $1,59,636$ $\mathbf{5 3 , 0 0 8}$ | $2,94,345$ 60,825 | $\begin{aligned} & 55,95,977 \\ & 20,45,885 \end{aligned}$ |
| 67,44,459 | 13,58,877 | 1,92,838 | 72,96,174 | 0,482 | 72,86,692 | 1,42,526 | 2,12,644 | 3,55,170 | 76,41,862 |
| 38,937 | 18,013 | 7,260 | 64,200 | 181 | 64,019 | 21 | 3,163 | 3,184 | 67,203 |
| 20,967 | 11,600 | 1,4ī6 | 34,023 | 68 | 33,955 | ...... | 2,161 | 2,161 | 36,116 |
| 69,894 | 29,613 | 8,716 | 98,223 | 249 | 97,974 | 21 | 5,324 | 6,345 | 1,03,319 |
| 18,04,353 | 13,88,490 | 2,01,55 | 73,94,397 | 9,731 | 73,84,666 | 1,42,547 | 2,17,968 | 3,60,515 | 77,45,181 |
| 3,83,636 | 99,517 | 9,060 | 4,92,213 | 1,288 | 4,90,925 | 7,640 | 19,830 | 27,470 | 5,13,395 |
| 3,62,148 | 73,713 | 3,228 | 4,39,089 | 37 | 4,39,052 | 8,432 | 14,380 | 22,812 | 4,61,864 |
| 5,37,980 | 1,98,961 | 16,960 | 6,93,901 | 140 | 6,93,761 | 4,316 | 34,339 | 28,655 | 7,22,4]6 |
| 2,64,329 | 68,641 | 19,477 | 3,52,647 | 201 | 3,69,446 | 5,824 | 13,621 | 19,445 | 3,71,891 |
| \$2,47,967 | 9,69,847 | 1,16,754 | 63,34,568 | 12,226 | 63,22,342 | 62,602 | 1,81,645 | 2,34,147 | 65,56,489 |
| 10,07,089 | 2,12,509 | 9,713 | 12,29,311 | 1,19 | 12,28,117 | 69,948 | 42,321 | 1,12,269 | 13,40,386 |
| 6,74,604 | 1,49,209 | -1,682 | 8,18,645 | ... | 8,18,545 | 18,6]6 | 27,831 | +46,317 | 8,64,892 |
| 84,78,003 | 17,05,997 | 1,76,874 | 1,03,60,274 | 15,086 | 1,03,45,188 | 1,67,178 | 3,23,967 | 4,91,145 | 1,08, 36,333 |
| 1,42,83,356 | 30,93,887 | 3,78,428 | 1,77,54,671 | 24,837 | 1,77,29,854 | 3,09,725 | 5,41,935 | 8,51,660 | 1,85,81,514 |
| . |  |  |  |  |  | - |  |  |  |
| 1,35,618 | 32,293 | 2,133 | 1,70,049 | 151 | 1,69,869 | 6,350 |  |  |  |
| 33,437 | 11,936 | 2,549 | 1,47,953 | 18 | 1,47,948 | 23,052 | 5,63 2,382 | 25,434 | $1,81,848$ 73,382 |
| ],01,259 | 26,309 | 1,129 | 1,28,787 | 6 | ],28,781 | 5,026 | 5,149 | 10,175 | 1,38,9i6 |
| 7,80,878 | 1,91,760 | 12,929 | 9,90,567 | 21 | 9,90,546 | 12,015 | 37,885 | 49,900 | J0,40,446 |
| ],61,294 | 49,572 | 8,567 | 2,12,433 | 71 | 2,12,362 | 1,078 | 5,979 | 7,057 | 2,19,419 |
| 2,30,067 | 75,184 | 4,528 | 3,09,779 | 144 | 3,09,635 | 5,806 | 14,808 | 20,614 | 3,30,249 |
| $2,73,838$ 1,49937 | 70,183 | 9,354 | 3,53,375 | 690 | 3,52,685 | 13,023 | 13,999 | 27,022 | 3,79,707 |
| 1,41,433 | 35,982 8,495 | 2,937 | $1,88,156$ 40,812 | 8 | 1,88,148 | 6,274 3079 | 7000 | 13,274 | 2,01,422 |
| 3,70,379 | 38,190 | 2,861 | 2,11,430 | $\ldots$ | 2,11,430 | 5,041 | 1,699 7,232 | 4,778 12 12,273 | 45,590 293 |
| - 1,56,993 | 58,493 | 2,621 | 2,13,107 | ... | 2,13,107 | 4,067 | 10,240 | 12,273 | 2,23,703 $\mathbf{2 , 2 7 , 4 1 4}$ |
| 30,04t $6,05,284$ | 7,661 $1,44,175$ | 218 8122 | 37,983 $\mathbf{7 , 5 7 , 5 8 1}$ |  | -37,923 | *.... | 1,266 | 1,266 | 39,189 |
| 46,868 | $1,44,175$ 9,693 | 8,122 | $7,57,581$ 56,582 | 1,192 | 7,59,189 | - 52,311 | 26,603 | - 78,914 | 8,31,103 |
| 3,07,424 | 93,456 | 6,782 | 4,07,663 |  | 56,582 $4,07,421$ | 1,066 4,787 | 1,781 | - 2, 547 | 59,429 |
| 5,27,482 | 1,10,320 | 7,964 | 6,4,566 | 2,365 | 6,43,201 | 1,788 22,368 | 17,364 20,675 | - $\begin{array}{r}29,141 \\ 43,043\end{array}$ | 4,29,562 |
| - $\mathbf{3 , 6 6 , 9 8 4}$ | 13,611 98,353 | $\underline{208}$ | 5153,803 | $\cdots$ | 6,43,803 | 22,888 917 | 1,067 2,722 | 43,043 3,639 | $6,86,24 \pm$ 67,442 |
| $2,66,543$ $1,11,830$ | 98,353 26,360 | 3,315 | 3,68,211 | 640 | 3,67,671 | 3,074 | 10,165 | 22,239 | 3,80,910 |
| 1,1,938 | 26,360 1,700 | 2,294 130 | $1,40,4,44$ 8,768 | - $\cdot 267$ | 1,40,217 | 14,386 | 4,104 | 18,490 | J,58,707 |
| 7,120 | 1,755 | 140 | 8,768 8,915 | .... | 8,768 8,915 | ${ }^{\text {..... }} 13$ | 259 | 259 364 | 9,027 0.979 |
| 49,263 | 30,769 | 878 | 60,909 | '*62 | 8,915 80,847 | 1,034 | 351 2,099 | $\begin{array}{r}364 \\ 3,333 \\ \hline\end{array}$ | 9,279 63,980 |
| 61,881 $1,26,598$ | - 15,324 | 1,155 | 78,360 | 6 | 78,354 | 1,243 | 2,795 | 3,13 3,038 | 81,392 |
| 1,26,596 | - 31,841 | 2,825 | 1,61,263 | 14 | 1,61,248 |  | 6,350 | 6,350 | 1,67,598 |
| 48,105 21,665 | 10,881 5,762 | 1,055 | 60,741 |  | 60,741 | 12,536 | 1,718 | 14,204 | 1,71,995 |
|  | 5,762 | 323 | 27,750 | 133 | 27,612 | 2,083 | 1,152 | 3,235 | 30, ${ }^{8} 47$ |
| 44,87,059 | 11,67,983 | 85,953 | 57,40,964 | 10,750 | 57,30,814 | 1,99,629 | 2,:0,397 | 4,20,026 | 61,50,840 |
| 92,036 | 70,024 | 14,246 | $1,76,306$ | ... | $\cdot 1,76,306$ | 740 | 13,238 | 13,978 | 1,90,284 |
| 45,79,095 | 12,37,977 | 1,00,198 | 59,17,270 | 10,150 | 59,07,120 | 2,00,369 | 2,33,635 | 4,34,00t | 63,41,124 |
| 9,65,631 | 1,69,328 | 20,816 | 11,55,775 | 258 | 11,55,517 | 14,114 | 25,245 | 30,359 | * 11,94,876 |
| 1,98,27,082 | 45,01,192 | 4,99,442 | 2,48,27,716 | 35,225 | 2,47,93,491 | 5,24,208 | 8,00,815 | 13,25,023 | 2,61,17,514 |

of Protective Irrigation Wortro"
F. HUTCHINSON,

Examiner, Public Works $\Delta$ ccounts.

Statement shouing the Financial Results of Irrigation Works in
Realisationa wader Main Headt of


[^1]
C.

Deccan and Gujarát for the year ending 31st March 1895.
Necenve and Working Exppenses.

| Worime Expmama. |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\begin{gathered} \text { Net } \\ \text { Reveaue. } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Management. |  |  | Maintenance and Bepairs. |  |  |  |  |  |  |  |  |  | Indirect chargens. | $\left\|\begin{array}{c} \text { Grand } \\ \text { Toral } \\ \text { Working } \\ \text { Bxpenses. } \end{array}\right\|$ |  |
| Hishment | . |  | Latablishment |  |  |  | Works. | Repairs. | Sun. driea. | Toole and | Pianta. tions, | $\begin{aligned} & \text { Total } \\ & \text { coat of } \\ & \text { Malinten- } \\ & \text { ance. } \end{aligned}$ |  |  |  |
| Natigntuon. | $\begin{gathered} \text { Civil } \\ \text { offleera. } \end{gathered}$ | $\underset{\substack{\text { Managee } \\ \text { mant. }}}{\substack{\text { a }}}$ | Direction. | Execative. | $\begin{gathered} \text { Yedi- } \\ \text { eal, } \end{gathered}$ | Total. |  |  |  |  |  |  |  |  |  |
| 14 | 15 | 16 | 17 | 18 | 19 | 90 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| Re. | Rs. | Rs. | Rs. | Rs. | $\mathrm{Ing}_{\text {, }}$ | Rs. | Rs, | Rs. | Rs, | R. | Rs. | $\mathbf{R s}_{8}$ | Rs. | Rs. | Rs. |
| $\cdots$ | 4,002 | 19,363 | 1,311 | 4,749 | 279 | 6,339 | 502 | 22,506 | ... | 603 | 1,232 | 31,187 | 3,038 | 53,588 | 28,242 |
| ... | 634 | 6,679 | 1,481 | 2,791 | 66 | 4,338 | 11,198 | 5,575 | ... | 25 | 317 | 21,453 | 1,328 | 28,460 | $-15,742$ |
| ... | 4,536 | 25,042 | 2,792 | 7,640 | 345 | 10,677 | 11,700 | 28,081 | ... | 633 | 1,549 | 52,640 | 4,366 | 82,048 | 12,500 |
| ... | 494 | 551 | 193 | 817 |  | 1,045 |  | 3,894 | 150 | 6 | 287 | 5,3s2 | 154 | 6,087 | 4,992 |
| ... | 1,547 | 3,828 | 62 | 412 | ... | 474 | 565 | 1,104 | ..' | 100 | 229 | 2,472 | 386 | 6,686 | 9,869 |
| ... | 501 | 10,486 | 54 | 822 | ... | 876 | ... | 3,266 | ... | 144 | 240 | 4,026 | J,514 | 16,526 | $-4,647$ |
| $\cdots$ | 78 | 9,177 | 23 | 512 | $\ldots$ | 53.5 |  | 2,142 | ..* | 116 |  | 2,793 | 1,349 | 13,319 | -11,671 |
| ... | 6,330 | 27,273 | 1,783 | 6,467 | ... | 8,250 | 760 | 32,849 | ... | 6,363 | 327 | 48,349 | 4,087 | 79,709 | 1,53,677 |
| ... | 624 | 3,73! | 379 | 1,136 | ... | 1,515 | 2 | 4,950 |  | 95 | 1,107 | 7,669 | 647 | 12,050 | 36,821 |
| ... | 3,584 | 6,005 | . 179 | 1,486 | ... | 1,665 | 297 | 5,806 | 403 | 100 | 658 | 8,829 | 432 | 14,266 | 41,783 |
| ... | 13,208 | 60,054 | 2,678 | 11,682 | ... | 14,360 | 1,624 | 54,011 | 553 | 6,924 | 2,548 | 80,020 | 8,569 | 1,48,643 | 2,10,824 |
| ... | 17,744 | 85,096 | 5,470 | 19,222 | 345 | 25,037 | 13,324 | 82,092 | 553 | 7,557 | 4,097 | 1,32,660 | 12,935 | 2,30,691 | 2,23,324 |
| ... | 452 | 931 | 133 | 855 | ... | 988 | $\cdots$ | 3,916 | ... | 30 | 37 | 4,971 | 205 | 6,107 | 3,574 |
| $n$. | 35 | 503 | 11 | 79 | $\cdots$ | 90 | ... | 355 | ... | ... | 4 | 449 | 78 | 1,030 | -319 |
| ... | 30 | 587 | 10 | 82 | $\cdots$ | 92 | 33 | 170 | ... | 50 | 200 | 545 | 91 | 1,223 | 20 |
| ... | 406 | 4,931 | 85 | 683 | . | 768 | ... | 3,071 | ... | 200 | ... | 4,039 | 738 | 9,708 | 1,553 |
| ... | 91 | 730 | 9 | 86 | ... | 95 | $\cdots$ | 320 | "•• | 50 | 62 | 527 | 102 | 1,359 | 538 |
| "'* | 372 | 20,008 | 48 | 1,097 | ... | 1,145 | ... | 4,535 | ... | 122 | 47 | 6,849 | 2,909 | 28,766 | -21,028 |
| ... | 280 | 8,685 | 21 | 470 | ... | 491 | $\cdots$ | 1,865 | ** | 11 | 98 | 2,465 | 1,231 | 12,281 | -7,512 |
| ... | 483 | 1,483 | 124 | 369 | : | 493 | ... | ],972 | ... | 100 | ... | 2,565 | 209 | 4,257 | - 5.519 |
| ... | 11 | 108 | 10 | 33 | . | 43 | ... | 173 | ... | 25 | ... | 241 | 20 | 369 | 148 |
| ... | 118 | 1,019 | 89 | 296 | ...' | 384 | ... | 1,638 | ... | 75 | ... | 1,997 | 180 | 3,196 | -615 |
| $\cdots$ | 39 | 485 | 59 | 160 | ... | 212 | ... | 848 | ... | 50 | ... | 1,110 | 92 | 1,687 | -837 |
| ... | 50 | , 277 | 15 | 63 | ... | 78 | - | 312 | ... | 20 | $\because$ | 410 | 43 | 730 | 298 |
| ... | 163 | 1,100 | 142 | 378 | ... | 520 | ... | 1,843 | ... | 50 | 236 | 2,649 | c04 | 3,953 | 435 |
| ... | 337 | 689 | 23 | 214 | ... | 237 | ... | 869 | ... | 97 | 78 | 1,281 | 68 | 1,938 | 4,97E |
| ** | 296 | 879 | 63 | 50.0 | ... | 618 | ... . | 2,224 | ... | 100 | 250 | 3,192 | 168 | 4,239 | 1,797 |
| $\cdots$ | 331 | 1,037 | 754 | 3,624 | ... | 4,378 | 13,647 | 3,221 | ... | 112 | 04.5 | 22,003 | 712 | 23,752 | $-16.173$ |
| *.. | 69 | 177 | 14 | 118 | ... | 132 |  | 488 | ... | 4 | 39 | 663 | 34 | 878 | -16.108 |
| $\cdots$ | 174 | 063 | 41 | 480 | ... | 621 | -127 | 2,109 | $\ldots$ | 60 | J28 | 2,68] | 183 | 3,827 | 161 |
| ... | 4 | 4 | 9 | 98 | ... | 107 | 266 | 132 | $\ldots$ | 3 | 39 | 547 | 15 | 566 | -277 |
| ...0 | $\cdots 199$ | $\dddot{799}$ | 1 | 3 6 | ... | 4 | $\cdots$ | 20 89 | $\cdots$ | ... | ... | 24 | 1 | 25 | -25 |
| .... | 144 | 485 | 1 | 56 | $\cdots$ | 7 | $\cdots$ | 29 | ... | ... | $\cdots$ | 36 | 1 | 236 | 1,751 |
| ... | 25 | 394 | 3 | ${ }_{73}^{64}$ | $\ldots$ | 66 76 | 110 | 203 | $\cdots$ | $\ldots$ | $\cdots$ | 377 379 | 56 | 918 | 1,186 -330 |
| ... | 136 | 770 | 6 | 155 | ... | 161 | $\ldots$ | 500 | ... | .... | $\cdots$ | 806 | 111 | 1,687 | 1,333 |
| $\cdots$ | 99 | 465 | 3 | 73 | ... | 76 | $\ldots$ | 806 | ... | $\ldots$ | ... | 382 | 62 | 909 | 449 |
| $\cdots$ | 101 | 101 | ... | .-. | ... | *** | $\cdots$ | -•• | $\cdots$ | -•* | ... | ... | $\ldots$ | . 101 | 916 |
| ... | 4,468 | 46,810 | 1,668 | 10,104 | $\cdots$ | 11,772 | 33,929 | 31,330 | *** | 1,149 | 2,008 | 60,188 | 7,575 | 1,14,573 | -21,862 |
| ... | 827 | 2,082 | 39 | 565 | ... | 604 | ... | 2,210 | ... | 300 | 176 | 3,320 | 260 | 5,662 | 11,094 |
| ... | 23,039 | 1,33,988 | - 7,177 | 29,89] | 345 | 37,413 | 27,253 | 1,15,662 | 553 | 9,006 | - 6,281 | 1,96,168 | 20,770 | 3,50,926 | 2,12,556 | year 1894-95, based on actual receipts.

Principal Results of operations for the year emded sist llarek 1895.


- The zum at charge being minps, no percentage can be colculated.

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## III.-C.

Demands and Realizations during the year 1894-95 in Deccan and Gujarát.


## xxiv <br> IV-C.

Statement showing the Financial Results of Irrigation Works in Deccan and Gujarat for the year ended 1894-95, based on the Assessment of the year.

Principal Results and Operations for the year ended s1dt March 1895. .


[^3]F. HUTCIINSON, Examiner, Public Works Accounts.

STATEMENT I.-E.

B $1340-g$.

Statement of Areas irrigated ly Irrigation Works in the Bombey


## E

Presidency, excluding Sind, during the year 1894-95.


[^4]Statement showing Incidence of Working Expenses and Assessed Wuter Retenwo

xxix
E.
on Canals in the Bombay Preèidency, excluding Sind, during the year 1894-95.


Statement of Quantity and Value of Crops irrigated in the Bombay Presidency, excluding Sind, during the year 1894-95

|  | ${ }_{\text {Nira }}{ }^{(1)}{ }_{\text {Canal. }}$ |  | (2) Measvad Tane. |  | (5) <br> Hithmti Canal. |  |  |  |  |  |  |  |  |  | (B)Pravara RiverWorkh-hakhCANAL. $\|$ |  | $\text { Motha } \stackrel{(9)}{\text { Canals. }}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Area irrigated. | Estimated Falue. |  | $\begin{gathered} \text { Estimated } \\ \text { Value. } \end{gathered}$ | $\begin{gathered} \text { Area } \\ \text { irri- } \\ \text { gated. } \end{gathered}$ | Estimated Value. | Area irrigated. | $\left\|\begin{array}{c} \text { Estimat- } \\ \text { ed } \\ \text { Value. } \end{array}\right\|$ | Area irrigated. | $\left.\begin{gathered} \text { Estimat- } \\ \text { ed } \\ \text { value. } \end{gathered} \right\rvert\,$ | Area gater. |  | $\begin{aligned} & \text { Area } \\ & \text { irri- } \\ & \text { gated. } \end{aligned}$ | Estimat${ }^{\mathrm{Ad}}$ Value | Area gated. | $\left\lvert\, \begin{gathered} \text { Estimat- } \\ \text { od } \\ \text { oduc. } \end{gathered}\right.$ | Arem gated. | Estimated Value, |
|  | Acres. | Re. | Acrea, | Rs. | Acres. | Rs. | Acres. | Rs. | Acras. | Rs. | Acres. | Re. | Acres. | Rs. | Acres. | Rs. | Acres. | Re. |
| Gnrdens Urelhards nd $\left\{\begin{array}{l}\text { Vegetahles .... } \\ \text { Fruit and other irees }\end{array}\right.$ | 313 | 8,710 7,910 | 63 51 | 1,060 3,315 | 1 |  | 39 681 | $\begin{array}{r}711 \\ 38,415 \\ \hline 11\end{array}$ | 56 18 | 1,960 $\mathbf{0 9 0}$ | 16 2 | 660 110 | 8 | 105 165 | 78 28 | 2,610 | 71 691 | $\begin{array}{r} \mathbf{3 , 7 4 0} \\ \mathbf{1 , 4 1 , 4 6 2} \end{array}$ |
| Sugarcano | 4,320 | 8,16,005 | 321 | 80,250 | 88 | 5,700 | 187 | 11,567 | 267. | 26,700 | 67 | 6,700 | 18 | 1,800 | 88 | 6,040 | 8,277 | 19,05,528 |
| (Whont ... ... ... | 3,174 | 56,245 | 657 | 19,710 | $3: 2$ | 9,360 | 551 | 8,119 | 450 | 11,400 | 180 | 4,500 | 87 | 2,175 | 34 | 1,190 | 298 | 0,871 |
|  | $\cdots$ | 50,246 <br> 7395 | 27 92 92 | $\begin{array}{r}15,270 \\ 3,840 \\ \hline\end{array}$ | $\begin{array}{r}4.2 \\ \hline 1.789\end{array}$ | 30,375 43,475 | $\cdots 38$ | $\cdots 646$ | $\cdots 24$ |  | $\cdots$ | $\cdots 60$ | $\cdots$ | , |  | 1,100 | 28 |  |
|  | 308 6 | 7,395 70 | 292 29 | 3,840 2,220 | 1,739 40 | 43,475 600 | 39 51 | 646 1,600 | 24 2 1 | $\begin{array}{r}720 \\ 20 \\ \hline\end{array}$ | 2 <br> 1 | 60 10 | $\ldots$ | ... | $\cdots$ | ${ }^{-5}{ }_{50}$ | 284 | 6.711 |
| Cercals ... $\left\{\begin{array}{l}\text { Naive } \\ \text { Jowar } \\ \text { and }\end{array}\right.$ | 11,114 | 2,22,280 | 2,072 | 31,000 |  |  | 2 | 17 | 1 | 8 |  | 24 | $\ldots$ | ... | 22 | 440 | J, 634 | 30,680 |
| Chino, Ration Rala, Wara... | -1196 | 2,2,2960 | 266 | 5 | 263 | 5,260 | 3 | 13 |  |  | 3 |  | $\cdots$ |  | 88 | 1,869 | -10 | 230 |
| \| R4jri | 5,306 | 31,105 | 27 | 270 | 30 | $\cdots$ | 27 2 | 412 25 | 31 | 310 310 | ${ }_{8}^{1}$ | ${ }_{80}{ }^{\circ}$ | 6 4 | 60 10 | 23 | 322 | 870 28 | 15,060 800 |
| (Miscellaneous ... |  |  | $\cdots$ | ... | 30 | ... |  |  | 31 |  |  |  |  | 40 | - | $\cdots$ |  |  |
| Gram, Udid, Mug... | 2,480 | 37,000 | 197 | 1,970 | 1,192 | 23,840 | 20 | 241 | 85 | 3,275 | 16 | 240 | 17 | 255 | 23 | 562 | 813 | 11,883 |
| Puter ${ }^{\text {Tur... }}$... | 17 | 680 |  |  | $\cdots$ | $\ldots$ | 858 | 11 2,989 | $\cdots$ | $\ldots$ | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | - | $\cdots$ |  |  |
|  | 1.668 | 73,845 | 411 | 20,650 | $\cdots$ | $\ldots$ | 888 542 | - $\mathbf{1 3 , 9 8 9}$ | $\stackrel{\square}{63}$ | 19,388 | 169 | 0,084 | 344 | $\underset{\text { B,184 }}{ }$ | $\cdots$ | $\ldots$ | ${ }^{-9} 4$ | 7,105 |
| Miscollaneods … |  |  | ... | ... | ... | ... | ... |  | $\cdots$ | ... | $\ldots$ | ... | ... | ... | ... | -.. | 4 |  |
| Fodder Crope . Fodder ... ... |  |  | 9 | 450 | $\cdots$ | ... | 7 | 62 | 63 | 1,020 | 15 | 225 | $\cdots$ | $\ldots$ | 3 | 187 | ${ }_{184}^{31}$ | 818 80,175 |
| Fodder Crope - ${ }^{\text {L Lucerne, do. ... }}$ | 289 | 6,750 | ... | ... | ... | ... | 1 |  | $\cdots$ | ... | $\cdots$ | ... | $\ldots$ | ... | $\ldots$ | .- |  |  |
| Fibres ... ... $\left\{\begin{array}{l}\text { Cotton } \\ \mathrm{Tag}(\mathrm{Hemp})\end{array}\right.$...... | 2 2 | 50 20 | $\cdots$ | $\ldots$ | $\ldots$ | $\ldots$ | ${ }_{4}^{225}$ | 1,834 20 | 113 | $\ddot{7,695}$ | 82 | $\cdots 880$ | -24 | ${ }^{860}$ | $\ldots$ | $\ldots$ | ... | $\ldots$ |
| Dyes ... ... ... ... ... | $\cdots$ | -.. | ... | ... | $\cdots$ | ... | $\cdots$ | $\cdots$ | $\cdots$ | ... | $\cdots$ | ... | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | .. | ... |
| Prugn and Nar- \{ Toherco ... ... |  | 180 | 10 | 600 | $\cdots$ | ..- | 1 | 11 | 1 | 28 | ... | $\ldots$ | $\cdots$ | ... | \% |  | 7 | 260 |
| cotice ... (Bhang ... ... | 10 | 250 | ... | ... | ... | ... | $\cdots$ | . | ... | ... | $\cdots$ | ... | ... | ... | 8 | 736 | ... | ... |
| Oilsceals $\ldots$ Mrasturd, Sranm .. | $\cdots$ | $\cdots$ | 2 |  | 17 |  | 33 | 500 | $\cdots$ | $\cdots$ | $\ldots$ | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | ... | $\cdots$ | $\cdots$ |
| Oirscend $\cdots$ - ${ }^{\text {Linsecal, }}$ Castor-oil | ... | ... |  |  | 17 | $6 \times 0$ | 11 | 75 | ... | ... | ... | $\cdots$ | -.. | .". | $\cdots$ | ..' | ... | $\cdots$ |
| Condimente ${ }^{\text {a }}$ Chilly and Oninns ${ }^{\text {a }}$... | 268 | 13,440 | 19 | \%60 | $\mathrm{i}^{2}$ |  | 41 | 951 | 58 | 3,640 | 54 | 3,510 | ${ }^{2}$ | 130 | 35 | 2,062 | 95 | 3,978 |
| Condimente ... \{ Garlic,Turmeric andMethi | ... | ... | ... | .. | 150 | 5,950 | 37 | 322 | 308 | 4,860 | $2^{23}$ | 1,035 | 19 | 855 | $\cdots$ | ... |  |  |
| Miscollaneous... .. | 61 | -.. | $\because$ | ... | ... | $\cdots$ | ... | ... | 31 | 105 | ... | ... | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | 127 | 2,987 |
| Land insufficiently irrigated... | ... | ... | ... | *** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2 | ... | $\ldots$ | ... |
| Total | 23,370 | 12,83,125 | 4,226 | 1,64,895 | 4,199 | 1,05,370 | 2,790 | 82,348 | 1,851 | 73,978 | 589 | 23,628 | 327 | 13,129 | 310 | 15,092 | 10,0k2 | 21,64,028 |
| Arra on which conmolidated asesesment in leviel ... ... ... ... ... | ... | -. | -.. | ... | ... | -* | ..* | ... | ... | ... | $\ldots$ | ... | ... | ... | $\ldots$ | ... | $\ldots$ | ... |

III-E-carlinued'


1II-E-continued.

|  | Ma'rona | 19) ${ }_{\text {dank. }}$ | EA'stad | DI TAME. | $\operatorname{simin}_{\substack{i(2) \\ T A}}$ | 21) vphal NE. |  | 22) alva'di NX. |  | (23) rhasor ank. | Astri | $\begin{aligned} & (24) \\ & \text { II TINE. } \end{aligned}$ | $\operatorname{RevA}^{\prime} \mathbf{R}_{\mathrm{R}}^{2}$ | (25) Canal. | $\underset{\text { RIVER }}{\text { UPre }}$ | (26) (2a'm Woris. |  | (27) River oation orks. |  | I8) Canal. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - | $\begin{gathered} \text { Area } \\ \text { irri- } \\ \text { gated. } \end{gathered}$ | $\begin{gathered} \text { Estimated } \\ \text { Value. } \end{gathered}$ | Area | $\begin{gathered} \text { Estimat- } \\ \text { ed } \\ \text { ealue. } \end{gathered}$ | $\begin{gathered} \text { Area } \\ \text { irri- } \\ \text { gated. } \end{gathered}$ | $\begin{gathered} \text { Estimat- } \\ \text { ed } \\ \text { value. }^{2} \end{gathered}$ | Area itrigated. | $\begin{gathered} \text { Estimat- } \\ \text { value }_{\text {ed }} \end{gathered}$ | $\begin{gathered} \text { Ares } \\ \text { irri- } \\ \text { gated. } \end{gathered}$ | Esimat Value. value | $\begin{gathered} \text { Aren } \\ \text { irri- } \\ \text { gated. } \end{gathered}$ | $\begin{gathered} \text { Estimat- } \\ \text { ed } \\ \text { Value. } \end{gathered}$ |  | EstimatValue. | $\begin{gathered} \text { Area } \\ \text { irri- } \\ \text { gated. } \end{gathered}$ | $\begin{gathered} \text { Ettimat. } \\ \text { ed } \\ \text { eduef } \end{gathered}$ | $\begin{gathered} \text { Area } \\ \text { irri. } \\ \text { gated. } \end{gathered}$ | EstimatValue. | Area irrigated | $\begin{aligned} & \text { Entimat- } \\ & \text { ed } \\ & \text { Valuo. } \end{aligned}$ |
|  | Acres. | Re. | Acres. | Re. | Ac | Rs. | Acres. | Rs. | B. | $\begin{aligned} & \text { Rs. } \\ & \cdot 80 \\ & \cdot 100 \end{aligned}$ | Acres ${ }^{\text {- }}$ | Rs. | Acres. | Re. | Acres. | Rs. | Acres. | Ins. | Acres. | $\mathrm{R}_{\text {s. }}$ |
|  | $\cdots$ | 7,883 |  | $\cdots$ | 29 | 4,057 | " 8 | 3,643 | -2 -1 |  | 14 | 120 1,400 | 61 | 2,318 $\mathbf{3 3 1}$ | 33 <br> 3 | 5120 120 | 36 22 | ${ }_{8}^{600}$ | :.: ${ }^{5}$ | $\ldots$ |
| Sugarcano ... ... | 4833814681302129915 | 1,60,672 | ... | ..* | 148 | 49,476 | ... | $\cdots$ | 48. | 14,400 | 120 | 36,000 | 84 | 1.532 | . 113 | 2,373 | -68 | 1,700 | 34 | 9,380 |
|  |  | 7.6301.1441,167 | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | 17 | 691 | 9 | 225 | 237 | 6,675 | 187 | 6,570 | 372 | 0,208 | 294 | 6,184 | ${ }^{30}$ |  |
|  |  |  |  |  |  |  |  | $\ldots$ | $\cdots$ | 75 | 365 | $\cdots$ | 29 | 728 | ${ }^{26} 8$ | 312 112 |  |  |  | $\stackrel{1.131}{\square}$ |
|  |  |  | $\ldots$ |  | ... | $\cdots$ | 266 | 3,992 | $167$ | $8, \ddot{34}$ | 68 |  |  |  | 72 | J,296 | 28 | ${ }_{368}^{80}$ |  |  |
|  |  | $\begin{array}{r} 4,825 \\ 13 \\ 5,506 \\ 540 \end{array}$ | $\ldots$ | ... |  |  |  |  |  |  | ${ }^{643}$ | 1,360 | 470 | 11,776 | 45 | , 675 | 708 | 14,060 | 60 |  |
|  |  |  | . | ... | $\ldots$ | $\ldots$ | $\cdots$ | $\cdots$ | 3 | 30 | ${ }_{6}$ | 311 | $\cdots$ | , | 28 | 130 | 8 | 20 | 7 | 3,630 102 |
|  |  |  | $\cdots$ | $\ldots$ | $\cdots$ | $\cdots$ | ... | $\cdots$ | ... | -.. | ${ }^{6}$ | 150 | $\cdots$ | $\cdots$ | 11 | 89 | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ |
|  |  |  | ... |  | ... |  |  | ... |  |  | 11 | 650 | ... | ... |  | ... | ... | $\cdots$ | $\cdots$ | $\cdots$ |
| Gram, Udid, Mug | 90 | 2,129 | $\cdots$ | ... | $\cdots$ | $\cdots$ | 7 | 137 | 7 | 175 | 157 | 3,925 | 10 | 157 | 105 | 1,050 | 284 | 2,292 | 7 | 136 |
| Pulaca ... ... $\left\{\begin{array}{l}\text { Tur } \ldots \text { Peas } \\ \text { Pr } \\ \text {... }\end{array}\right.$ |  |  | ... | ... | ... | ... | $\cdots$ | ... | $\cdots$ | $\cdots$ | 24 | 600 | $\ldots$ | $\cdots$ | ${ }^{\cdots} 1$ | 11 | ${ }^{17}$ |  | $\cdots$ | ... |
|  |  | $\ldots 7$ | $\ldots$ | ... | $\ldots$ | $\ldots$ | $\cdots$ | $\ldots$ | 718 | $4 ; 720$ | 330 | 5,440 | ${ }_{653}$ | 3,986 | 171 | 3,420 | 861 | 17,220 | 191 | 8,404 |
| Miscellancous ... | ... |  | $\cdots$ | $\cdots$ | ... | $\cdots$ | ... | $\cdots$ | $\cdots$ | ... | ... | ... | $\cdots$ | ... | ... | $\cdots$ | 1 | ${ }^{8}$ | ... | ... |
| Fodder Crops... $\left\{\begin{array}{l}\text { Fouliter } \\ \text { Lucerne, } \\ \text { a } \\ \text { c. }\end{array}\right.$ | $\cdots$ | $\cdots$ | $\ldots$ | $\ldots$ | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | $\ldots$ | $\cdots$ | $\cdots$ | 173 | 3,114 | 8 | $11{ }^{8}$ | $\ldots$ | $\cdots$ |
|  | $\cdots$ | $\ldots$ | $\ldots$ | $\cdots$ | $\cdots$ | $\ldots$ | $\ldots$ | $\ldots$ | $\cdots$ | $\cdots$ | $\cdots$ | $\ldots$ | $\ldots$ | $\ldots$ | $\cdots$ | .... | ... | $\cdots$ | ... | $\cdots$ |
| Dyes ... ... ... ... | $\cdots$ | -.. | ... | $\cdots$ | $\cdots$ | ... | . | ..' | $\cdots$ | ... | $\cdots$ | ... | . | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | ... | $\cdots$ |
|  | ... | $\ldots$ | ... | $\because$ | $\cdots$ | $\cdots$ | $\ldots$ | $\cdots$ | $\cdots$ | $\cdots$ | 9 | 360 | $\cdots$ | $\cdots$ | 1 | 15 | $\ldots$ | $\cdots$ | $\ldots$ | $\cdots$ |
| - |  | ... |  | $\cdots$ | $\cdots$ | ... | ... | ... | ... | $\cdots$ | $\ldots$ | $\cdots$ | ... | $\cdots$ | - | ... | $\ldots$ | $\cdots$ | ... | $\cdots$ |
| Oil-meeds $\quad . . \begin{aligned} & \text { (Mnstand, Seanm } \\ & \text { Linaced, Camtoroil }\end{aligned}$ | $\cdots$ | ... | $\cdots$ | $\ldots$ | $\cdots$ | $\ldots$ | $\cdots$ | $\ldots$ | $\cdots$ | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | .... | $\ldots$ | ... | ... | $\ldots$ | ... | ... |
|  |  | 841 |  |  |  |  | 1 | 23 | 6 | 240 | 93 |  |  |  |  |  |  | 640 |  |  |
| Condimeats ... \ Garlic, Turmeric and Methi |  |  | $\cdots$ | ... | $\ldots$ | ... | $\ldots$ | ... | 27 | 1,215 | $\cdots$ |  | 16 | 1,345 | 2 | 20 | 4 | 92 | 37 | 802 |
| Miscellancoua ... ... | 2 | 56 | 1 | 12 | $\cdots$ | ... | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | ... | ... | ... | ... | 4 | ... | 5 | ... | ... | ... |
| Land insufficiently irrigated ... ... | $\cdots$ | ... | ... | ... | ... | ..- |  | ... | $\cdots$ | ... | ... | ... | ... | ... | ... | $\ldots$ | ... | ... | $\ldots$ | ... |
| Total | 1,420 | 1,91,529 | 1 | 12 | 177 | 63,533 | 299 | 8,486 | 391 | 24,600 | 1,4.59 | 72,065 | 1,541 | 29,507 | 1,294 | 20,081 | 2,346 | 43,890 | 405 | 23,331 |
| Area on wich conbolicizted essesmment is levied ... | $\ldots$ | ** | - | $\cdots$ | $\cdots$ | ... | ... | ... |  |  | $\cdots$ | ... | $\cdots$ | ... | $\ldots$ | ... | $\cdots$ | ... | ... | $\cdots$ |

III-E—concluded.


Comparatice Statement of Irrigation and Rainfall for the years $1 S 3894$


## E.

and 1834-95 in the Bombay Presidency, excluding Sind.


## STATEMENT F.

Statemont thowing the Operation of Irrigation Works in the Deccan and Gujarat for the year 1894-95.


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I-F.
Slatement shocing Water-rates per Acre in force during 1894-95 on Irrigation Works in the Bombay Presidency, axcluding Sind.


STATEMENT G.
Statement showing Areas and Water-rate Aasessments during $1894-95$ according to the systems of classification adopted in fixing the Scale of Wrater-rates.

 traetione in come crans, nnd

STATEMENT H.
Statement showing Operations of the year 1894-95.


## STATEMENT G.

Statement showing Areas and Fater-rute Assezsments daring $1834-95$ according to the ryatem of classification adoptod in fring the Scale of Drater-pates.

 traciumared of ecrizin raten.

STATEMENT II.
Statement showing Operations of the year 180.4-95.


## PARTI.

## MAJOR WYORLS.

## PROTECTIVE IRRIGATION WORKS.

(1).-NIRA CANAL.

On the 31st March 1894 the culturable area commanded by the distributaries

Gross, culturable and irrigable areas. in operation was 183,862 acres, the same as in the previous year. Under the explanation of the terms gross area, culturable area, and irrignble area recently given by Government, an alteration in the figures in Statement I-A. becomes necessary. The gross area commanded by complete project is 274,447 acres. The culturable area under command of the complete project is 227,670 acres. The irrigable area, or in other words the irrigating capacity of the work, ascertained from the maximum discharging eapacity of the canal and an assumed duty of water, has been estimated at 56,640 acres, vide paragraph 28 of the Nira Canal printed report. This is therefore entered as the area irrigable by complete project. The existing distributaries are able to carry more than the full discharge of the canal, and, therefore, the irrigable area at present is the same as for the complete project. The construction of the two end distributaries, i.e., Nos. 60 and 61 , would increase the culturable area to the maximum, but would not increase the irrigable area.

During the year no fresh area was brought under command, though the head regulators of three distributaries were enlarged to accommodate increased irrigation.
2. The total-area irrigated during the year was 28,370 acres. The following table gives the figures for the last sis years:-

| Xearr. |  | Kharit, | Rabi. | Total. | Water-ratea assessed. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Acres. | Acres. | Acree. | Rs. |
| 1889-90 ... | ... | 9,819 | 12,111 | 21,930 | 24,688 |
| 1890-91 ... | ... | 8,920 | 7,993 | 16,913 | 36,226 |
| 1891-92 ... | $\cdots$ | 9,593 | 19,268 | 28,863 | 66,300 |
| 1892-93 ... | ..' | 11,104 | 7,142 | 18,246 | 60,036 |
| 1893-94 ... | - | 13,556 | 10,947 | 24,503 | 83,703 |
| 1894-95 ... | $\cdots$ | 12,349 | 16,021 | 28,370 | 90,864 |

3. The total area irrigated was 3,867 acres more than in 1893-94. The kharif season showed a decrease of 1,207 acres, chiefly due to reduction in area of sugarcane crops. The rabi season showed an increase of $5,07 \pm$ acres, due to the scanty rain during the rabi season in this district.
4. The excess of the measured area over that applied for, as shown in the following table, was 7,398 acres. The difference is due to the fact that cultivators are in the habit of entering in their applications only the minimum area they can be charged for, and irrigating generally much more. Measures are being taken to check this : -

B 1340-1
(1).- mira canalu.


Rainfall.
5. The rainfall during the year was very scanty in the rabi season and compares with the last two years as follows :-

| Yearn, |  |  |  | Kharii. | Rabis | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Inches. | Inches. | Inches. |
| 1892-93 | $\ldots$ | . | - | 21.34 | 10\%7. | 32.01 |
| 1893-94 | ... | ... | . | $10 \cdot 20$ | $5 \cdot 63$ | 15.83 |
| 1894-95 | ... | ... | $\cdots$ | 13.62 | $4 \cdot 13$ | 17.75 |

Nort, -The kharif and rabi rainfall 13.62 and $4 \cdot 13$ shown in the above table is correct. The fall of 9 cents and 160 was through oversight not included in the figures shown agsinst Nira Canal in Irrigation operation Statements for firat half of October 1894 and 6 rst half of January 3895, respectively, and the comparative Statement of Irrigation and Rainfall for 189t-95.
The following table shows the total rainfall of the kharif and rabi seasons at different stations along the canal :-

6. The first flood in the Nira river occurred on the 15 th July, and water was not drawn off from Bhátghar reservoir until the 10th November 1894. Water was stored successfully to a level of 3 feet above weir crest, giving a storage of 4,300 millions of cubic feet, and proved largely in excess of requirements.
7. The monthly average discharge at head of the canal is given below. The first column shows the average struck on the number of days the canal was actually open, and the figures correspond with those reported in the monthly statements of irrigation, while the second column gives the mean average discharge for the month ascertained by dividing the total quantity of water by the full number of days in the month:-

| Hortha, |  | A verage actual discharge taken on number of day. | Hean discharge taken on full number of day in month. |
| :---: | :---: | :---: | :---: |
| April |  | 162 | 162 |
| May... | ... | 184. | 142 |
| June | ... | 181 | 151 |
| July ... | $\cdots$ | 246 | 199 |
| August. | ... | 308 | 248 |
| September | ... | 245 | 225 |
| October | ... | 257 | 223 |
| November | ... | 247 | 247 |
| December | ... | 393 | 380 |
| January | ... | 250 | 228 |
| February | . 0 | 216 | 147 |
| March | ..' | 186 | 186 |
|  | y av | 239 | 211 |

Working Expenses.
8. The working expenses, including direct and indirect charges, amounted to Rs. 53,588 .
With 96 miles of main canal in operation, this gives a rate of Rs. $558 \cdot 21$ per mile, and it includes the maintenance of 132 miles of distributaries. The cost of maintenance per acre irrigated was less than last year, the rate being Rs. $1 / 89$ against Rs. 2.53 and Rs. 3.22 of the two previous years. The working expenses included a sum of Rs. 1,770 for special repairs, which consisted in strengthening the banks by puddled-earth cores in places where they were found to be unsafe or leaky, due to the nature of the soil of which they were originally made. This charge will appear again nest year and perhaps in the year following, and by that time all these leaky places will have been made perfectly sound.
9. The gross revenue from all sources amounted to Rs. 92,709, consisting of Rs. 90,864 for water rates assessed on the total irrigated area of 28,370 acres and Rs. 1,845 from other sources. The rate of assessment thus works out at Rs. $\mathbf{3} \cdot 20$ per acre against Rs. $3 \cdot 42$ of the previous year.

Deducting Rs. 53,588 for working expenses, and Rs. 33 for remissions sanctioned during the year, from the gross revenue Rs. 92,709 , the net revenue was Rs. 39,088 or Rs. 16,014 more than that of the previous year.
10. The expenditure on plantations was Rs. 1,232 , and receipts amounted to

> Plantations,
R. 548. The trees were not counted during the year.
11. The cost of measuring the irrigated area was Rs. 1,844 giving a ratc Cost of measurement. - of 1 anna per acre against 1 anna and 4 pies in the previous year.
12. The figures in Statement $I-E$, showing the duty of water during the

Duty of water. kbarif and rabi seasons, show merely the average of all sorts of crops actually irrigated per cubic foot of dis charge at the head of the canal for the two seasons, but give no guide to the setual quantity of water required for any given acreage of a certain class of crops.

The duty of the whole discharge at head of canal was taken for certain periods in the rabi and kharif seasons, the results of which are as follows :-

| Perlod taken. | $\begin{gathered} \text { A verage dis. } \\ \text { charge of } \\ \text { head, leas waste. } \end{gathered}$ | $\begin{gathered} \text { Actual } \\ \text { irrigated. } \\ \text { irrel } \end{gathered}$ | Cropa irrigated. | Duty. |
| :---: | :---: | :---: | :---: | :---: |
| 10th December 1894 to 10th January 1895. | $\begin{gathered} 323 \text { cubic } \\ \text { feet per } \\ \text { second. } \end{gathered}$ | 17,383 | Rabi, pereucial, 8 months kharif, 4 months kharif. | 54 |
| 1st to 2Sth February 1895. | 147 | 5,538 | Perennial, 8 months kharif. | 38 |

During these periods the area under irrigation was very carefully recorded and the results arrived at may be depended on.

The supply in the second period was practically for perrennial crops, chiefly sugarcane. The low duty is due to some of the sugarcane being situated at a great distance from the head, the loss by leakage in the canal being very great. As long, however, as the supply is in excess of the demand, there is no object in checking the perennial irrigation in the lower reaches of the canal. Every endeavour will be made to develope this class of irrigation as close to the head as possible and so increase the duty of water.
13. During the year special experiments to ascertain the quantity of water. cousumed by sugarcane crops were carefully carried out, a crop conveniently situated near the head of a small distributary being chosen for the purpose. Two days before water was required for the crop, the cultivators gave notice to the sub-divisional officer, who then arranged to be present during the time of watering. The supervisor was present at three-fourths of the total number of waterings, and the remainder were watched by an intelligent Inspector. At each watering the total quantity of water used was accurately gauged by means of a carefully constructed triangular notch at the field head, the supply being kept constant by means of the head sluice of the distributary. No other crops were allowed to take water during the time the one under experiment was being watered. Similar arrangements were made on other distributaries. The results of these experiments are tabulated below.

| $\begin{gathered} \text { Area } \\ \text { Ander } \\ \text { conmand. } \end{gathered}$ | $\left.\begin{gathered} \text { Number } \\ \text { of } \\ \text { wateringa. } \end{gathered} \right\rvert\,$ | Total quality of water given. | Average watering | $\begin{gathered} \text { Period } \\ \text { of } \\ \text { irrigation. } \end{gathered}$ | Duty per at field. | Outturn. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A. 8. | - | Cubic feet. |  | Dass. | Acres, | Lbs. |
| 118 | 24 | 270,216 | 11,259 | 314 | 145 | 11,280 |
| 10 | 34 | 214,835 | 6,319 | 340 | 137 | 5,850 |

The outturn of both the crops was abnormally low.
Experiments of this nature will be repeated.
14. The daty of water passing down five principal distributaries was obtained during the rabi season by daily gaugings. The period of observation was from 15th October to 28th February and the results are here given:

15. The total area under command was 183,862 acres, and of this 6,7 per cent. was irrigated during the kharif season and 8.7 per cent. daring the rabi season.
16. The most noticeable feature of the year was the large area of rabi

General remarks. irrigation, the cause being plentiful rain favourable for sowing operations and scarcity afterwards. The eight and four months' kharif was rather lessthan in the previous year, and the perennial irrigation, which promised to increase solargely, received a severe check, owing to the poor outturn obtained and to the low market rate for molasses. There were various reasons for this; in several cases unsuitable soil irrigated for the first time kept the cane stunted, and in others the cultivators were new to the sort of irrigation required. The groundnut area, as anticipated, was less than last year, being altogether 1,568 acres.

During the year the depth of water admitted into the canal wás 7 feet, and the banks stood well, except in the weak and leaky places near Limbodi and Kurra, which are now being well strengthened by means of the puddle hearting, extending from full supply level down to firm soil. An improvement in this puddle has also been made by means of an addition of $\frac{1}{3}$ rd part of fine sand, which seems to prevent cracking when the canal is dry.

Several portions of roads available for the transport of produce, but which had been damaged by canal leakage, were put in good order, and by degrees others will be taken in hand.

## (2).-MHASVAD TANK.

The rainfall for the year under report was $15 \cdot 71$ inches (kharif $11 \cdot 29$ and Rainfall. rabi 4:42), against $17 \cdot 30$ inches of the previous year (kharif $11 \cdot 28$ and rabi 6.02 ), and was seasonable.
2. The lowest level reached by the water was R. L. $1919 \cdot 70$ on the 2 nd Replenishment. June, and then the tank commenced to fill. On the 2nd October water began to flow through the cut, which had been made in the waste weir to prevent danger of slips in the dam, and the R. L. of which was $1931 \cdot 64$, and continued flowing until the 28 th November.
3. The area irrigated during the year was 4,226 acres (of which 1,207 were Area irrigated. kharif and 3,019 were rabi crops), against 5,283 acres of the previous year (kharif 3,907 and rabi 1,376 ). The area applied for was 3,533 acres (kharif 1,037 and iabi 2,496 acres), or 693 acres less than that actually measured. The difference is about 20 per cent., and is due to the cultivators being ignorant of the areas of their fields.
4. There was no increase in water-rates during the year. The assessment on account of water-rates amounted to Rs. 13,869, against Rs. 21,492 of the previous year. The gross revenue from all sources was Rs. 16,134, against Rs, 22,490 of the last year.

Comparison with previous years.
5. The figures for the previous years, since the opening of the canals,: are given in the following state-ment:-

| Years. | Kharif. | Rabi, | Total. | Water rate assessment. | Gross Revenue from all sources, | Working expenses. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Acres. | Acres. | Acres, | Rs. | Rs. | Rs. |
| 1886-87 | 617 | 727 | 1,344 | 1,030. | 1,825 | 11,812 |
| 1587-88 | 1,717 | 2,144 | 3,861 | 5,897 | 6,883 | 15,618 |
| 1888.89 | 2,965 | 3,139 | 6,104: | 12,733 | 12,875 | 13,269 |
| 1889-90 | 4,074 | 2,718 | 6,792 | 14,969 | 16,327 | 12,285 |
| 1890-91 | 4,081 | 3,025 | 7,106 | 13,541 | 14,241 | 12,729 |
| 1891-92 | 3,544 | 4,760 | 8,301 | 25,457 | 26,10.1 | 12,633 |
| 1892-93 | 3,561 | 1,438 | 4,997 | 19,997 | 20,613 | 15,121 |
| 1893-94 | 3,907 | 1,376 | 5,283 | 21,492 | 22,490 | 22,060 |
| 1894-95 | 1,207 | 3,019 | 4,226 | 13,869 | 16,134 | 28,460 |

There was a- decrease of 2,700 acres in tharif and increase of 1,643 acres in rabi during 1891-95, as compared with the previous year. The decrease in kharif ras due to the lowering of the rater-level in the tank, by opening a portion of the waste weir in order to facilitate the remaking of the river portion of the dan, which work was in progress in the monsoon of 1894. The increase in the rabi area was the result of unfavourable rainfall. The incidence of raterrate per acre was Rs. $3 \cdot 28$, against Rs. $4: 07$ of the previous year.
6. The rainfall over 480 square miles of catchment area of the tank mas

Tank sapply. gauged at five stations. The average rainfall from 1st June to 31st October 1894 was $18 \cdot 36$ inches, which gave 20,474 millions cubic feet of rater on the catchment area. The run-off is calculated to have been 0.098 of the rainfall from 1st June to 3 lst October 189t, and 0.103 of the rainfall from 1st June to 2nd October, on which date the waste weir began to overflow. The supply in the tank at R. L. $1931 \cdot 64$ (cut in waste weir), or $15 \% 9$ feet above the sill of the canal sluice was sufficient for the irrigation of about 5,000 acres up to 31st March 1895, without calculating on further rain.
7. The working expenses, including direct charges, amounted to Rs. 23,460 .

Working expenses. The expenditure on maintenance and repairs amounted to Rs. 5,892 . The length of canals, branches and distributaries being 94 miles, this represents a charge of Rs. $62 \cdot 63$ per mile against Rs. 80 of the previous year.
8. The area irrigated was measured at a cost

Measuring charges.

Daty of water. of Rs. 610, or Re. 0.2-3 per acre against Re. 0-3-10 of the previous year.
9. Special experiments to determine the duty of water per acre of different crops were made, and the result was as under:-

| Number of Plot. | Name of Crop. |  | Quaptity of water required for oue Acre to mature the crop. |
| :---: | :---: | :---: | :---: |
|  |  |  | C. feet. |
| 1 | Sugarcano | * | 282,426.07 |
| 2 | Wheat Jôd | ... | 40,411 86 |
| 3 | Wheat | ... | 47,422-36 |
| 4 | Barley | ... | 36,522.00 |

Plantations.
10. At the end of the year, the numbers of trees above and below' 5 feet in height on this work were :-

|  |  | Above 5 feet. | Below 8 feet. |
| :---: | :---: | :---: | :---: |
| Bábal | ... | 9,545 | 9,079 |
| Nimb | ... | 3,046 | 1,174 |
| Mango ... | ... | 419 | 368 |
| Tamarind . $\quad$. | ... | 14 | 17 |
| Chandan | ... | 4 | 12 |
| Nimboni ... | . ${ }^{\text {a }}$ | - $\quad .0$ |  |
| Bori | .." | 497 | 478 |
| Guava ... | ... | 24 | 12 |
| Miscellaneous | ... | - 2,146 | 737 |
|  |  | 15,695 | 11,875 |
|  |  | 27,570 |  |

There was no expenditure on plantations, except for renewing aloe fencing in places, which cost Rs. 28. The ground along the channels being chiefly muram, the plantations are not generally in a flourishing state.
11. The evaporation could not be ascertained, as the water in the tank Evaporation and absorption. was allowed to pass through the cut in waste weir and canal to ensure the safety of the dam.
12. The particulars in regard to the leaks that occurred in the dam, and the steps taken to prevent the dam being carried away, were given in the Revenue Report of last year. The work of remaking the affected portion of the dam with better material and constructing two drains from centre of the dam to rear slope, in order to prevent accumulation of water, was completed in March 1895. The cut in the waste weir, $\mathbf{6}$ feet in depth, is to be raised by 2 feet every year, and the work is in progress.

## PRODUCTIVE PUBLIC WORKS.

## (5).-HATHMATI CANAL.

The rainfall during the year under report was 50.74 inches in the kharif
Rainfall. and 0.21 inches in the rabi season, against 48.94 and
Rainfall. - 2.05 inches, respectively, during the previous year. The average of the last five jears was as follows:-

2. The areas irrigated are contrasted in the

Area irrigated. table below with those of 1893-94:-

| ${ }^{\circ}$ |  |  | Kharif. <br> Acres. | $\begin{aligned} & \text { Rabi. } \\ & \text { Acres. } \end{aligned}$ | Total. Acres. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1893-94 | ... | ... | 1,259 | 2,442 | 3,701 |
| 1894-95 | ... | ... | 1,797. | 2,402 | 4,199 |

Ansessments.
3. The assessments were as follows :-

4. Although the rainfall was nearly the same as in the previous year, the total area irrigated exceeded that of the previous year by about 500 acres. The increase is wholly under kharif, and seems to bear out the remark made in last year's report that it is not the rainfall alone, but also the growing appreciation on the part of the cultivators of a regular and steady supply of water, to which the improved results are due. There was a sufficient supply available in the canal and there was no difficulty in complying fully with the demands of the cultivators.


Remissions.
6. Of the total of Rs. 120 shown in the accounts as remissions, Rs. 85 rrere on account of free grants.
7. The areas applied for and irrigated were as under :-

|  |  |  | Kharif. | Rabli, | Total. |
| :--- | :--- | :--- | ---: | ---: | ---: |
| Applied for | $\ldots$ | $\ldots$. | 1,512 | 1,820 | 8,332 |
| Irrigated | $\ldots$ | $\ldots$ | 1,997 | 2,402 | 4,199 |

The difference is due to the inability of cultivators to estimate correctly what areas they will irrigate, and also to the fact that lands within 200 yards of the canal and benefited by percolation are assessed, no application for water being, from the nature of the case, necessary for them.
8. The miscellaneous revenue realized during the year amounted to Rs. 1,196 against Rs, 1,169 in the previous year.
9. The areas irrigated were measured by the ordinary establishment

Measuring charges. employed on the canal (charged to Revenue establishment) at a total cost of Rs. 141, or 6 pies per acre irrigated, against 7 pies per acre during the previous year.
10. The average water rate per acre irrigated during the year was Rs. 3.50 , as compared with Rs. $2 \cdot 46$ during the previous year.
11. The working expenses of the year, as com-

Working expenses. pared with those of the previous year, were as follows :-

|  | Yeara, |  | Extensions and | $\mathrm{Ma}_{\text {aintenance }}$ and Repairs. | Estabishment including indirect charges | Tools and Plant. | Total. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Rs. | Rs. | Rs. | Rs. |
| 1893-94 | $\cdots$ | ... | ** | 4,269 | 1,743 | 13 | 0,025 |
| 1894-95 | ... | $\cdots$ | ... | 4,331 | 1,750 | 6 | 6,087 |

The rate per acre irrigated was Rs. $1 \cdot 45$ for the year under report against Rs. 1.63 in the previous year, which shows a decrease of nearly. 18 per cent. There would have been a slight reduction in the working expenses but for some special repairs which were executed at a cost of Rs. 144. The average amount spent on silt clearance from the commencement, including the year under report, was Rs. 576 , or Rs. 11.3 per mile on a length of canal and distributaries of 51 miles,
12. No reliable data cap be given regarding the duty of water. The canal Daty of water. has been gauged for a series of years, and the results show that about 50 per cent. of the water is lost by absorption and evaporation in the first ten miles, where there is practically no irrigation. The average discharge gauged at the head during the kharif season was 62 cubic feet per second. Out of this only about 31 cubic feet per second reached the first distributary. Assuming the quantity consumed during the kharif season to have heen 30 cubic feet per second, the duty was 58 acres per cubic foot of discharge against 36 acres in the previous year. This was due to increased irrigation. In the rabi season the average discharge at the head for the year was about 62 cubic feet per second, the area irrigated being 2,402 acres. Allowing the same percentage for loss by absorption, the result is 77 acres per cubic foot as against 65 acres for the previous year.
13. Sugarcane cultivation is increasing near Parántij. The area under this crop during 1893-94 was 17 acres, and during the year under-report 33 acres.

## (6):-LOWER PA'NJIIRA RIVER WORIS.

These works have been in operation for the past 23 years.

[^5]2. The gross area under command is 13,117 acres, of which the irrigable area at present is 12,627 acres.
3. The source of supply of water to the irrigation is principally the Sources of supply. Pínjhra river. If the natural supply of the river falls short of requirements, it is supplemented by the Mukti tank storage. During the year under report the river supply was deficient in the hot season. The tauk supply was therefore let out for 50 days from 18 th April to 6th June 1894. In the monsoon and cold weather succeeding it, the river supply was sufficient.

4. The available storage in the tank at the commencement of the year was $\begin{array}{ll}\text { Tank supply. } & 227.56 \text { million cubic feet, which, after delivering water } \\ \text { for irrigation for } 50 \text { days by a daily discharge varying }\end{array}$ for irrigation for 50 days by a daily discharge varying from $25 \cdot 20$ to 4.59 cubic feet per second, went down to $132 \cdot 94$ million cubic feet before the tank had its first replenishment on the 8 th June. The highest level reached by the water was on the 27 th October when the quantity of water impounded was 309.94 million cubic feet, or 32.46 million cubic feet short of the full contents of the tank, viz $342 \cdot 4$ million cubic feet. At the close of the yearthe storage in the tank was 237.56 million cubic feet.
5. The area irrigated during the year amounted to 2,790 acres, of which 1,762

Aren irrigated. acres were in the land classed as mámul bágáyat and - 1,028 acres in the dry-crop land under the survey settlement.
6. The mámul bágáyat irrigation is detailed in the following table by villages and by seasons:-

| Numler | Villages. |  |  |  |  | Area under settlement. <br> . |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Kharif. | Rabi. | Total. |
|  |  |  |  | . | . |  |  |  |  | Rs. |
| 1 | Dhulia ... | ... | $\cdots$ | ... | ... ... | 311 | 209 | 102 | 311 |
| 2 | Nimkhedi | .. | ... | $\cdots$ | ... $\cdot \cdot$ | 151 | 124 | 25 | 149 |
| 3 | Japi ...' | ... | ... | ... | .. $\cdot \cdot$ | 147 | 129 | 18 | 147 |
| 4 | Nahálod | ... | ... | ... | .. | 279 | 186 | 93 | 279 |
| 5 | Kaothal... | ... | ... | ... | ... ... | 167 | 95 | 72 | 167 |
| 6 | Mándal | ... | ... | $\ldots$ | $\ldots$... | 238 | 145 | 93. | 238 |
| 7 | Mudhi ... | ... | ... | ... | ... ... | 124 | 96 | 28 | 124 |
| 8 | Betávad |  | ... | ... | .. ... | 347 | 245 | 102 | $3 \pm 7$ |
|  |  |  |  |  | Total ... | 1,764 | 1,229 | 533 | 1,762 |

This is the same as was irrrigated last year. Two acres were lying fallow at Nimkhedi.
7. The first five villages in the above table are in Dhulia Táluka, where the revision settlement has not yet been declared. The areas are according to the old settlement. Hour of these pay the enhanced water-rate to the Irrigation Department for the benefit of the ensured water-supply from the Mukti Tank constructed after the settlement, The 'ifth is a Jaghir village. The question of the operations of the revision survey at the 6th and 7th villages, in the table in paragraph 6, still remains unsettted. At Betávad, the last village in the table above referred to, water-rates on káyam bágáyat land are directly credited to the Irrigation Department, as well as the irrigation share of consolidated revenue. on the thal land.
10. The following table shows the irrigation of dry-crop landin the villages under command:-

| Number. | Villages. |  |  |  |  | Kharit. |  | Ribi. |  | Total. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | 1593. | 1894. | 1883. | 1894. | 3893. | 1594. |
|  |  |  |  |  |  |  |  |  |  | R\%. | Rs. |
| 1 | Mahindle | $\ldots$ | $\cdots$ | . $\cdot$ | ** | 7 | 6 | $\cdots$ |  | 7 | 6 |
| 2 | Dhulia | ... | ... | - | ... | 9 | 6 | 2 | 3 | 11 | 9 |
| 3 | Kimdana | ... | ... | ... | . $\cdot$ | 1 | ... | $\cdots$ | $\cdots$ | 1 | ... |
| 4 | Nimkhedi | ... | ... | ... | ... | ... | 2 | $\cdots$ | 1 | $\cdots$ | - 3 |
| 5 | Japi | ... | ... | ... | . | $\cdots$ | 3 | 7 | 5 | 7 | 8 |
| 6 | Nahálod | ... | ... | . $\cdot$ | . $*$ | 14 | 30 | 119 | 61 | 133 | 91 |
| 7 | Kaothal | ... | ... | ... | ... | $\cdots$ | . | 4 | 4 | 4 | 4 |
| 8 | Mohadi | . ${ }^{\text {, }}$ | $\cdots$ | $\therefore$ | . $\cdot$ | 42 | 76 | 255 | 194 | 297 | 270 |
| 9 | Mandal | . $\cdot$. | . $\cdot$ | .. | ... | 45 | - 49 | 96 | 73 | 141 | 122 |
| 10 | Mudhi | ..* | . ${ }^{\circ}$ | ... | ... | 86 | 88 | 75 | 55 | 161 | 143 |
| 11 | Bodarda | ... | ... | ... | , | 32 | 13 | -32 | 37 | 64 | 50 |
| 12 | Walkheda | . ${ }^{\circ}$ | ... | ... | ... | 154 | 118 | 135 | 128 | 289 | 246 |
| 13 | War | ... | ... | ... | . | 3 | 2 | ... |  | 3 | 2 |
| 14 | Betávad | ... | . $\cdot$ | ... | - | 71 | 70 | 39 | 4 | 110 | 74 |
| 15 | Padleavad | ... | . ${ }^{\prime}$ | ... | ... | 7 | -•• | 3 | - $\cdot$ | - 10 | $\cdots$ |
|  |  |  |  | Total |  | 471 | 463 | 767 | 565 | 1,238 | 1,028 |

This irrigation is assessed under the crop rates sanctioned from time to time. The present scale of rates will be found in Statement I-F. The areas unider this irrigation fluctuate according to the nature of the rainfall, and the inclination and means of the irrigators. During the year under report there was a decrease of 17 per cent. in the areas irrigated, as compared with the previous year with only 1 per cent. of increase in the rainfall. The monsoon dry-crop and the eight months' crops have decreased in the year. Similarly the rabi area has also decreased on account of timely rainfall: a little more than half of the previous year's wheat areas required water.
11. The total rainfall during the year was 18.62 inches, gauged at Rainfall. the dam site, against 18.48 inches of the previous year, and 22.83 inches the average of $21^{\circ}$ years. The year's rainfall by seasons was as under in comparison with the fall of the previous year:-


On the whole there was nearly 1 per cent. increase, which was in the klawif season, and consequently the eight months' and monsoon areas have decreased. The rabi rain of the year was only $\frac{1}{3}$ of the rabi rain of previous year, but it fell in October and made the wheat crop independent of the canal water.
12. The following is a classification of the areas

Classification of area irrigated. irrigated in dry-crop land during the year, according to the tates levied :-

|  |  | Eharif. |  | Rabi. |  | Total. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1894. | 1893. | 1894 | 1893. | 1894. | 1893. |
|  |  | 201 | 163 |  | ... | 211 | 163 |
| ${ }_{2}$ Eight months |  | 234 | 273 |  |  | 237 | 273 |
| 3 Four do. |  | 1 |  | 552 | 767 | 553 | 767 |
| 4 Monsoon ... |  | 17 10 | 23 12 | ... | ... | 17 10 | 23 12 |
|  | Total | 483 | 471 | 565 | 767 | 1,028 | 1,238 |

Only 290 acres of wheat were irrigated against 522 acres of previous year.
Gross Revenue.
13. The year's assessments amounted to Rs. 17,759 as under:-

|  |  | Rs. |
| :---: | :---: | :---: |
| On old irrigation or káyam bagáaat land. On new irrigation or dry-crop land ... | ... | 13,036 |
|  | ... | 4,193 |
| Miscellaneous ... ... ... | ... | 530 |
| Total $\cdot . . . \quad 17,759$ |  |  |

against Rs. 17,847 of the previous year. The small decrease of Rs. 88 was due to falling off in the dry-crop land irrigation.
14. The average rates per acre, were :-

|  |  |  |  | Rs. a. p. |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Old irrigation | ... | ... | ... | ... | 7 | 6 | 5 |
| New irrigation | ... | ... | ... | ... | 4 | 1 | 3 |

The new irrigation has paid more than last year owing to the increase in the highrated perennial crops.
15. The remissions during the year amounted to Rs. 104, on account of the

Remissions,
penal rate levied upon the kayam bágáyat land in the villages of Mudhi and Mandal, which was degraded to jiráyat. The irrigators had no knowledge of the degradation and the penal rates charged were remitted. ${ }^{\circ}$

17. There were no outstandings of revenue.


The difference is due mostly to the jiráyat portions of káyam bágáyat lands in Mudhi and Mandal, which are watered without applications. The cause of this has been explained in previous reports.
19. The cost of measurement of crops irrigated in dry-crop land during Mesaring crops. the year was Rs. 41-12-8 against Rs. 55-6-3 of the previous year, and the rate per acre 8 pies against 9 pies. $\therefore$
20. The working expenses of the year, including refunds of revenue Working expenses. Rs. 1,883 , amounted to Rs. 8,569 against Rs. 4,952 last year. The increase was due to the charge for construction establishment now apportioned equally on all revenue works in the district in proportion to the outlay on works and repairs on each, and a large refund of revenue which was assessed at penal rate on the irrigation at Mudhi and Mandal referred to in para. 15 above. The establishment charges have increased on this work but there has been a corresponding decrease on the second class Revenue works, the charge on which used to be heavy under the old method of apportionment. The mininum establishment is maintained, and there is no margin for reduction.
21. Special experiments were made during the year to find out the duty Duty of water. of water in the rabi season. A record was kept of the water actually given to wheat and pea crops in the village of Nahálod. The results are given below:-

| Villagen | Survey Number. | Crops irrigated. | Area irrigated. | Number of watering given. |  | Total quantity of water used per Acre. | Duty of water in acrea per cubic ft. per second of discharge running during the rali besson of 4 monthe ( $1: 3$ days). | Remarks. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | A. g. |  |  |  |  |  |
| Nahálod ... $\{$ | 170 132 | Pea. | $\begin{array}{ll}0 & 12 \\ 0 & 37 .\end{array}$ | 2 1 | 10,692 16,092 | $\begin{aligned} & 35,640 \\ & 17,397 \end{aligned}$ | $\begin{aligned} & 295 \\ & 611 \end{aligned}$ | Owing to raiu one watering sufficed. |

22. The following figures represent the calculated loss by evaporation and Eraporation and abborption. absorption from the Mukti Tlank, after making deduc-. tion for leakage ganged below the dam :-


Plantations.
23. The number of trees on this work at the end of the year was 4,126 .
290 full-grown bábul trees and 4 tamarind trees were sold by auction, and 13 plants of sorts destroyed by white ants.

The expenditure on 'plantation during the year was Ms . 223, which raises the total expenditure to end of the year to Rs. 7,039.

## (7).-KADVA RIVER SYSTEM.

The Wághad Tank has been for the last ten years in partial operation. As the waste weir has not been constructed as yet, the full supply level of the water rises from 15 to 18 feet short of the designed full supply level. At the close
 Tank. of the monsoon a temporary bank is thrown across the waste weir channel, and from 5 to 8 feet additional storage above the level of waste weir can be obtained from the rain which usually falls in October.
2. From April 1st to June 1st, 1894, a period of 61 days, the tank was continuously drawn upon to feed the canals. The expenditure of water from the tank was 81.18 millions cubic feet. The flow in the river was 4.60 millions cubic feet. Thus during this period 86 millions cubic feet were used in watering 442 acres (vide Irrigation Operations Statement). The duty calculated on these data is 27 acres per cubic feet per second.
3. Of the 86 millions cubic feet, only 72 millions cubic feet passed into the canal; showing a loss of 14 millions or 16 per cent. in 14 miles, i.e. $2 \cdot 66$ cubic feet per second, or 0.19 cubic feet. per second per mile.
4. In the canal itself, experiments made in March showed that 41 per cent. was lost by evaporation and percolation. Deducting the loss by evaporation and percolation and 15.61 millions cubic ft. for tail discharge from the Ojhar Támbat Distributary to the Ojhar Támbat Canal, we have 26.87 millions cubic feet actually irrigating 359 acres on the Palkhed Canal. The duty thus arrived at is 70 acres per cubic foot per second.
5. At the head of the Wadali Canal the quantity of water derived from springs

Wadáli Csnal. between the Pálkhed and Wadáli weirs was $24: 31$ millions cubic feet. Deducting 36 per cent. for loss by evaporation and percolation, or 8.75 millions cubic feet, the remainder, 15.56 millions cubic feet, is the quantity of water utilized on 60 acres (of which 41 acres is the thal irrigation); the duty therefore is 20 acres per cubic foot per second. This result is not so good as on the Pálkhed Canal.
6. In the Ojhar Támbat Canal the quantity at the head was 16.07 millions

Ojhar Támbat Canal. cubic feet; deducting 29 per cent. for loss by̆ eyaporation and percolation, or 4.66 millions cubic feet, the remainder, $11 \cdot 41$ millions cubic feet, is the quantity used on 83 acres, which gives a duty of 38 acres per cubic foot per second.
7. The tail flow of the Palkhed Canal was all utilized and no water was

Pallhed Canal. allowed to run to waste. The above consideration shows that water was economically used and, as there are no complaints of insufficiency, the management may be regarded as good. The balance of water left in the tank on 13th June, when the sluices were closed, was $65 \cdot 82$ millons cubic feet, or sufficient for irrigating 433 acres of sugarcane on the Palkhed Canal.
8. There was no replenishment to the tank during the hot weather. On the

## Replenishment. 4th July, after $10 \cdot 19$ inches of rain had fallen at Wághad from the beginning of the monsoon, the tank began

 to overtow, and the waste weir water continued to run until the 6th of October, when the temporary bank was begun. The water begins to flow in the waste weir channel at R. L. 110.00 , at which level the storage is $197 \% 64$ millions cubic feet. The temporary dam brought the -water level to R. L. 113•13, giving a storage, at the beginning of the new season, of $247 \cdot 34$ millions cubic feet.9. By February 21st, 1895, the natural supply had fallen so low that it was necessary to supplement it from the tank, the discharge from which was at first $\$$ cubic feet per second, increased to 14 cubic feet per second from the 25 th of March.
10. The duty for the rabi season is worked out for the Palkhed Canal as follows:-

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11. The quantity of water flowing at the head of the Palkhed Canal amounted to 215 millions cubic feet, and that received from the river, including Wághad Tank discharge, was 202 millions cubic feet. The difference of 13 millions cubic feet may be due to springs or flow through the sand at the river ganging site,
12. From 215 millions cubic feet, deducting 40 per cent. or 86 millions cubic feet for loss by evaporation and percolation, and $30 \cdot 40$ millions cubic feet, as the tail discharge of Ojhar Támbat distributary let into Ojhar Támbat Canal, the net quantity of water utilized was 98.60 millions cubic feet, irrigating 1,587 acres, of which 285 acres were under perenuial crops.

The duty for the rabi season (including the watering of hot weather crops) works out therefore to 189 acres per cubic feet per second.

Taking the perennial duty at 70 acres, arrived at for the hot weather, the duty for rabi crops alone, excluding perennial crops, works out to 228 acres.
13. On the Ojhar Támbat Canal the quantity by the

irrigating 543 acres, the duty being thius 134 acres per cubic foot per second.
14. The quantity of water flowing at the head of the Ojhar Támbat Canal amounted to $48 \cdot 75$ millions cubic feet. The excess of $1 \cdot 17$ millions culic feet is probably due to springs.
15. From $48 \cdot 75$ millions cubic feet, deducting 25 per cent., or $12 \cdot 19$ millions cubic feet, for loss by evaporation and percolation, the quantity of water utilized was 36.56 millions cubic feet, irrigating 543 acres. The duty for the season thus arrived at is 175 acres per cubic foot per second.
16. On the Wadáli Canal the discharge at the head amounted to 65.59 millions cubic feet, during the. rabi season. Deducting 33 per cent., or $.21 \cdot 74$ millions cubic feet, for loss by evaporation and percolation, the remainder, $44 \cdot 15$ millions cubic feet, was used for irrigating 590 acres, including the area under perennial crops, giving a duty of 157 acres per cubic foot per second.
17. The rainfall in the tank basin was $62 \cdot 61$ inches against the average $52 \cdot 72$ inches. Over the irrigated area the total, $27 \cdot 83$ Rainfall. inches, is in excess of the average, 25.37 inches, for the last 21 years.
The distribution according to seasons was :-

| Locality of gavge. |  | Kharif. | Nabi. | Total. |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Inches. | Inches. | Inches. |
| Pallhed | -. | 20.68 | 4.70 | 25.38 |
| Niphad | ... | 23.83 | $6 \cdot 45$ | $30 \cdot 28$ |

The monsoon season was characterised by insufficient fall at the beginning and favourable rainfall at the end. At Pálkhed there was no rain after the 27 th October.
18. During the year water applications for $2,5 \pm 7$ acres were received and the area actually irrigated was 2,767 acres, the discrepancy being due to the approximate character of the areas as given in the water applications.
19. The following table shews the area and assessment by seasons of irrigated land, exclusive of permanent bígáyat:-

1894-95.

| Cansls, |  | Axas, |  |  | Assessment. ${ }^{\text {a }}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Kharif. | Rabj. | Total. | Kharif. | Rabi. | Total. |
| Palkhed Canal ... Wadáli Canal ... Ojhar Támbat Canal |  | - Acres. | Acres. | Acres. | Rs. | Rs. | Rs. |
|  |  | 688 | 1,163 | 1,851 | 3,914 | 3,435 | 7,349 |
|  | A. | 72 | 255 | 327 | 274 | 770 | 1,044 |
|  | ... | 222 | 367 | 589 | 1,082 | 1,030 | 2,112 |
|  | Total | 982 | 1,785 | 2,767 | 5,270 | 5,235 | 10,505 |

20. The following table shews the average of the previous four years:-

| Canala. |  | Areas. |  |  | Assessment. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Eharif. | Rabi. | Total. | Kharif, | Rabi, | Total. |
|  |  | Acres. | Acres. | Acres. | Rs. | Rs. | Rs. |
| Pálkhed Canal | ... | 713 | 1,316 | 2,029 | 3,725 | 3,396 | 7,121 |
| Wadali Canal ... | - | 139 | 228 | 367 | 574 | 593 | 1,167 |
| Ojhar Támbat Canal | ... ... | 122 | 244 | 366 | 621 | 637. | 1,258 |
|  | Total | 974 | 1,788 | 2,762 | 4,920 | 4,626 | 9,545 |

The areas being nearly the same, the increase in assessment, due to increase in crops assessed at higher rates, is satisfactory.
21. The following table shews the areas of principal crops for the year Principal crops irrigated. under review, compared with the average of the preceding five years:-

| Name of crops. |  |  | year 1894.95. $\qquad$ <br> Acres. | Average of five preceding years. <br> Acres. | Increase. <br> Acres. | Decrease: <br> $\Delta$ cres. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |
| Wheat ... |  |  | 723 | 926 |  | 203 |
| Groundnats |  | ... | 846 | 774 | 72 |  |
| Gram ... | $\cdots$ | ... | 118 | 176 |  | 58 |
| Sugarcane | ... | ... | 352 | 258 | 94 | ... |

22. The total area irrigated shows a decrease of 9 per cent. as compared with that of the previous year, but is almost the same as the average of the preceding four years.
23. The most noticeable features of the year are that owing to the favourable rainfall at the beginning of the rabi season and the subsequent attack of red blight, the irrigated wheat crops on the three canals are much less than in the previous year. There mas however no diminution of the wheat area cultivated. The same remark applies to gram also. The increase in sugarcane on the Palkhed Canal is the result of an anticipated rise in the market price of coarse
sugar. The increase of 20 acres in sugarcane on the 0 jbar Támbat Canal may be attributed partly to the same cause and partly to the development of irrigation at the tail of the canal at Sukana.
24. The measuring of crops was carried out at a

Cost of mesarring crope. cost of Rs. 291 for 2,767 acres, which gives a rate of 1 anna 8 pies per acre.
25. The duty of water in the canals has been worked out in the remarks Duty of water. relating to the storage tank. When calculated aecording to the ordinary method, it varies from 58 to 75 for the kharif season and from 72 to 80 for the rabi season.
26. Special observations were taken of the quantities of water required for irrigating two fields of groundnuts and one of methi, and the results are given in the following statement:-

Statement showing results of crop experiments during the kharif and rali season of the year 1894-95, Pälkhed Canal.


Of these the groundnuts on the Pálkhed Canal required three waterings and those on Dikshi distributary two waterings only, the latter being irrigated in the rabi season. The methi orop had to be watered five times The result of these experiments showed that the quantity of water needed to bring one acre of crop to maturity was 23,365 cubic feet in the case of methi, and in the case of gram varied from 43,594 cubic feet on the Pallked Canal to 16,532 cubic feet on the Dikshi distributary.

Fpaporation and percolan tion from canal.
27. Observations were made in September, January, and March for ascertaining the loss by evaporation and percolation. The results are :-

| Canale, |  |  |  |  | Pbrcemtag of beaddigchagoz jout. |  |  | Rrmares, |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Kharif. | Rabi. | $\left\|\begin{array}{c} \text { Bot } \\ \text { westher. } \end{array}\right\|$ | Kharit. | Rahi. | $\underset{\text { weather }}{\text { Hot }}$ |  |
| Pálkhed ...: |  | -34 | .53 | .65 | 32 | 40 | 41 |  |
| Wedali . | ... | -18 | -27 | -24 | 25 | 33 | 36* | *Experiment mado |
| Ojhar Tambat | ... | $\cdot 15$ | -20 | $\cdot 29$ | 22 | 25 | 29 | in April 1835. |

28. The Pálkhed Canal was closed six times, and the Wadáli Canal five times for periods aggregating. 27 and 21 days respectively.
Canal closurea.
The Ojhar Támbat Canal was not formally closed, but the canal runs dry when water is shut off from the Palkhed Canal.
29. The total number of trees standing on the

Plantations. canals at the close of the year was 12,175. Of these the principal were as under:-


The expenditure during the year was Rs. 240 from the revenue account.
30. The usual works of maintenance and repairs

Maintenance and repairs were carried out during the year. No important work was undertaken.

Gross revenne.
31. The total assessment and the amount realized during the year are accounted for as under :-


The above figures include direct receipts as noted below:-

|  |  |  |  |  | Rs |
| :---: | :---: | :---: | :---: | :---: | :---: |
| (1) | Sale of Water ... | $\cdots$ | ... |  | 3 |
| (2) | Receipts from Plantation |  | ... |  | 26 |
| (3) | Do. from other Canal | roduce |  |  | 243 |
| (4) | Alluvial Galper land above | alkhed | for |  | 41 |
| (5) | Kent of Buildings | $\cdots$. | ... | ... | 5 |
|  |  |  |  |  | 318 |

32. The total maintenance charges on the three canals and the Waghad Tank during the year amounted to Rs. 16,534, divided as follows:-


As compared with the previous year the increase is chiefly in establishment charges, due to balance of establishment being distributed on this head in proportion to outlay, vide Government Resolution No. 222 A. I.-1312, dated 17th August 1895.

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The indirect charges also show an increase due to large establishment cbarges.

## (8).-PRAVARA RIVER WORKS-LAKH CANAL.

1. 'The area irrigated during the year was $\mathbf{3 1 0}$ acres, of which 138 wer $^{\text {e }}$

Area irrigated. under kharif and 172 acres under rabi crops. The tota l shows a decrease of 33 acres on the area of the last year. The area of kharif mas 62 acres greater and the area of rabi 95 acres less than in the previous year. The increase in kharif is due partly to deficient rainfall at sowing time and partly to the increase in the area of perennial and 8 months' crops. The decrease in the rabi area is due to the favourable and heavy rainfall in October.

Comparison of area applied 2. The following statement compares the area for and irrigated. applied for and irrigated during the year:-

|  | Year. | - | Eifabip, |  | Rabi, |  | T |  | Difperenct less Igri. Gatrio |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Applied for. | Irrigated. | Applied for. | Irrigat- | Applied for. | Irrigateḍ. | Kharif. | Rati, | Total. |
|  |  |  | Acrês. | Acres. | Acres. | Acres. | Acres. | Acres. | Acras. | Acres. | Acr |
| 1894-95 | . |  | 230 | 188 | 251 | 172 | 481 | 310 | 92 | 79 | 171 |

The area applied for but not irrigated is $35 \cdot 55$ per cent. of the total area applied for. Endeavours were made to lessen the possibility of such difference by promptly returning the applications to the applicants after sanction and by requiring daily inspection reports from the canal karkúns, and it is hoped that an improvement will be apparent in the current year.

Water rate assessments.
3. The water-rate assessments amounted to details rrere:-

$$
\begin{array}{llllll}
\begin{array}{llll}
\text { Kharifi } \\
\text { Ratii } & \ldots . & \ldots & \ldots \\
& & \ldots & \ldots . \\
& & & \\
& \text { Total } & \ldots 41 \\
\hline . .1,065
\end{array}
\end{array}
$$

4. The area irrigated per mile of main canal was kharif 6.00 and rabi $7 \cdot 48$ acres, and of main canal and branches was kharif $4: 26$ acres and rali $5 \cdot 31$ acres. The high cost of maintenance per acre is due to this very small duty per mile of canal.
5. The following table compares the area irrigat: ed and the revenue derived during the past thre years with those of the year under report :-

| . | Tear. |  | Area irrigated. | Revenue from water-rates. | Rbuaxkg. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | . |  | Acres. | Rs. | Rainfall from 1st April to 31st March- |
| 1831.92 | ... | ... | 508 | 1,509 | Incles. 1702 |
| 1892-93 | ... | ... | 158 | 532 | 32.41 |
| 1893 -94 | ... | ... | 343 | 1,078 | $2 \cdot 17$ |
| 1894-95 | ... | ... | 310 | 1,065 | 26.71 |

Water-rate per acre.
6. The incidence of water-rate per acre was Rs. $3 \cdot 44$ against $3 \cdot 14$ in the previous year.
7. The capital expenditure during the year amounted to Rs. 513 , and was

Capital account.

Working expenses. incurred in payment of compensation for land taken up for distributaries.

8 The working expenses amounted to Rs. 13,319 as detailed below, as compared with Rs. 3,426 in the previous year :-

|  |  |  | Rs. |  |
| :--- | :---: | :---: | :---: | ---: |
|  |  |  |  |  |
| Maintenance and repairs... | $\ldots$ | $\ldots$ | 2,142 |  |
| Share of establishment | $\ldots$ | $\ldots$ | $\ldots$. | 9,634 |
| Tools and plant | $\ldots$. | $\ldots$ | $\ldots$ | 116 |
| Share of collection clarges | $\ldots$ | $\ldots$ | 78 |  |
| Indirect charges | $\ldots$ | $\ldots$ | $\ldots$ | 1,349 |
|  |  |  | Total | $\ldots$ |

The rate of working expenses per mile of main canal open was Rs. 579 , and per acre irrigated Rs. $42 \cdot 90$.

The excess was due partly to special silt clearance and partly to the fact that while in former years the balance of establishment charges after the usual shares had been delited to the works for which capital and revenue accounts are kept was debited to those for which only revenue accounts are kept; in the year under report no charge was made for establishment on works of the latter class on which there had been no expenditure, and thus the amount charged to works of the former class was largely increased.
9. The duty per cubic foot per second of water admitted into the canal

Duty of water was 3.98 acres in the kharif and 5.89 acres in the rabi season. That of water actually utilized was 4.26 acres in the kbarif and 6.76 acres in the rabi season. This exceedingly small duty is due to the great length of canal compared with the area irrigated, the loss by leakage and evaporation per mile being nearly constant, whether the area irrigated per mile is large or small.
10. The total cost of measuring 310 acres during the year was Rs. 32 , or one anna and eight pies ner acre against one anna and four pies per acre in the previous year. The high cost
Costof measurement. is due to the very small areas for which water is taken by each cultivator.
11. The rainfall gauged at Malunja was $21 \cdot 40$ inches in the kharif and Rainfall . $\quad 4.24$ inches in the rabi season, total 25.64 inches, or years. The rainfall in January and February 1895, not included in the above figures, was 1.07 inches.
12. The supply of water in the Pravara River was sufficient to meet the requirements of the irrigators. In January 1895 a
Biver supply. temporary.earthen bund 2 feet high was constructed on the weir as usual to increase the back water during the hot weather of 1895-96.

Canal closure.
13. The canal was closed six times (for 38 days altogether) during the year for silt and weed clearance.

Plantations.
14. At the end of the year the number of trees on this canal was 22,932 . The numbers of principal kinds
were :-

| Bábul ... <br> Nimbhara | $\ldots$ | ... | $16,095$ | Mellingtonia |  | ... | ..' | 32 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Divi-divi | ... | ... | ... | 18 |
| Nimb | ... | ... | 1,447 | Moho | ... | ... | ... | 8 |
| Eore | ... | ... | 586 | Jámbhul | ... | ... | ... | 69 |
| Sandal |  | ... | 83 | Siras | ... | ... | ..' | 31 |
| Bakan ... | $\ldots$ | ... | 55 | Mango | ... | ... | ... | 35 |
| Tamarind | ... | .. | 14 | Bamboo | ... | ... | -.. | 98 |
|  |  |  | Miscella | 2,814, |  |  |  |  |

The total number in the previous year was 17,483 .

## (9).-MUTHA CANALS.

On the 1st April 1894 the water at Lake Fife was $17 \cdot 90$ feet abore the sills of Lake Fife. the canal sluices; the minimum level was reached on the 12th June, when the depth was $9 \cdot 17$ feet. The water began to rise on the 13th June and the lake filled to orerflowing on the 18th of that month. The highest flood ever recorded occurred on 21 st July 1894, when the water rose to R. L. $249 \cdot 52$ or $5 \cdot 45$ feet above finished crest lepel. The flood of July 1891 rose to R. L. $249 \cdot 17$. The highest recorded previous to 1891 was in July 1882, when the water rose to R. L. 248.87.

The standards and planks were fixed on the weir by the end of September, and water was stored to a depth of 4 feet above the finished crest of the weir.

The draw-off from the storage commenced from the 25th October, i.e. 10 days later than in the previous year. On the 31st Marcb 1895 the level of the water was 21.40 feet above sills of the sluices, or $3 \cdot 40$ feet higher than on the same date in 1894.

Assessments of revenue.
2. The assessments amounted to Rs. $2,47,954$ as detailed below :-

3. The area irrigated during the year was 10,082 acres, of which 7,562 Area irrigated. were under tharif and 2,520 under rabi crops. The total shows an increase of 1,823 acres on the area irrigated in the previous year.

The increase is chiefly due to increase in the area of monsoon dry-crops and rice, and also to deficient seasonable rainfall. An effort was made to induce the cultivators to try the cultivation of superior rice. Applications were received for nearly 500 acres, but when the time came for preparing the land and sowing, many of the cultivators beld back, with the result that only $28+$ acres were actually irrigated. This was chiefly due to the people being doubtful about the supply. The crops that were grown exceeded all expectations both as to outturn and quality of the grain. The value of the crops was also much greater than anticipated. The outturn was on the average $1 \frac{1}{4}$ khandis per acre, which for at rice crop anywhere is very fair. Arrangements have been made by the Agricultural Department for the supply of good seed, and it is hoped that the area will increase next year. The cultivation of rice during the monsoon, when the supply is only limited by the carrying capacity of the canal, will be of the greatest value. The area this year was small, but it proved that the supply was suflicient and the results generally were encouraging.

It is now intended to use the whole of the storage at Lake Fife for perenuial and 8 months' crops. The only other class of irrigation will be that obtained during the monsoon. In addition to the discharge required for perennial crops during the monsoon, the canal can carry an average of 100 cubic feet per second. As this will be utilized for rice and monsoon dry-crops, it is anticipated that the duty will not exceed 100 acres to the cubic foot per second. The irrigating capacity is therefore 6,500 (for perennial and 8 months) and 10,000 acres (monsoon) $=16,800$ acres as entered in Statement II-A.
4. The revenue derived from rater-supply of torns amounted to $\mathrm{R}_{\mathrm{s}}$. 04,760 , Water-mnpply of Towns. $\quad \begin{aligned} & \text { showing an increase of Rs, } 1,251 \text { on that of the prrc- } \\ & \text { vious year. This is chiefly due to an increaso in the }\end{aligned}$ supply to the Nilitary Department.
5. The improvements to the Poona water-supply works referred to in last New works. year's report were practically completed by the end of March. Two of the new filter beds were in working order; five new setlling tanks, roofing in of the pure water tanks with the exception of a small portion, the alteration in the pumping machinery, were all completed during the year. The results of these improvements which have been carried out at a cost of Rs. 1,58,573 are in every way most satisfactory.
6. While the alterations above referred to were in progress, it was neces-

Average consumption of water. sary to supply the greater portion of the Cantonment with water from the old north bank filter, from which it was not possible to measure the quantity supplięd. No accurate figures therefore of the quantity supplied can be given. During the coming year it will be possible to give the consumption by the new works, but until the supply to the Sudder Bazaar from the existing small filter bed from which the quantity cannot be measured is abandoned, and this section connected with the new works, the total quantity consumed cannot be ascertained with sufficient accuracy to be of any value. Estimates for increasing the size of the mains to enable the whole of the Cantonment and bazaars to be supplied from the new works were prepared and submitted for sanction during the year,
7. The working expenses of the year including Rs. 2,478 for refunds ofWorking oxponsea. revenue amounted to Rs. 82,187, as compared with Rs. 70,615 in the previous year.
The following table shows the analysis of the charges.

| Nsmer of Worka. | Maintenbnce and Repairs. | Establishment. | $\begin{gathered} \text { Toois } \\ \text { and } \\ \text { Plant, } \end{gathered}$ | $\begin{aligned} & \text { Refonds } \\ & \text { of } \\ & \text { Revenne. } \end{aligned}$ | Leave and Pension Allowances | Share of Collection Ohargea | Total. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1834-95. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| Muthe Canals ... | 19,930 | D. 4,136 <br> C. 12,514 | 3,759 | 2,478 | 2,975 | 6,330 | 52,422 |
| Pouna water supply | 13,806 | D. 2,172 <br> C. 10,071 | 2,604 | ". | 1,112 | ... | 29,765 |
| Total | 33,736 | 29,193 | 6,363 | 2,478 | 4,087 | 6,330 | 82,187 |
| 1833-94. |  |  |  |  |  |  |  |
| Matha Canals ... | 19,225 | D. 3,879 | 1,668 | 3,404 | 2,308 | 7,173 | 45,738 |
| Poons water supply | 11,822 | D. 2,385 <br> C. 8,723 | 1,025 | ... | 922 | ... | 24,877 |
| Total | 31,047 | 23,068 | 2,633 | 3,404 | 3,230 | 7,173 | 70,615 |

On the Mutha Canals the cost as shown above represents a rate for maintenance, administration, \&c. of Rs. 567.55 per mile (the total mileage in operation being 88 miles), and R. 4.95 per acre irrigated (the total acreage being 10,082.)
8. The excess in the working expenses as compared with the previous year due to increase in cost of maintenance of the Poona water-supply and to special is repairs to the water wheel, and to pumping by steam during alterations of mains. Excluding these special items the cost of maintenance was the same as in the previous year. The chief increase is, however, in the cost of establisbment and tools and plant. The establishment charges were heavier owing to decrease in the capital outlay and to the revised rule ordering 18 per cont. instead of 20 , as the charge to capitnl. The increase in tools and plant is due to cost of new meters and component parts of meters required for the Pooua water-supply.
9. Deducting the total net working expenses Rs. 79,709, plus Rs. 2,528

Net profta, the amounts of remissions and refunds sanctioned - 1340-6 during the jear, from the total earnings of Rs. 2,47,954,
the net profits from the work amount to Rs, $1,65,717$, or Rs, 2.53 per cent. on Rs. $65,56,489$, the total entire capital outlay to the end of the year.
10. The areas irrigated were ascertained by actual measurements, the Crop measurements. greater part of which were taken by measurers specially entertained for the purpose, and the remainder by an Inspector when time could be spared from his ordinary work, and from 9 to 12 per cent. of the area was checked by the Subordinate in charge. The cost of measurements amounted to Rs, 1,366 or at the rate of 2 annas and 2 pies per acre against 2 annas and 3 pies in the previous year.
11. The rainfall of the year along the canal varied considerably. The maxiRainfall. mum was 28.66 inches at Hadapsar and the minimum 13-14 inches at Kasurdi, as under:

|  |  |  |  | Eharif. | Rabi. | Total |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  | . |  | . |  |
| Hadapsar | $\ldots$ | $\ldots$ | $\ldots$ | 25.05 | 3.61 | 28.66 |
| Kasurdi | $\ldots$ | $\ldots$ | $\ldots$ | 11.84 | 1.30 | 13.14 |

The characteristics of the rainfall were that the kharif and early rabi rainfall. was favourable, and the late rabi on which the crops depended to bring them to maturity was scanty, resulting in an increase of the irrigation of rabi dry-crops.
12. A statement is appended giving the particulars of the water issued gratis or at reduced rates to various institutions in accordance with the orders issued by Government from time to time. From it, it will be seen that local institutions have received water during the year at

> Items capable of assessments for which the project doee not obtain credit.
13. The following is the comparison of

A rea actually irrigated compared with
area applied for. areas as applied for and those actually irrigated.

| Wutha Right Bank Canal ... Mutha Left Bank Canal... | Ares applied for. |  |  | Ares intigated. |  |  | - More. |  | Less, |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Kharif. | Rabi. | Total, | Kharit. | Babi4 | Total. | Eharif. | Rabi. | Kharit. | Rabi; |
|  | Acres | Acres | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. | Åcres. |
|  | 7,832 | 2,622 | 10,454 | 6,658 | 2,367 | 9,025 | ..' | ... | 1,174 | 255 |
|  | 868 | 44 | 912 | 904 | 153 | 1,057 | 36 | 103 | -0. | ... |
| Total | 8,700 | 2,666 | 11,366 | 7,562 | 2,520 | 10,082 | 36 | 103 | 1,174 | 255 |
|  |  |  |  |  |  |  |  | et ... | 1,138 | 146 |

In the case of the Right Bank Canal the area applied for was in excess of that actually irrigated. This is chiefly due to people applying for rice for which they were told water would be sufficient, but many of them being sceptical as to the water-supply abandoned the idea of trying the crop till they had seen the results of the undertakings of other more enterprising cultivators. On the Left Bank Canal, the excess of actuals over applications is probably due to over-e日timating the areas entered in the form of application.
14. Remissions amounting to Rs. 49 were granted during the year on account of erroneous assessments.
15. Refunds amounting to Rs. 2,478 were sanctioned during the year, of Refands. which Rs. 1,206 were on account of the use for irrigation of the surplus water from the Nána Pbadnavis' conduit togetber with the leakage from the Mutha Canal in the village of Vadgaon Budruk, táluka Haveli, Rs. 6 for short supply of water, and Rs. 1,266 on account of rebate given to the Indian Paper Mills Company for 77 days, for 56 days the supply having been insufficient to yield 60 horse-power and for 21 days the canal having been closed.
16. The plantations and canal fences were maintained as usual but the Plantations. trees were not counted, as the establishment was fully employed on other duties.
17. Gaugings to ascertain evaporation and leakage were taken for broken

Loss by ovaporation and absorption. periods in the months of April, May, June, and January, February and March 1895, or a total number of 156 days. During this period the loss amounted to 582,565,499 cubic feet or rather more than one-fifth of the total capacity of the lake above outlet level.
18. The following statetment shows the duty of water on the two canals for

Duty of water those months, during which correct figures regarding the discharge and area under irrigation were avail-able:-


It will be seen that the duty in the month of March 1895 (Right Bank Canal) is considerably lower than in the months of April and May 1894, although the area under irrigation is very nearly the same. This is chiefly due to the fact that during March the newly planted sugar-cane has to be given a large supply of water.

Experiment with sugarcene crop.
19. A careful record was kept of the quantity used for a crop of sugar-cane, by means of a gauge notch at the field. The following is a summary of results:-
Area irrigated $=4.77$ acres.
Quantity of water consumed $=1,539,199$ cabic feet.
Period of irrigation= 342 days.
Number of waterings $=26$.
Quantity supplied=0.052 cabic feet per second.
Duty to base of 342 days= $=92$ acres per cabic foot per second.
The quantity supplied was equivalent to a rainfall over the whole area of 89 inches.

## Poona Watre-scpply.

Statement showing water supplies given gratuitously or at reduced rates during 1894-95.

| To whom aupplied. | Quantity Bupplied | 4 mount pala | Value at 8 annes per 1,000 gallons, | $\begin{gathered} \text { Differenoe betwoen } \\ \quad \text { and } \$ \text {. } \end{gathered}$ | Benwerk. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 8 | 4 | 6 | - |
|  |  | Re. a. p. | Rs, a. p. | Re. ar p. |  |
| The Civil Surgeon, Sassoon Hospital... | $1,001,916$ 632670 | 18713 118 8 | 375 <br> 237 <br> 18 | 187136 |  |
|  | 632,670 | 11808 | 23736 | 1189 |  |
| Superintendent,   <br> Medical school Byramji Jijibhoy | 620,670 | 11658 | 232114 | 1165 |  |
| The Superintendent, Lunatic Aaylam. | 715,922 | 13433 | 26866 | 13483 |  |
| Secretary, Cantonment $\begin{gathered}\text { mittee:- } \\ \text { mom- }\end{gathered}$ |  |  |  |  |  |
| Do. New Modikharua) | J,201,918 | 225 5 | 450110 | 2255 |  |
| Do. (Beef Market) ... | 1,334,411 | 250 <br> 250 | 50066 | 250 B 3 |  |
| Do. (Malcolm Tank)... | 1,336,495 | 25096 | 50130 | 250 |  |
| Do. (Mutton Market)... | 1,321,488 | $247 \mathrm{J2} 6$ | $\begin{array}{llll}495 & 9 & 0\end{array}$ | 24712 |  |
| Do. (Asurkhána) ... | 1,414,910 | 26549 | $\begin{array}{llll}530 & 9 & 6\end{array}$ | 26549 |  |
| Do. (Batler Moholla)... | 1,425,330 | 26740 | 53480 | 26740 |  |
| Convent Schooln. ... ... | 375,840 | 7078 | 140146 | 7078 |  |
| Jumsetji Fountain ... ... $\quad .$. | 1,201,800 | 4009 | 450109 | 410100 |  |
| Houds in Booty street ... | 4,380,000 | ...... | 1,642 8 \% | 1,642 80 |  |
| Baxar Reservoir ... | 1,460,000 | ...... | 64780 | 5178 | - |
| Malcolm Tank ... | 2,920,000 | ...... | 1,095 00 | 1,095 0 |  |
|  |  |  |  | 6,829 811 |  |

(10),-EKRUK TANK.

The rainfall for the year under report was 20.18 inches (kharif 19.25 and

## Rainfall.

rabi 0.93 ), against 24.22 inches of the previous year
(kharif $15 \cdot 16$ and rabi $9 \cdot 06$ ), and was not seasonable for kharif crops. Owing to insufficiency of rain the tank did not fill during the year, the highest level reached being R. L. 1518407, or $3 \cdot 20$ feet below the waste weir.
2. The area irrigated during the year was 3,292 acres, of which 1,830 were Area irrigated. under kharif and 1,462 under rabi crops, against 2,889 acres of the previous year ( 2,217 kharif and 642 rabi). The area applied for was 2,763 (kharif 1,620 and rabi 1,143 ), or 529 acres less than the area actually irrigated. The cause of the discrepancy is that the cultivators are unable to estimate properly the area they propose to irrigate.
3. The assessment of water-rates amounted to Rs. 13,463, against Assessed revenne. Rr. 14,364 of the previous year. The gross revenue the previous year. The details of revenue other than water-rate are as under :-

4. The following table compares the figures of area, assessments and working expenses with those of the previous seven years:-

| Yearn. |  |  |  | Kharit, | $\mathrm{Rab}_{\text {abi }}$ | Total. | Water-rate Assessment. | Gross <br> Revenue. | Working Expenses. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\cdots$ |  |  | Acres. | Acres. | Acres. | Rs. | Rs. | Rs. |
| 1887.88 |  | ... | ... | 1,357 | 757 | - 2,114 | 6,651 | 13,784 | 15,953 |
| 1888.83 | ... | ... | ... | 1,620 | 1,356 | 2,976 | 7,652 | 15,209 | 14,666 |
| 1889-90 | ... | ... | ... | 1,335 | 1,199 | 2,534 | 9,441 | 18,532 | 13,231 |
| 1890-91 |  | ... | ... | 1,835 | 763 | 2,598 | 10,188 | 23,516 | 13,824 |
| 1891-92 | ... | ... | ... | 1,935 | 1,202 | 3,137 | 13,125 | 27,470 | 13,770 |
| 1832-93 |  | ... | ... | 2,425 | 613 | 3,038 | 14,760 | 23,830 | 27,043 |
| 1893-94 |  |  | ... | 2,247 | 642 | 2,889 | 14,364 | 24,357 | 26,411 |
| 1894.95 |  |  |  | 1,830 | 1,462 | 3,292 | 13,463 | 29,551 | 12,050 |

The falling off in kharif was due to a smaller area than usual of groundnut and rice having been irrigated, in consequence of a deficiency of rain in the early part of the year which checked the sowing of these crops, as the cultivators near Shelapur prefer rain to tank water at the time of sowing, though they take canal water for subsequent waterings. The increase in rabi was due partly to development of irrigation at the tail, and partly to unfavourable rainfall in this season.

The incidence of water-rate was 4.09 per.acre irrigated against 4.97 in the previous year.
Area irrigated, water-rato,
6. The area irrigated by each canal and water\&c., cn cach canal. rate assessment thereon were as follows:-

7. The working expenses including indirect charges amounted to Rs. 12,050.

Working expenses. . The item "Maintenance and Repairs" amounted to the canals being 48 miles.

Measuring charges.
8. The area irrigated was measured at a cost of

Rs. 557 , which gives a charge of 2 annas and 8 pies per acre.
9: The rainfall over 159 square miles of catchment area was gauged at Tank sapply. one place only, and amounted to 18.54 inches from 1st June 1894 to $31_{\text {st }}$ October 1894 . The run-off into the tank was estimated to be $0 \cdot 20 \pm$ of the rainfall.
10. Bábul trees grow plentifully on the tank margin and on the canals, and Plantations. $\quad$ form a good source of revenue, as there is alrays
demand for frewood at Sholdpur. Fruit trees have not yet commenced to yield a good revenue. 'The expenditure on account of plantations during the year was Rs. 1,107, and the revenue was.Rs. 9,008 , inclusive of the proceeds from other canal produce.

The numbers of trees above and below 5 feet at the end of March 1895 were as under:-

- 1340-7


11. The Right Bank Caral continues to be in an unsatisfactory condition. : General remarks. There is no bank on its upper side, and the rain water therefore enters the canal, and brings in a large quantity of silt which obstructs the free flow of water to the tail, and entails high maintenance charges. The revenue from this canal is not sufficient to justify a large expenditure upon its improvement.
12. Experiments were made during the year to ascertain accurately the

Daty of mater. quantity of water required to mature certain crops, and the results obtained were as under :-

| Plot <br> Xo. |  | Name of Crop. | Quantity of <br> water for one <br> acre in cobic feet. |
| :---: | :---: | :---: | :---: | :---: |

(11)--KRISHNA CANAL.

The construction estimate of the canal was closed on 31st March 1692, ride Government Resolution No. 75 W. I.-777, dated 14th May 1892, and the completion report was approved of in Government Resolution No. 12 W.I.-119, dated 22nd January 1894. The stop-gate on nála No. 21 referred to in the last jear's report was completed during the year, Rs. 206 being spent on it and charged to open capital sanction. The total capital outlay direct and indirect to end of the year was Rs. $8,64,892$.

By the completion last year of the Burli Branch Channel (see Administration Report), an additional area of 920 acres has been added to the cultirable area commanded.
2. The rainfall as ganged at Retre Budruk ( 16 th mile of the canal) comRasinfall. pares with the average of the previous ten years and with the fall of 1893-94 as under:-

| . |  | Average of ten years. | 1893.91. | 1891.95. |
| :---: | :---: | :---: | :---: | :---: |
| - |  | Inchen. | Inches. | Inches. |
| Kharif | ... | 17.20 | 14.50 | 20.52 |
| Rabi |  | $8 \cdot 17$ | 5.59 | $4 \cdot 63$ |
|  |  | 25.37 | 20.09 | 25.45 |

Showing an increase of 6.32 inches for the kharif over last year, but a decrease of nearly an inch in the rabi. The total of the year was about equal to the average, but the rabi fall was rather deficient.
3. The hot weather flow of the river in 1894 (April and May) was about River anpply. equal to the average. After that the supply was ample for all requirements down to January, but owing to the deficient late rainfall, the river discharge fell to below the average in February and March. There ras, however, no actual deficiency of supply until the hot weather of 1895.


Area.-As compared with the average of the previous four years, there was an increase of 300 acres in the kharif irrigation and a decrease of $9 t$ acres in the rabi. The kharif area was about the same as that of the previous year as is also the rabi. The total area shows a difference of 71 acres.

The area irrigated was 18 per cent. of the whole irrigable area and the measured area was 6 per cent. more than that applied for.

| Aree of lugarcane. |  | Area of Angarcase. |  |
| :---: | :---: | :---: | :---: |
|  | Acres. |  | Acres. |
| $1885-86$ | ... 8:2 | 1890-91 | ... 1,036 |
| 1886.87 | ... 907 | 1891-92 | ... 1,219 |
| 1387.88 | ... 1,089 | 1892-93 | $\ldots 1,319$ |
| 1888-89 | ... 1,144 | 1893-94 | ... 1,449 |
| 1889.90 | ... 1,023 | 1894-95 | ... 1,566 |

Assessments.-Kharif assessments show a substantial increase due to the steady progress of perennial irrigation on this canal, as will be seen from the marginal table. The figures in the statement show that the revenue from this canal is steadily rising. There were no remissions during the year.
5. The average water-rate per acre was Rs. 9.50 , as compared with 8.87

- verage wator-rate per acre.

Realizations and outstand- of the previous year, the increase being due to the larger area of the higher classes of crops.
6. The realizations of the year amounted to ing. Rs. 56,050 , against Rs. 36,836 of the previous year, and the outstandings were only Rs. 660.
7. The miscellaneous revenue amounted to Rs. 4,664 (Rs, 4,354 from Miscellaneong rerenne. plantations alone), against R. 1,419 of the previous year.

The plantation revenue is notable, being due to the thinning out of the babul trees on the banks of the canal.
8. The working expenses, including direct and

Working expenses. indirect charges, compare as under. for the last five years:-

| Particulars, | 1890.91. | 1801.82. | 1892-93. | 1893.91. | 1894-95. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Rs. | Ras: | Rs. | Rs. | Rs. |
| Works ... | 7,911 | 6,164 | 7,954 | 6,898 | 7,064 |
| Establishment ... ... ... | 3,023 | 2,683 | 3,530 | 3,571 | 3,086 |
| Tools and Plant . ... .. | 18 | 103 | 99 | 91 | 100 |
| Refand of Revenue | 6 |  |  | 1 | ... |
| Collection ... ... ... | 1,906 | 1,775 | 3,629 | 1,943 | 3,581 |
| Leave and Pension Allowances. | 423 | 376 | 494 | 500 | 432 |
| Total ... | 13,287 | 11,101 | 15,706 | 13,004 | 14,266 |

The actual outlay on works was about the same as in the previous year, but there was a saving of Rs. 485 on.establishment, of which Rs, 211 was due to diminished charge for revenue management. The excess of Rs. 1,641 on collection of revenue is rateably on the increased realizations of the year.

Cost of working per mile of canal and per acre irrigated.
9. The cost of working was:-

|  | Years. |  |  | Per mile of canal. | Per acre isrigated. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | R8** | Rs. |
| $\cdots$ | 1890.91 | -•* | $\cdots$ | 216 | $3 \cdot 36$ |
|  | 1891-92 | *** | ... | 182 | $2 \cdot 07$ |
|  | 1892-43 | ... | '*' | 255 | $4 \cdot 14$ |
|  | 1893-94 | ... | ... | 211 | $2 \cdot 75$ |
|  | 1894-95 | ... | ... | 223 | 3.05 |

The higher figures for the year are due to rather higher working expenses and to a less total area of irrigation. A better comparison would be between the working expenses and the total revenue. "The figures are:-"

|  | Years. | Grosa Revenue (assessed). | Working Expenses, | Per cent. | Surplun <br> Bevenue. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Re. | Rs. |  | Rs. |
| $1830-91$ | ... | 34,591 | 13,287 | $38 \cdot 4$ | 21,304 |
| 1891-92 | ... | 40,970 | 11,101 | $27 \cdot 1$ | 23,863 |
| 1892-93 | ... | 40,057 | 15,706 | 39.2 | 24,351 |
| 1893-94 | ... | 43,281 | 13,004 | 30.0 | 30,277 |
| 1894 -95 | ... | 49,041 | 14,266 | $20 \cdot 1$ | 34,775 |

Thus it will be seen that the percentage of working expenses to gross revenue for the year under report was the lowest of the series, except in the year 1891-92, when, however, little or no silt clearance was done.

The last column of the table above shows a steadily increasing net or surplus revenue, which is a very satisfactory feature in the working of the Krishna Canal during the last few years,

The sum at capital charge at end of the year was Rs, 8,64,892. The net revenue of the year amounted to Rs, $\mathbf{3 4 , 7 7 5}$, giving a return of 4.02 per cent. on the total capital outlay, direct and indirect, and rather more than covering the interest charge.
10. The cost of crop measurement was Rs. 767, equivalent to Re. 0-2-7 per Coat of measarement. acre irrigated
11. The average duty of water obtained was only 47 acres in the kbarif season and 22 acres in the rabi. The Executive Engineer has not explained these extremely low duties, but it was previously reported that the cause was probably duc to ample river supply and the number of uncontrolled distributary outlets.
12. The number of trees of all classes on the canal at the beginning of the year was 23;616, and in addition 600 new sapplings were planted. The number of trees cut and sold during the year was 1,524 . The balance at the close of the year was thus 22,692 . The net revenue from plantation was Rs. 4,354. The principal varieties of trees on the canal are:-bábul 19,715, mạgo 1,130, nimb 652, bamboo 508, and jámbul 286.
13. Enquiries are proceeding as to the feasibility of obtaining a moderate amount of storage, so as to secure the continuance of
General remarks. the progressive increase in the perennial irrigation. The limit of irrigation possibilities dependent on the natural flow of the Krishna river is fast being reached, and further development must follow in the direction of storage.

## MINOR WORKS AND NAVIGATION.

## (12).-KHA'RI CUT.

The rainfall during the year was 49.94 inches in the kharif and 1.39 inches in the rabi season, against 41.07 and $2 \cdot 41$ inches, respectively, during the previous year; the average of the last five years being as follows :-

|  |  |  |  | In. | Cts, |
| :--- | :--- | :--- | :--- | ---: | ---: |
| Kharif | $\ldots$ | $\ldots$ | $\ldots$ | 32 | 52 |
| Rabi ... | $\ldots$ | $\ldots$ | $\ldots$ | 0 | 81 |

2. The rainfall was favourable, and the Chandola tank, the main storage reservoir for irrigation, remained at the full supply level throughout the year. To this fact was due an increase of about 300 acres in the area irrigated, as compared with that of the previous year, as shown below :-

|  |  |  |  |  | Kharif. | Rabi. | Total, |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $1893-94$ | $\ldots$ | $\ldots$ | $\ldots$ |  | $\ldots$ | 1,760 | 26 | 1,786 |
| $1894-95$ | $\ldots$ | $\ldots$ | $\ldots$ |  | $\ldots$ | 2,053 | 35 | 2,088 |

3. The assessments excluding remissions and

Assessment. free grants (the former being Rs. 6 and the latter Rs. 1,566 ) were as under:-

| $1893-94$ |  |  |  |  | Kharif. | Rabi. | Total. |
| :--- | :--- | :--- | :--- | :--- | ---: | ---: | ---: |
| $189+-95$ | $\ldots$ | $\ldots$. | $\ldots$ | $\ldots$ | 9,789 | 128 | 9,917 |

4. The result is encouraging. The revenue seems to increase year by year, and is said to be capable of greater expansion with some further expenditure on improvements.
j. The working expenses of the year amounted to Rs. 6,107 against

Working expenses. Rs. 4,702 in the previous year. The increase was due to special repairs necessitated by damages done by heavy floods in the Khari river. The incidence per acre was Rs. 2.92, or slightly more than that of the last year, which was 2.63 .
6. The area under irrigation was measured by the establishment specially employed for the purpose at a total cost of Rs. 162 , or nearly $1 \frac{1}{4}$ anna per acre.
7. The average water-rate during the year was Rs. 5.87 per acre, as compared with Rs. $5 \cdot 55$ during the previous year.
8. The supply drawn from the Khari river during the kharif season at the

Doty of water. . head of the Khári Cut was at the rate of 8.49 cubic
R $1340-3$
including the area assessed on the Chandola Tank, viz., 242 acres; these figures prove a duty of 270 acres per cubic foot of discharge at head.
9. The discharge at the headworks during the rabi season was 5.91 cubic feet per second, and the area irrigated being 35 acres, the duty was 5.92 acres. per cubic foat.
10. The year under report is the first year in which hot weather crops were sown by the cultivators, with the aid of water from the Khári Cut Canal. The cultivators of Vatva and a few more villages tried hot weather crops this year, and the result was satisfactory: An attempt was made by the Police Pátil of Sahijpur to grow rice crop during the hot weather, but the result was not satisfactory.
(13). -HARTA'LA TANK.

1. This tank has been in operation for 22 years. It commands a gross

Gross and irrigable area. area of 684 acres in the village of Hartála, of which the net irrigable area is 415 acres. The works are complete and can deliver water to this acreage when the tank is full. But water is in fact never taken for the whole area, as most of the land is cropped with cotton.
2. The depth of water in the tank fell to $7 \times 59$ feet on 10th June 1894.

Tank supply. On the following day the first replenishment was received and by 27 th October 1894 the mater was 13.68 feet deep, or 0.02 feet below the full supply level. At the end of the year the water in the tank was $10 \cdot 10$ feet deep above the outlet sill.
3. The rainfall gauged at the tank site amounted to $34 \cdot 71$ inches $(29 \cdot 20$

## Rainfall.

 inches during the kharif and 5.51 during the rabi season), against 29.85 inches of the previous year and 25.88 inches the average of the past 21 years. The rainfall was thus copious in both seasons.Area irrigated.

## to:-


which is 20 per cent. only of the irrigable area commanded by the tank, a gaiust 28.43 per cent. in the previous year. The falling off in the rabi area is due to favourable rainfall.
5. The kharif areas consist of 3 acres of fruit gardens, 5 acres of fodder, 1 acre groundnut, 1 acre chillies, and 2 acres of monsoon dry-crops. The rabi crops were wheat and gram. The total value of these crops is estimated at Rs. 1,664 against Rs. 2,841 in the previous year.

| Gross revenue. | 6. The gross assessed revenue from th during the year amounted to Rs, 636-6-5, as und |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Rs. a. p. Rs. |  |  |  |  |  |  |  |  |
| Water-rates - |  |  |  |  |  |  |  |  |  |
| Kharif . | ... | $\ldots$ |  | 651 | 14 |  |  |  |  |
| Rabi . .. | ... | .. | ... | 142 | 0 | 0 |  |  |  |
| Miscellaneous- 20 |  |  |  |  |  |  |  |  |  |
| Protective rato on irrigable land. |  |  | ... | 414 | 2 | 5 |  |  |  |
| Fishery ..A. <br> Grass and trees | ... | ... | ... | 13 | 0 | 0 |  |  |  |
|  | ... | - 0 | . - | 1 | 6 |  | 428 | 8 | 5 |
|  |  |  |  | Total | . | -. | 036 | 6 | 5 |

against Rs. 1,227-2-0 of the previous year. The decrease was in chief part due to the sale of babul trees not having been effected before the close of the year, owing to unavoidable delay in the selection and marking of the trees.
7. The incidence of water-rate per acre during the year under report was Rs. 2-8-1 against Rs. 2-4-1 of the previous year. The small increase, notwithstanding the fall in the assessed revenue, is accounted for by increase in the hot weather irrigation of the year.
8. The realization of revenue during the year amounted to :-

|  |  |  | Re. \&. p. |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Water-rates ... | ... | ... .." |  | 282 | 4 | 0 |
| Miscellaneous... | .." | -• | $\cdots$ | 428 | 8 | 5 |
|  |  | Total ... |  | 7101 |  | 5 |

Excepting the rabi assessments of the year, Rus. 142, which were sent for realization after the close of the year, there is no outstanding. of revenue.
9. The working expenses were Rs. 394 in excess of the revenue, and Working expenses. amounted as shown below to Rs. 1,030 against Rs. 361 in the previous year:-

| In the Public Works Department | .." | ... | 995 |
| :---: | :---: | :---: | :---: |
| In the Civil Department ... | ... | ... | 35 |
|  | Total .. | ... | 1,030 |

The increase in outlay was due to extensive repairs to the feed channel having been carried out.
10. The cost of measurement of the area irrigated was the same as last Cost of measarement of crops. year, viz., Rs. $2-5-4$, which gives a rate of 5 pies against 4 pies of last year.
11. The area irrigated during the year was exactly the " same as the area applied for, viz., 83 acres.
12. The duty of water is shown in Statement I-E

Dats of water. attached to this report. There were no special observations.
13. The loss by evaporation and absorption

Evaporation and absorption. was as follows :-


- This tank has been in operation for 18 years.

2. The following are the details of the gross area commanded by the Gross and irrigable areas, whole project and the area irrigable by the project as so far completed:-

| Number | Villagen. |  | Area nonder command. | Ares irrigable by the project an completed. |
| :---: | :---: | :---: | :---: | :---: |
| 12345 | Wrest Channel. |  | Acres. | Acres. |
|  | Utrad ... <br> Nhava . ... <br> Shelava Budruk <br> Ratna Pimpri | ... | 386 | 355 |
|  |  | ... | 196 | 169 |
|  |  | $\cdots$ | 1,149 | 681 |
|  |  | ... | 1,207 |  |
|  | East Channel. |  | 1,046 | ... |
| $\begin{aligned} & 6 \\ & 7 \\ & 8 \end{aligned}$ | Hirápar ... <br> Dhába <br> Sheláva Khurd | $\cdots$ | 131 | 90 |
|  |  | ... | 125 | 118 |
|  |  |  | 4,647 | 1,700 |

No distributary has jet been constructed to irrigate the lands of Ratna Pimpri under the west channel, and very small areas are watered in the villages provided with distributaries, although the tank supply is available for larger area than is now irrigated. At Chiklod there is hardly ever any irrigation from the tank.
3. The depth of water in the tank at full supply level is 22 feet. At the commencement of the year the depth of water was 16.36 feet, which fell to 13.42 feet on the 9th June. The tank filled to overflowing on 10th September and by the end of the year the water was 18.65 feet deep. The supply was sufficient to meet the requirements of irrigation.
4. The year's rainfall amounted to 28.07 inches ( $23 \cdot 48$ inches in the Rainfall. kharif and $4: 59$ inches in the rabi season) against 19.86 inches in the previous year and 29.82 inches, the average of the past 17 years. The increase in the kharif rainfall did not cause any reduction in the kharif irrigation of the year compared with that of the previous year, as there was a larger area of perennial crops which could not do without the canal water. There was a decrease in rabi irrigation, however, owing to favourable rain.

Area irrigated.
5. The area irrigated during the year was as under:-

against 229 acres of the previous year. The value of the crops grown is estimated to have been Rs. 215.

Gross revenue.
6. The assessed revenue of the year was i-

against Rs. 1,623-7-3 of the previous year. There was a falling off in miscellaneous receipts, partly owing to there being no cultivation in the tank area, and partly owing to the fact that the sale of the right of fishing, which realized an unusually high price last year in consequence of keen competition, fetched only ordinary prices this year.
7. The average incidence of water-rate assessment per acre was Rs. 3-1-8 against Rs. $2-6-4$ last year. The rise in rate was due to an increase in the area under perennial crops.
8. The revenue realized amounted to :-

|  |  | Rs. a. p. |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Water rates ... | ..' ..' |  | 601 | 4 |  |
| Other sources .... | .- | ... | 641 | 6 |  |
|  |  | ... | 1,242 |  |  |

and there are no outstandings, excepting the rabi assessments of Rs. 222-3-0 which were demanded after the close of the year.
9. There were no refunds during the year.

Working expenses. to 10 . The working expenses of the year amounted to:-

|  | Rs. |  |
| :--- | ---: | ---: |
| In the Public Works Department | $\ldots$. | 1,193 |
| Collection charges in the Revenue Department. | 30 |  |

Total ... 1,223
against Rs. 2,021 of the previous year.
11. The cost of measurement of crops irrigated

Cost of measarement. amounted to Rs. 8-13.7, which gives a rate of 1 anna 1 pie per acre.
12. The area applied for was ' 13 acres less than that actually irrigated, the discrepancy being due. to the areas in the applications having been slightly under-estimated.
13. The scale of water-rates during the year under report was the same as in the previous year, and the following table shows
Water-rates. the classification of crops and the revenue assessed under that scale :-

| Number. | Crops, |  | Area Irrigated. | Rate per Acre. | Assessment. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Acres | Rs. | Rs. |
| 1 | Perennial ... | $\cdots$ | 16 | - 10 | 163 |
| 2 | Eight months | $\cdots$ | 6 | - 4 | 22 |
| 3 | Four months... | ... | 101 |  | 205 |
| 4 | Monsoon-dry... | $\ldots$ | 2 | 1 | 2 |
| 5 | Hot weather... | ... | 2 | 4 | 3 |
|  |  | ... | 127 |  | 395 |

There were also 2 acres of lift irrigation assessed at half the sanctioned rate.

Duty of water.
14. The duty of water used for irrigation was as follows:-

|  |  |  |  |  | Acres, |
| :---: | :---: | :---: | :---: | :---: | ---: |
|  | Kharif | .. | $\ldots$ | $\ldots$ | $\ldots$ |
| Rabi | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots . .100 \cdot 00$ |

per cubic foot per second of discharge utilized, vide Statement I-E attached.

[^6]| Kharif Season. Foet. |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| April, May and Jon | , 65 days |  | .'• | ... $2 \cdot 39$ |
| Rati Season. |  |  |  |  |
| November, December and January 1895, 87 daya |  |  |  | ... 1-46 |
| Hot Searon. |  |  |  |  |
| Febrnary and March 1895, 59 daya |  |  | "' | ... 1-18 |
|  |  |  | Total | ... 5.03 |
| Average daily losa | ... | "* | $\cdots$ | ... 0238 |

## (15).-JAMDA CANALS.

1. These canals have been in operation for 28 years. The gross area under command is 46,288 acres, of which the area irrigable by the works as completed is as under:-

Acres.

| Left Bank Canal | ... | $\cdot$ | ... | $\ldots .$ |
| :---: | :---: | :---: | :---: | :---: |
| Right Bank Canal | - | -. | ." | ... 1,500 |
|  |  |  |  | ... 5,000 |

2. Though the discharge in the river was less than in the previous year except in the rabi season, the supply was sufficient for River supply. all requirements and the area under sugarcane rose to 326 acres, the highest area recorded during the past 25 years.
3. The rainfall was much greater than that of the previous year, in both the kharif and the rabi seasons, as will be observed from the following table :-

| Station, | Emarto. |  | Bast |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 1893. | 1894. | 1893. | 1894. |
| At Canal head. |  |  |  |  |
| Jamda Bungalow ... . ... | 18.62 | 20.71 | 0.90 | 8.86 |
| About middle of Canals. |  |  |  |  |
| Kolgaon Chowki ... ... | $19 \cdot 24$ | 24:74 | 0.10 | $5 \cdot 87$ |
| - At tail of Canal. |  |  |  |  |
| Bhadgaon Dispensary ... ... | $23 \cdot 35$ | $29 \cdot 47$ | 1-12 | $4 \cdot 62$ |

The favourable rainfall led to a talling off in the irrigation of monsoon, wet rabi, and 8 months' crops.

Area irrigated.
4. The following table compares the areas irrigated with those of the previous year:-


Gross revenue.
5. The assessments of the year from all sources are contrasted with those of the previous year in the following table:-


The increase in water-rates in spite of the reduction in the area irrigated is due to the satisfactory increase in the area of sugar-cane cultivation. The falling off in miscellaneous receipts was due to the sales of bábul trees not having been completed by the end of the year.
6. There were no remissions during the year and the realizations amounted to-

or Rs. 903 in excess of the amount realized last year.
7. The unrealized balance of assessed water-rates is Rs. 1,191, besides the rabi assessment of Rs. 1,331 sent for realization after the close of the year under report. Legal measures are being adopted to effect the recovery of the sum of Rs. 1,1.91 remaining unrealised.
8. The average incidence of water-rate assessment per acre during the jear under report was Rs. 6-11-11 against Rs. 4-2-10 in the previous year and Rs. 1-13-5 in 1892-93. The rapid rise in average rate is due to the increase in perennial cultivation encouraged by a continuous good supply of water in the river for two years.

Working expenses.
9. In the following table are contrasted the working expenses of the year with those of the previous year:-


The total charges of the jear are in the excess of those of the previous year by Rs. 793. The excess is due mostly to increase in the establishment charges and the consequent leave and pension allowance charge. This increase is now unaroidable, the lowest possible establishment haring been kept on the Canals. Notwithstanding this increase in the working expenses and the falling off in the areas irrigated, the asseassed revenue has exceeded the working expenses by Rs. 770, which is a small improvement, for previous to $1892-93$ the canals worked at a loss every year.
10. The cost of measurement of crops irrigated during the year on the two canals separately is given below:-

|  |  | $\underset{\substack{\text { Ares irri. } \\ \text { gated. }}}{\text { a }}$ | $\begin{gathered} \text { Arean mead. } \\ \text { eured } \end{gathered}$ | $\underbrace{}_{\substack{\text { Cost of measure } \\ \text { meuta }}}$ | Rato pra Acre. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Left Bank Canal |  | Acres. | Acres. | Rs, a. p. | Rs. a. p. |
|  | ... | 775 | 334 | 4220 | 020 |
| Right Bank Canal | ... | 373 | 70 | 73 | 018 |

The rate per acre is greater than that of the last year as more accurate measurements had to be taken in the case of high-rated crops, of which larger areas were irrigated during the year under report. In the case of low-rated crops the areas are ascertained by measurements of lengths and breadths only for economy in cost; $35 \cdot 1$ per cent. of the area irrigated had to be measured, the remaining $64 \cdot 9$ per cent. of the area was in lands sub-divided for irrigation purposes or in whole fields.
Areas applied for and irri- 11. The total area applied for-1,139 acresgated. corresponds nearly with that assessed $-1,148$ acres.
12. Special observations were made in the village of Kolgaon during the rabi season to deternine the duty of water and the quantities required for the maturing of wheat crops, with the following results:-

13. The expenditure on plantation amounted to Rs. 645 during the year

Plantations and his. 16,369 to end of the year. The number of trees on the Canals is 15,344 against $15,97 \%$ of last year, the decrease being due to the thinning out of balbul trees.

## (16).-PARSUL TANK.

1. This tank has been in operation for 6 years. It commands the lands Gross and irrigable areas. of the villages of Murana, Saundana and Nandgaon in the Málegaon Táluka of the Násik District. The accurate figures of the gross and irrigable areas in each of these villages have yet to be ascertained by a proper survey, for which an estinate has been sanctioned. Approximate figures only have been entered in Statement II-A.
2. The tank works with the distributaries have been completed, with the State of works. exception of the extension of the Saundana Channel to irrigate the lands of Nandgaon. This was to have been done during the year under report, but as the question of formation of a net 'thal' at Umrana and the extension of the existing 'thal' at Saundana was
under consideration, it was thought advisable to defer the execution of the work for the present.
3. The tank supply during the year was sufficient to meet anl demauds.

Tank supply. The storage in the tank at the commencement of the ${ }^{*}$ year was 44.94 millions cubic feet, which fell to 13.0G millions cubic fect on the 10th July, when the tank received its first replenishment. The full storage of $118 \cdot 70$ million cubic feet was reached on the 8th August 1894, and the tank remained full till the 13th November 1894. At the close of the year the tank was more than half full, the contents being $78 \cdot 86$ millions cubic feet.
4. The rainfall of the year was $25 \cdot 37$ inches against 17.63 inches in the previous year and 21.47 inches, the average of the Rainfall. past 12 years. By seasons the year's fall was as given below, in comparison with that of the previous year:-

| Yeasons, |  | 1894.95. | 1893-94. |
| :---: | :---: | :---: | :---: |
|  |  | Inches. | Inches. |
| Kharif | ..: | 21.95 | $13 \cdot 69$ |
| Rabi | ... | $3 \cdot 42$ | 1.65 |
|  | Total ... | $25 \cdot 37$ | 1,534 |

Although the kharif fall was greater than that of the previous year, there was a long break in the month of Angust, when only 0.06 inches of rain fell and this necessitated the watering of monsoon dry-crops from the tank. The rabi rain, though very favourable, did not cause any remarkable decrease in the rabi irrigation,
5. The areas irrigated during the year amounted to 363 acres, distributed Area irrigated. as under by seasons and the villages commanded in comparison with those of the previous years:-

| Tillages. |  | - | Kharif. |  | Rabi. |  | Total. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1893-94. | 1894.95. | 1883-9t. | 1894.95. | 1593.94. | 1894-95. |
| Umrana ... <br> Saundana... <br> Nandgaon |  |  |  | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. |
|  | ... | $\cdots$ | 44 | 77 | 177 | 102 | 221 | 179 |
|  | ... | ... | 25 | 39 | 111 | 117 | 136 | 156 |
|  | .." | ... | ... | ... | 2 | 28 | 2 | 28 |
|  |  | Total | 69 | 116 | 290 | 247 | 359 | 363 |

The increase in the kharif irrigation was due to an increase in the area under sugarcane, and also in that under fodder crops in the hot weather. The long break in August necessitated the use of the canal water for 25 acres of bijri crop, which would have otherwise withered and failed. The details of the kicds of crops watered with their valuation are given in Statement III-E. The value of the crops was Rs. 3,758.
6. In the village of Saundana, before the Parsul Tank was constructed,

Permanent irrigation nnder revenue survey. there were about 98 acres of land entitled under the Survey Settlement to water from the Parsil river, which generally lasted till February, and for the right to use which a charge of Rs. $2 \cdot 6-0$ fer acre was levied. After the completion of the tank the owners of these fields were required to pay the rates for irrigation from the tank, in addition to those previously levied. Government, however,
have now, after careful consideration of the facts of the case, decided that daring the currency of the present lease the crop rate is not to be charged in addition to the consolidated rate, unless the irrigators prefer to surrender the guarantee. Should thej prefer to adhere to the terms of the settlement, the water-supply is to cease after February, and if water is required after February the difference between the Parsul Tank crop-rate and the water share of the surves settlement rate already paid is to be charged.

against Rs. $1,426-3.0$ of the previous year. The increase was chiefly in the kharif assessments which amounted to Rs. 707-11-0, the highest amount jet reached since the opening of the tank. It is due to larger areas of sugarcane and fodder, both high-rated crops.
8. The realizations amounted to-


This is inclusive of the amount of over-collection of Rs. 8.6-0 twice received by mistake from one irrigator. The amount will be refunded. Omitting this sum, the actual revenue receipts of the year were Rs. 1,882-13-0.
10. The outstandings of revenue to end of the jear are Rs. 986-9-0, which is the amount of the rabi assessments sent for realization after the close of the year.
11. The working expenges amounted to Rs. 1,359 against Rs. 970 of the Working expenses. previous year. The increase was due to the increase in the establishment charges brought about by the ruling promulgated in Government Resolution No. 280, A.I.-1903 of 14th December 1894, according to which a percentage is debited to capital expenditure and the balance of the outlay on establishment is distributed in proportion to the outlay on works and repairs in the case of the 1st and 2nd class revenue works. This mode has reduced the establishment charge on the old irrigation works in this district and enhanced the working expenses of the new irrigation works. The least establishment is maintained for this and other similar works, and there is no margin now to effect any reduction.

$$
\text { Water-rates. } \quad \text { 12. The previous scale of water-rates, viz: }
$$

for sharif crops Re. 1 per acre, rabi crops, Rs. 4 per acre and hot weather Rs. 6 per acre, was sanctioned for the year under report also. There was no separate rate sanctioned for perennial crops. Water was allowed to these according to the rate for the season in which they were watered. A considerable area of land received water all the year round and was assessed at $R s .11$ ner acre.
13. The year's irrigation may be classified as under :-

14. There has been no separate charge for mea.

Area applied for and irrigated.
15. The area applied for compared as below with actual irrigation :-

|  |  |  | Kharif. <br> Acres. | Rabi, <br> Acres. |
| :---: | :---: | :---: | :---: | :---: |
| $\ldots$ | $\ldots$ | $\ldots$ | 96 | 131 |
| $\cdots$ | $\cdots$ | $\cdots$ | 116 | 247 |
|  | Difference | $\cdots$ | $\underline{20}$ | $\underline{116}$ |
|  |  |  |  |  |

The differences were due partly to under-estimates in water applications, but mostly to the káyam baggayat land of Saundana having been irrigated without water applications.

Evaporation and absorption.
16. The calculated loss by evaporation and absorption was as under:-

Kharif Season.

|  |  |  |  | Feet. |
| :---: | :---: | :---: | :---: | :---: |
| April, May and June, 66 days | ... | $\cdots$ | ... | $5 \cdot 26$ |
|  | Rabi Season. |  |  |  |
| November 1894 to January 18 | 80 days | . $\cdot$ | ... | $2 \cdot 57$ |
| Hot Season. |  |  |  |  |
| February and March, 59 days | ... | ... | . $*$ | $2 \cdot 00$ |
|  |  | Total | : | $9 \cdot 83$ |
|  | Average | ily loss | ... | . 048 |

(17).-OJHAR CANAL.

1. The area irrigated during the year was 1,544 acres, of which 593 were under kharif, and 951 under rabi crops. The total shows a decrease of 699 acres on the area of the previous year. There was an increase in kharif due to untimely rainfall, and a considerable decrease in rabi, owing to heavy rain in October.

Comparison of area applied for and irrigated.
2. The following statement compares the area applied for and irrigated during the year:-


The area not irrigated is 17.43 per cent. of the area applied for. The decrease is reported to have been due to timely and favourable rain after receipt of applications, which rendered canal water unnecessary.
3. Owing to the falling off in rabi irrigation, the water-rate assessments

Water-rate assessments. amounted to only Rs. 4,678 as detailed below, against hs. 6,030 in the previous year.

| Kharif | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | … | Rs. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | 2,617 |
| Rabi ... |  | ... |  | ... |  | 2,061 |
|  |  |  |  |  |  | 4,678 |

Area irrigated per mile of main canal and of main canal and branches.
4. The area irrigated per mile of main canal was kharif $31 \cdot 21$ and rabi 50.05 acres, and that of main canal and branches was kharif 14.82 acres and rabi $23 \cdot 77$ acres.
5. The following table compares the area irri-

Comparison of ares irrigated and revenue.
ated and revenue derived during the previous three years with the figures of the year under report.

| Year. | Area irrigated. <br> Acres. | Revenue from water-rates <br> Rs. | Remaris. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | From 1st April to 31st March. |  |  |
| 1891-92 ... | 2,621 | 6,490 | Rainfall |  | $\ldots$... 15.44 |
| 1892-93 .. | 1,100 | 3,471 | Do. | ... | ... 37.72 |
| 1893-94. | 2,243 | 6,080 | Do. | ... | ... 25.09 |
| 1894-95 .. | 1,544 | 4,678 | Do. | ... | ... $25 \cdot 46$ |

6. The incidence of water-rate per acre was 3.03 against 2.69 in the

Water-rate per acre,
Capital account.

- Working expenses. previous year, which was due to an increase in the area of peremial and hot weather crops.

7. The capital account is closed. Rs 51 were paid during the year on account of masonry outlets.
8. The working expenses amounted to $\mathrm{K}_{\mathrm{s},} 28,766$ as detailed below, against Rs. 6,808 in the previous year:-

| Maintenance and repairs ... | $\ldots$ | ... |  | Rs. $4.583$ |
| :---: | :---: | :---: | :---: | :---: |
| Share of establishment ... | ... | ... | ... | 20,781 |
| Tools and plant ... | ... | ... | ... | 122 |
| Share of collection charges | ... | ... | ..: | 372 |
| Indirect charges -.. | ... | ... | ... | 2,909 |
|  |  | Total |  | 28,766 |

The incidence of total charges per mile of main canal open was Rs. 1,514, and per acre irrigated Rs. $18 \cdot 63$.

The increase under maintenance and repairs is Rs. 1,211, and is due to special silt clearance. There is also an increase under Establishment charges, which is due to no charges on account of establishment being charged to works for which only revenue accounts are kept, and on which there was no expenditure. The increase under Tools and Plant is due to the increase in the amounts for repairs and new supply during the year necessitated by additional clearance work. That in collection charges is due to the increase in the amounts to be collected during the year.

The increase in indirect charges is due to the increase in establishment charges.
9. The duty per cubic foot per second of water admitted into the canal was 18.36 acres in the kharif and 29.06 acres in the Duty of Water. wabi season. That of water actually utilized was $25 \cdot 29$ acres in the kharif and 37.90 acres in the rabi season.
10. The water-rates were the same as those in force since $1889-90$, but $\begin{array}{ll}\text { Water-rates. } & \text { revised } \\ & 1895 .\end{array}$
11. The total cost of measurement of 1,090 acres (excluding 454 acres sub-divided) during the year was Rs. 118, or 1 anna Cost of measurement. and 9 pies per acre against lis. 202, or 1 anna and 9 pies per acre last year.
12. The rainfall ns gauged at Ashvi was kharif $20 \cdot 29$, rabi 4.00 , total Rainfall. $2 t^{29}$ inches, or $2 \cdot 23$ inches more than the average of the last five years. The rainfall in February 1895, not included in the above figures, was $1 \cdot 17$ inches.

- 13. The supply of water in the Pravara River was sufficient to meet all requirements. In January a temporary earthen River sapply. . bund 2 feet high was thrown on the weir as usual to increase the back. water during the hot weather of 1895-96.

14. At end of the year the number of trees

Plantation. on this canal was 13,105 . The numbers of principal kinds were:-

| Babul... | ... | ... | 10,151 | Bakan | ... | -.. | ... | 28 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mango | ... | ... | 839 | Jámbhul | ... | ... | ... | 209 |
| Do. grafts... | ... | ... | 52 | Sandal | ... | ... | ... | 89 |
| Orange ... | ... | ... | 29 | Nimb... | -.. | .." | ..' | 1,490 |
| Bor ... | ... | ... | 112 | Bamboo | ... | ... | ... | 53 |
| Moho ... | ... | ... | 2 | Kyene | ... |  | ... | 2 |
| Siras ... | ... | ... | 11 | Miscellan | t |  | ... | 38 |

The total number last year was 11,805 .
Canal closures.
15. The canal was closed eight times during the year for silt and weed clearance for periods aggregating 54 days in all. .
(18).-BHATODI TANK.

1. The area irrigated during the year was 1,698 acres, of which 517 were

Ares irrigated. under kharif and 1,181 under rabi crops. The total shows an increase of 85 acres on the area of the last year. The increase in area is undoubtedly due to increased vigilance on the part at the canal establishment, who discovered many cases of surreptitious waterings of night time.

Comparison of areas applied for and irrigated.
2. The following statement compares the areas applied for and irrigated during the year:-

| Year. | KıSsit. |  | Rabit |  | Total. |  | Difyrbence. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Applied <br> or. | $\begin{array}{\|c} \text { Irrigat- } \\ \text { ed. } \end{array}$ | $\mid \text { Applied }$ | $\begin{gathered} \text { Irrigat-- } \\ \text { ed. } \end{gathered}$ | $\begin{gathered} \text { Applied } \\ \text { for. } \end{gathered}$ | $\begin{gathered} \text { Itrigat- } \\ \text { ed. } \end{gathered}$ | Kharit. | Ritio. | Total. |
| 1894-35 | Acres 487 | Acres. 517 | $\begin{aligned} & \text { Acres. } \\ & 1,609 \end{aligned}$ | Acres. <br> 1,181 | Acres. <br> 2,096 | $\begin{aligned} & \text { Acres. } \\ & 1,698 \end{aligned}$ | Acres. $+0$ | Acres. -428 | Acres $-\quad-398$ |

The cultivators on all three irrigation works in the Ahmednagar District appear to make applications for water before deciding whether they will make use of the permission when received, thus causing much unnecessary office and field work to the. canal establishment. Endeavours are being made to check this practice by returning the applications sanctioned as early as possible.
3. During the year the water-rate assessments

Water-rate assessments.
amounted to Rs. 5,467. detailed as below, against Rs. 5,173 in the previous year:-

| Kharif Rabi | $\cdots$ | $\cdots$ | $\cdots$ |  | Rs. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | ... | 2,572 |
|  |  | ... | ... |  | 2,895 |
|  |  |  |  | ... | 5,467 |

4. The following table compares the areas irrigated and revenue derived during the previous three years with the figures of the

Comparison of area irrigated and revenue. year under report:-

5. The incidence of water-rate per acre was

Watervate per acro. Rs. 3.22 against 3.21 in the previous year.
6. The working expenses amounted to Rs, 12,281 detailed as below, against Rs. 4,148 in the previous jear:-

| - |  |  | Rs. |
| :---: | :---: | :---: | :---: |
| Maintenance and repairs | ... | ... | 1,963 |
| Share of establishment | ... | $\cdots$ | 8,796 |
| Tools and plant ... | -... | ... | 11 |
| Share of collection charges | ... | $\ldots$ | 280 |
| Indirect charges ... | ... | ... | 1,231 |
|  |  | ... | 12,281 |

The rate of working expenses per mile of main canal open was Rs. 2,729 and per acre irrigated Rs. 7:23.

The increase in maintenance and [repairs was trifling and calls for no explanation.
'The increase in establishment is due to no charges on account of establishment being debited to works for which only revenue accounts are kept, on which there was no expenditure. Previously charges were made proportionately, and the remaining amount was debited to works for which only revenue accounts are kept.

The increase in indirect charges was due to the increase in establishment charges.
7. The duty per cubic foot per second of water actually utilized was Doty of mater. $\quad 122 \cdot 22$ acres in the kharif and 134.66 acros in the rabi season.
8. The water-rates are the same as those in force siuce 1889-90. Revised Water-rates. rates as sanctioned in Government Resolution No. 154 A. I.- -898 , dated 7th June 1895, are to be introduced from 15th October 1895.
9. The cost of measurement amounted to Rs. 30 or Re. 0-3-10 against Rs. 19 or Re, 0-1-10 per acre irrigated last year. Out Cost of measarement. of the irrigated area of 1,698 acres, 1,573 acres had. merely to be inspected and checked with the registers of Pot numbers, and 125) acres had to be actually measured. The excess rate is due to the fields being at a distance from each other, and the incompetence as a measurcr of the canal Inspector. In future measurements will be made by a special measurer as usual.
10. The rainfall as gaugod at Bhatodi mas kharif $22 \cdot 34$, rali $2 \cdot 61$, total Rainfall. 24.95 inches, or 0.56 incles less than the average of the previous five ycars. The rainfall in May 1894 and February 1895, not included in the abore figures, was $3^{\prime} 60$ inches.
11. The water-supply of the tank was sufficient to meet the requirements

Tank sapply. of the cultivators. On 1st April 1894, the water in the tank stood at $18 \cdot 10$ feet above sill of outlet sluice, that is, at R. L. $88 \cdot 10$ against R. L. 91.87 on the same date in the previous year. The tank received its first replenishment on 22nd May 1894, and the P. L. of surface of water rose from R. L. $85 \cdot 00$ to $85 \cdot 50$. The highest level of water in the tank was 94.75 on 14th September 1894, that is, $2 \cdot 25$ feet above the crest of waste weir. The R. L. of surface of water on 31st March 1895 was $81 \cdot 90$.
12. At the ond of the year the number of trees on the canal was 7,681 Plantations. as compared with 7,662 in the previous year. The numbers of principal kinds were :-


## (19). MATOBA TANK.

The water in the tank stood at $17 \cdot 42$ feet above sill of outlet on 1st April
Tank supply 1894. The draw=off for irrigation reduced the level until 22nd June when it stood at 0.50 , and the tank ran dry on the 23rd June. From the 24th June it commenced to be replenished and filled to overflowing on the 26th August. On the 31st March 1895, the level was 17.94 above sill of outlet, or 0.44 foot higher than on the same date in the previous year.
2. The area irrigated from the tank during the year was 1,420 acres, of which 828 acres were under kharif and 592 acres under rabi crops. The total shews an increase of 278 acres as compared with that of ther vious year, due toincrease

Area irrigated and assess. ments. in the area of monsoon dry-crops and rice.

The assessments of water-rates amounted to Rs. 9,936, and the miscellaneous revenue to Rs. 143, making a total of Rs. 10,079 against Rs. 10,792 in the previous year. The incidence of water-rates was Rs. $7 \cdot 00$ per acre irrigated against Rs. $9 \cdot 45$ in the previous year.
3. The area irrigated was ascertained by actual measurements, most of

Crop measurements. which were taken by measurers, specially entertained for the purpose, and the remainder by an Inspector in the intervals of his regular work. The total cost of measurements was Rs. 81; or 11 pies per acre, as compared with 9 pies in the previous year.
4. The working expenses amounted to Rs. 4,257 , which represents a rate per

Working expenses. mile of canal in operation of Rs. 250.41 or 2.99 per acre irrigated. The expenditure on maintenance and repairs during the year was greater than in 1893-94 due to the puddling work done on portions of embankments. The charge for establishment was also proportionately greater on the above account.
5. The following statement shows the duty of water ascertained from special observations of discharge and area actually under irrigation during the months referred to :-

|  | Mouth |  |  | Discharge cubic feet per second. | Area irrigated. | Duty in acres per cubic foot per second. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Acres. |  |
| 1834 ... April | ... | ... | - | $8 \cdot 41$ | 363 | $43 \cdot 16$ |
| $\cdots\left\{\begin{array}{l}\text { May }\end{array}\right.$ | ... | ... | ... | $6 \cdot 48$ | 360 | 55.55 |
| 1895 ... $\left\{\begin{array}{l}\text { January } \\ \text { March }\end{array}\right.$ | ... | ... | ... | 783 | 350 | 44.69 |
| - ... March | ... | ... | ... | 9.69 | 445 | 45.92 |

Area irrigated and applied for.
6. The following is the comparison of areas irrigated and applied for:-

| Irga applimb yob, |  |  | Abla irigatmp. |  |  | More. |  | Lisss. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kharif. | Rabi. | Totsl. | Eharif. | Rabi. | Total. | Kharit. | Rabi. | Kharif. | Rahi. |
| 1,218 | 730 | 1,948 | 828 | 592 | 1,420 | . $*$ | $\cdots$ | - 390 | 138 |

The decrease is due to the cultivators over estimating the areas of their fields.
(20).-KASURDI TANK.

The depth of water above sill of outlet in this tank on 1st April 1894 was 8.90 feet. On the 2nd May the tank ran dry. On the 23 rd July it received a slight replenishment and on 4th August became dry again. From 8th September the tank received gradual replenishments and filled to a height of $10 \cdot 70$ feet above sill on 10th September 1894. The water was drawn off for irrigation, and on 25th November 1894, it ran dry and remained so to the end of the year.
2. The area irrigated was 1 acre of kharif only. The small area irrigated was due to the failure of supply. During the hot weather the bed was utilized as usual for the cultivation of melons, and a sum of Rs. 180 was obtained as rent.
The assessments amounted to Rs. 309, of which Rs. 8 were on account of water-rates and Rs. 301 for miscellaneous revenue.

Working expenses. $\quad$ 3. The working expenses amounted to Rs. 369.
Ares applied for and irri-
4. The following table shows comparison of area gated. applied for and irrigated:-

| Area 4 Prumd toa |  |  | Area irrigated. |  |  | Mosk. |  | Less. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Eharif. | Rabi. | Total. | Kharit. | Rabi. | Total. | Kharif. | Rabi. | Kharit | Teli. |
| 3 | -* | 3 | 1 | ... | 1 | -•• | ... | 2 | . 1 |

The difference is due to failure of supply.

> (21).-SHIRSUPIIAL TANK.

On the 1st April 1894 the water in the tank stood at $14 \cdot 74$ feet above sill of outlet, i.e., 11.04 feet lower than on the same date in the previous year. "The tank ran dry on 3rd September and remained so till the 7 th of that month. It commenced to be replenished from the 8 th September and water rose to 11.30 feet above outlet sill on 23 rd October 1894. At the close of the year the tank again ran dry.

The area irrigated was 177 acres of kharif, as

Area irrigated and assess. ment. mpared with 913 acres in the previous ycar. The decrease was due to failure of supply.
The net assessments amounted to Ils. 1,304, of which Rs. 1,079 were on account of water-rates and Rs. 225 for miscellaneous reverue.
2. The areas irrigated were measured by measurers specially entertained for the purpose, and partly by an Inspector when time could be spared from his ordinary work, and the mea-
Cost of measurement. could be spared from his ordinary work, and the measurements were checked as usual by the subordinate in charge. The co.
Rs. 16, or 1 anna and 5 pies per acre against 10 pies in the previous year.
3. The working expenses amounted to Rs. 3,196, which represents a rate for maintenance per mile of canal in operation of Working axpenses. Rs. 255.68 and Rs. 18.06 per acre irrigated. The expenditure on maintenance and repairs during the year was greater than in the previous year due to the renewal of regulating bars.

Dity of water.
Area applied for and irrigated.
4. Owing to failure of supply, no information of any value can be given, regarding the duty of water.
5. The following is the comparison of areas irri-

| Area 1 rphzo for |  |  | abea irriantrd. |  |  | More. |  | Leas. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Khari. | Rabi. | Total. | Kharif. | Rabi. | Total. | Khari. | Rabi. | Kharif. | Rabi. |
| Acres. $209$ | ... | $\begin{array}{r} \text { Acres. } \\ 209 \end{array}$ | $\begin{array}{r} \text { Acres. } \\ 177 \end{array}$ | ... | Acres. 177 | ... | ... | Acres. 32 | ... |

The decrease is due to the cultivators over-estimating the areas of their fields.
6. Remissions amounting to Rs. 557 have been granted during the year Remissions. on account of short supply of water due to failure of supply in the tank.
7. To ascertain the loss by evaporation and leakage from the tank during the year, gaugings were taken for broken periods during the months of April 1894 to March 1895 in-
Evaporation and leakage. clusive, or a total number of 300 days. During this period the loss amounted to $35,882,337$ cubic feet, or nearly one-eleventh of the total capacity of the tank above outlet level. The tank was emptied in September 1894 for five days and again on the 31st March 1895.

## (22).—BHADALVÁDI TANK.

At the beginning of the year the water level stood at 10.90 feet above
Tauk supply. the outlet sill, or 20.35 feet lower than on the same date in the previous year. The tank received gradual replenishments during the year, and on 22nd October water rose to a height of $25^{\circ} 80$ feet above sill of outlet, and on 31st March 1895 the water in the tank stood at 20.17 feet above the sill of outlet.
2. The areas irrigated were 6 acres of kharif and 293 acres of rabi

Areas irrigated and assessment $=$ making a total of 299 acres against 764 acres in the previous year. The decrease was due to failure of supply.

The assessments of water-rates amounted to Rs. 674, and the miscellaneous revenue to Rs. 72, making a total of Rs. 746 against Rs. 4,403 in the previous year.
3. The areas irrigated were measured partly by a measurer specially

Cost of measurement. entertained for the purpose and partly loy an Inspector, when time could be spared from his ordinary work. The total cost of measurements was Rs, 19 , or 1 anna per acre against 10 pies in the previous year.

- $1340-12$

4. The working expenses amounted to Rs. 1,687 , which represents a rato Working expenses. of Rs. 173.02 per mile of canal in operation and Rs. 5 ' 64 per acre irrigated.
5. No information regarding duty of mater that

Daty of water. would be of any value can be given, owing to failure of supply.

Area applied for and irrigated.
6. The following is the comparison of areas irrigated and applied for :-


The difference is due to the cultivators over-estimating the areas of their felds.
7. To ascertain the loss by evaporation aud leakage from the tank during Evaporation and leakage. the year, gaugings were taken for broken periods during April, May, June, July, August and October to March 1895, or a total number of 294 days. During this period the loss amounted to $41,942,364$ cubic feet or nearly ${ }_{6}$ of the total capacity of the tank above outlet level.

> (23).-KOREGAON TANK.

The rainfall for the year under report was $23 \cdot 10$ inches (kharif $21 \cdot 20$ and Rainfall. rabi 1.90) against $18 \cdot 80$ inches (karif 14:50 and rabi 4:30) of the previous year.
2. The area irrigated during the year was 391 acres (kharif 85 and rabi

Area irrigated. 306) against 352 acres of the previous year (kbarif 94 and rabi 258). The area irrigated was nearly the same as applied for.
3. The assessment on account of water-rates amounted to Rs. 1,150 against
$A_{\text {gressed }}$ revenue. Rs. 1,006 of the previous year. The gross revenue from all sources amounted to Rs. 1,175 against Rs. 1,015 of last year.
Comparison with previons 4. The following table compares the results with years. .

| Years. |  |  | Kharis. | Rabis | Total. | Waternaten. | Gront Revenue | Working expenses. | Remarks. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | - |  |  |  |  |  |  |  |
| 1888-89 | .-. | ** | 151 | 79 | 230 | 714 | 1,289 | 757 |  |
| 1889-90 | -* | ... | 13 | 323 | 336 | 743 | 746 | 895 |  |
| $1890-91$ | . 0 | - | 121 | 93 | 220 | 590 | 599 | 773 |  |
| 1891-92 | ... | ... | 66 | 363 | 423 | 1,061 | 1,073 | 886 |  |
| $1892-93$ | ** | ... | 47 | . 255 | 302 | 763 | 779 | 1,087 |  |
| 1893-94 | * | $\bullet$ | 94. | 258 | 352 | 1,006 | 1,015 | 822 |  |
| 1894.95 | $\cdots$ | ... | 85 | 306 | 391 | 1,150 | 1,175 | 730 |  |

The decrease of 9 acres in kharif area in 1894-95, as compared with the fgures for the previous year, was small. The increase of 43 acres in rabi was due to the unfarourable rainfall in 1894-95.
5. The working expenses, including indirect charges, were Rs. 730, of

Working expenses. which Rs. 312 were for maintenance and repairs, representing Rs. 83 per mile of canal (the length of the canal being $3 \frac{3}{4}$ miles) against Hs. 94 of last year.

Measaring chargea.
6. The area irrigated was measured at a cost of previous year.
7. The rainfall over the catchment area, which is $4 \cdot 4$ square miles, was $22 \cdot 60$ inches against $18 \cdot 50$ inches of the previous year, and the run-off is calculated to have been 0.639 of the rainfall from June to October 1894, and 0.49 ap $^{\circ}$ to 13 th September 1894, the date ou which the waste weir began to overflow.
8. The following figures show the storage and

Eraporation and absorption. loss of water by evaporation and absorption:-

> C. ft.

| Quantity of water in Tank | 207,958,010 |
| :---: | :---: |
| Quantity of water discharged through canal and over waste weir ... ... ... ... 119,311,136 |  |
|  |  |
| Quantity in the Tank on 31st March 1895 | 57,161,600 |
|  | 176,472,736 |
| Quantity lost by evaporation and absorption | 31,48 |

9. Special experiments were made to determine

Daty of water. the duty of water required for certain crops, and the result was as under:-

| 'Plot Number. | Name of crop. | Cubic feet of water required per acre to bring the crop to maturity. | Remarks, |
| :---: | :---: | :---: | :---: |
|  | - |  |  |
| 1. | Sugarcane ... ... | 499,606 |  |
| 2 | Groundnut ... ... | 115,689 |  |
| 3 | Jowári ... ... ... | 59,740 |  |

10. At the end of the year the numbers of trees above and below 5 feet on this work were as given below:-


There was no expenditure incurred on plantations during the year.

1. The rainfall for the year under report mas 21.70 inches (kharif 19.30 Rainfall. and rabi $2 \cdot 40$ ) against $23 \cdot 65$ inches (kharif $15 \cdot 05$ and rabi 8.60 ) of the previous jear.
2. The area irrigated was 1,459 acres (kharif 645 and rabi 814) against Area irrigated. 1,198 acres of the previous year (kharif 711 and rabi 487). The area actually irrigated was nearly the same as that applied for. The land-under command having been sub-divided into small irrigation numbers, the cultivators know the exact area of land to be irrigated.
3. The assessment on account of water-rates was Rs. 4,717, against

Assessed revenue. Rs. 3,860 of the previous year. The gross revenue Rs. 4,207 of the previous year.

Comparison with irrigation
and revenue of previons years.
4. The following statement compares the results

| Years, |  | Ebarif. | Rabin | Total. | Water rate. | Gross Revenue. | Working expensea. | - Remarize. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Acres. | Acres. | Acres. | Rs. | Rs. | Rs. |  |
| 1888-89 | ... | 980 | 1,437 | 2,417 | 4,598 | 4,990 | 7,981 |  |
| 1889-90 | $\cdots$ | 829 | 618 | 1,447 | 4,5:3 | 5,06S | 5,774 |  |
| 1890-91. | ... | 576 | 548 | 1,124 | 3,284 | 4,294 | 5,151 |  |
| 1891.92 | ... | 359 | 1,143 | 1,702 | 4,610 | 6,200 | 5,333 |  |
| 1892-93 | ... | 677 | 437 | 1,114 | 4,176 | 4,687 | 7,528 |  |
| 1893-94 |  | 711 | 487 | 1,198 | 3,860 | 4,207 | 5,440 |  |
| 1894-95 | ... | 645 | 814 | 1,459 | 4,717 | 5,136 | 3,953 |  |

5. There was an increase of 327 acres in rabi, and a decrease of 66 acres in kharif, as compared with the previous year. The former was due to unfavourable rainfall in the rabi season. The revenue from sources other than water-rates was Rs. 399, and was on account of land let out for cultivation, and grazing, and sales of bábul trees, branches and aloe leaves, \&c. The incidence of water-rate per acre was Rs. $3 \cdot 23$, against Rs, $3 \cdot 22$ of the previous year.
6. The working expenses, including indirect charges, were Rs. 3,953 , of

Working expenses. which Rs. 2,079 were for maintenance and repairs, representing Rs. 70 per mile of canal agrainst Rs. 81 in the previous year, the length of canals and distributaries being $29 \frac{1}{2}$ miles.
7. No measuring charges were incurred, as the lands under command Measuring charges. have been sub-d
8. The rainfall over 92 square miles of- catchment area of the tank was gauged at two stations, Ashti and Modlimb, and the average was 21.62 inches, against 21.47 inches of the previous year. The run-off into the tank is calculated to have leen 118 of the rainfall from 1st June to 31st October 1894. The tank did not fill to overflowing.
9. The following shors the storage of water and

Evaporation and abborption. loss by evaporation and absorption during the year.

| Total quantity of water in the Tank | 12,85,281,418.5 |
| :---: | :---: |
| Quantity of water discharged through canals |  |
| and waste weir | 3,57,752,858.00 |
| Quantity in Tank on 31st March 1895 | 4,96,573,716.00 |
|  | 8,54,225,604.00 |
| Quantity lost by eraporation and absorption | 4,30,954,512.95 |

10. The trees on the tank contour and canals, under and above 5 feet in height on 31st March 1895, were 24,320 and 12,809
Pluntations. repectively, and the expenditure on plantations during the year was Rs. 236. The revenue from plantations during the year was Rs. 96 realized by sale of trees. This amount has been credited under head "other canal produce."
11. Special experiments were made to determine the

Daty water, duty of water, and the result was as under :-

| Plot Number. | Name of Crop, |  | Quantity of water per acre required to bring the crop to maturity. | Remaria. |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Cubic feet. |  |
| 1 | Sugarcane ... |  | 3,70,492 |  |
| 2 | Chillies ... | ... | 1,17,730 | . |
| 3 | Inferior rice |  | 70,991 |  |

## (25).-REVA'RI CANAL.

- The construction estimate of this canal was closed on 31st March 1893.

Closure of construction
The only expenditure that was incurred on it during estimate.
the year was Rs. 49 paid by the Civil Department on account of land taken up for the extension of the canal, vide note explaining the differences between the sanctioned and actual expenditure under II.-Main Canal and Branches, B Land, in the completion report of the work.

Rainfall.
2. The rainfall as gauged at Revári, near the . headworks, is shown in the following table :-

3. The area irrigated, assessments, working expenses and average water. Area irrigated and assess- rate, as compared with the averages of the previous ments. four years were :-

| Years, | Kharif. |  | Rabi. |  | Total. |  | Average water-rate. | Working |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Acres. | Rs. | Acres. | Rs. | Acres, | Rs, | Rs. | Rs. |
| 1834-95 | 342 | 3,035 | 1,199 | 3,549 | 1,541 | 6,584 | 4.27 | 1,938 |
| A verage 1890-93... | 185 | 2,184 | 871 | 2,896 | 1,056 | 5,080 | 4:85 | 1,837 |
| Increase | 157 | 851 | 328 | 653 | 485 | 1,504 | ... | 101 |
| Decrease . | $\cdots$ | ..' | $\cdots$ | . $\cdot$ | $\cdots$ | ... | 0.58 | ... |

As compared with the average of the previous four years, there is an increase of 157 acres in the kharif and 328 acres in the rabi seasons.

The latter large increase was due to crops, such as groundnuts, \&c., for which water was applied for in the Lharif season, having been watered in the rabi season on account of favourable rainfall in the former and insufficient rainfall in the latter season. The net increase in the water-rate assessment is Rs. 1,504 over the average of previous four years. This increase is due to the popularity and natural growth of irrigation on the canal. Renissions of Rs. 24 and 26 were granted in the kharif and rabi seasons respectively, vide Government Resolution No. 3610, dated 23rd August 1865. Revenue from other sources was Rs. 126, bringing the gross révenue up to Rs. 6,710 .

Principal crops.
4. The principal crops irrigated during the year were as follows, compared with the previous four years:-

|  |  | Area irrigated in 1894.95. | Average of the previous four yeare. |
| :---: | :---: | :---: | :---: |
|  |  | Acres. | Acres. |
| Sugarcane | ... | 94 | 87 |
| Wheat... | ... | 187 | 128 |
| Grounduat | ... | 652 | 518 |
| Jowári... | ... | 470 | 232 |

Area applied for and irrigated.
5. The area irrigated was 43 per cent. of that 6. •The .working expenses, including direct and indirect charges, amounted Working expenses. to Rs. 1,938 against Rs. 1,750 in the previous year, and were 29 per cent. of the gross revenue. The rate per mile of canal was Rs. 387, and the rate per acre irrigated was Rs. $1 \cdot 26$, as compared with Rs. 350 and Rs. $1 \cdot 29$ for the previous year.

Net profit.
7. The operations of the year show a net profit of Rs. 4,772, or 8 per cent. on the direct capital outlay of Rs. 56,582 .
8. The average water-rate and cost of measurement, as compared with the previous years, were as follows :-


Excluding the charge for revenue establishment, the cost of crop measurement alone was Rs. 187 or Re. 0-1-11 per acre against Rs. 140 and $\mathrm{Re}, 0.1-8$ per acre for 1893-94.
9. The average duty of water obtained was for the kharif season 72 acres Daty of water. per cubic foot per second and for the rali, 121 acres.
10. The number of trees of all classes on the canal at the beginning of the Plantation. year was 1,828 and at the end 1,729 . The net revenue
from plantation was Rs. 105 .
The principal varieties are lábul 1,188 , jámbul 123, and bamboo 124.

## (26).-UPPER MAN RIVER WORKS.

The construction estimate of this project was closed on 31st March 1892. Closure of constraction No expenditure was incurred on capital account daring eatimate. the year under report.
2. The rainfall, as gauged at Gondowli, the centre of the irrigated area, is Rainfall. shown in the following table:-

| Yeais. | Kıasi. | Rabi. | Total. |
| :---: | :---: | :---: | :---: |
|  | In. centr. | In. cents. | In. cents. |
| 189495 | 15.28 | 490 | $20 \quad 18$ |
| 1803-94 | 1253 | 543 | 1796 |
| Arerage 1890-93 | 1190 | 79 | 1085 |

3. The area irrigated, the assessments, working expenses and average Area irrigated and assess- water-rate, as compared with the averages of the prements. vious four years, were as follows:-

| Years. | Kharif. |  | Babi. |  | Total. |  | Average water-rate. | Working expenses. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Acres. | Rs. | Acres. | Rs. | Acres. | Rs. | Rs. | Rs. |
| 1894.95 ... ... | 614 | 4,264 | 680 | 2,411 | 1,294 | 6,675 | $5 \cdot 16$ | 4,239 |
| Average 1890-93... | 841 | 3,454 | 481 | 1,608 | 1,322 | 5,062 | 3.75 | 4,831 |
| Increase . | $\cdots$ | 810 | 199 | 803 | ... | 1,613 | 141 | $\cdots$ |
| Decrease ... | 227 | $\cdots$ |  | ... | 28 |  | ... | 592 |

As compared with the average of the previous four years, there was a decrease of 227 acres in the kharif season and an increase of 199 acres in the rabi season. The year's assessment is Rs. 1,613 more than the average of four years, but is less by Rs. 396 than that of 1893-94. This decrease is due to the fact that there were no replenishments to the Pingli Tank up to 19th July 1894, and on this account it became necessary to refuse some applications for water on the lower sections of the canal.
4. The principal crops irrigated during the year were as follows, compared Priacipal cropa. with the previous four years:-

| Crops. |  | Area irrigated in 1894-95, | Average of the prerious four years |
| :---: | :---: | :---: | :---: |
| Wheat ... | $\ldots$ | 372 | 199 |
| Jowari... | ... | 218 | 218 |
| Groundnut |  | 170 | 281 |
| Sugarcane |  | 112 | 57 |

5. The area irrigated was 17 per cent. of the irrigable area and 5 per cent. Area appliod for. in excess of that applied for.
6. The revenue from all other sources amounted to Rs. 100, bringing the Miscellaneous revenue. gross revenue of the year to Rs. 6,775.
7. The working expenses, including direct and indirect charges, amiounted

Working expenses. to Rs. 4,239 against Rs. 5,119 for 1893-94. The rate per mile of canal was Rs. 301 and per acre irrigated Rs. 3.28. The expenses amount to Rs. 62 percent. on the gross revenue.
8. After deducting working expenses from the gross revenue there was a Net profit. net profit of Rs. 2,536, equal to a rate of 0.62 per cent. on the outlay of Rs. 4,07,421 for direct charges.

Cost of measurement.
9. The average water-rate and cost of measurement as compared with the previous four years were as under:-

|  | Years, |  |  | $\begin{gathered} \text { Total } \\ \text { area } \\ \text { irrigated. } \end{gathered}$ | Average incidence of waterrate per Acre. | Cobt of Masaurbment and Retzine Establisament. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Total Cost. | Per Acre. |
|  |  |  |  | Acres. |  | Rs. | Rs. a. p. |
| 1891-92 | ** | $\cdots$ | -•• | 1,391 | 3.09 | 103 | 013 |
| 2892-93 | -•• | -•• | .. | 1,039 | 2.90 | 303 | 0 4.8 |
| 1893-94 | ... | -•' | ... | 1,490 | 4.75 | 474 | $\begin{array}{lll}0 & 5 & 1\end{array}$ |
| 1894.95 | ... | -" | -• | 1,294 | $5 \cdot 16$ | 414 | 0 5 1 |

Excluding the charge for revenue establishment, the cost of crop measurement alone is Rs, 175 and Re, 0-2-2 per acre against Rs. 254 and Re. 0-2-9 per acre for 1893-94.
10. The average duty of water obtained was for

Duty of water. kharif 162 acres per cubic foot per second and for rabi, 116.
11. The following table shows the principal


There were no waste-weir floods over 2 feet deep during the year.
12. The number of trees of all classes on the canals at the beginning of the
was $5,24.5$, and at its close 5,003 . year was 5,245 , and at its close 5,003 .

The principal varieties are, bábul 4,824, jímbul 28, saundad 20, mango 17. The net revenue from plantation was Rs. 57 .

## (27).-YERLA RIVER IRRIGATION WORKS.

The works of (l) reconstructing a portion of Nehr Tank Dam, (z) Nehr Works in progress. Tank service road, (3) Special Repairs to Nehr Store, Famine memorial pillar, Nelır Tank, and (6) Replacing new sluice rods, Nehr Tank, were in progress. The expenditure incurred during the year was./is. 5,772 on "Works."
2. The rainfall ns gauged at Khatgun near the kead

Raintall. of the irrigated area is shown in the following table:-


Area irrigated and assessments.
3. The area irrigated, assessments, working expenses and average water-rate, as compared with the averages of the previous four years, were as under :-

| Yeara. | Kharif. |  | Rabi. |  | Total. |  | Average waterrate. | Working expenses. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| * | Acres. | Rs. | Acres. | Rs. | Acres. | Rs. |  |  |
| 1894-95 | 147 | 1,694 | 2,238 | 70 | 2,385 | 8,728 | $3 \cdot 66$ | 23,752 |
| Average 1890-93. | 700 | 3,889 | 1,263 | 3,936 | 1,963. | - 7,825 | 3.98 | 6,233 |
| Increase ... |  | ... | 975 | 3,098 | 422 | 903 | -• | 17,519 |
| Decrease ... | 553 | 2,195 | ... | - | ... | $\cdots$ | 0.32 | ... |

As compared with the average of the previous four years, there was a decrease of 553 acres in the kbarif and an increase of 975 acres in the rabi senson. This was due to the favourable rainfall in the kharif and to scanty rainfall in the rabi season, a portion of the area applied for in the former season having been watered in the latter. The replenishment to the Nehr Tank during the monsoon was good, and the supply would have lasted througbout the bot - season, but water was let out to lower the level in the tank for replacing new rods to the sluices, causing a decrease in the perennial and hot weather irrigation. Owing to the present state of the Nehr Tank Dam and the uncertainty of a sufficient supply for perennial crops, the cultivators irrigated dufing the year a larger area of rabi crops, the net result being an increase of 422 acres in area and of Ris. 903 in assessment over the average results of the previous four years, and of 427 acres in area and of Rs. 1,742 in assessment over those for 1893-94. Compared, however, with 1891-92, the year before the accident to the Nehr Tank Dam occurred, the figures are as follows :-


It may, from these figures, be fairly assumed that when the reconstruction of the dam has been completed, and a sufficient supply for perennial crops has been secured, the irrigation of the higher rated crops will be resumed and a corresponding increase in revenue obtained.

Remissions to the extent of Rs. 6 were granted in the rabi season, vide Government Resnlution No. 107 W. I.- 327 of 22nd August 1877. The revenue from other sources was Rs. 963 and the gross revenue Rs. 9,691 .

Prinoipal crops. years :-
5. The area irrigated was 22 per cent. of that irrigable, and 11 per Area applied for: cent. in excess of that for which applications were received.
6. The revenue account of the year is a little complicated by the special Working expenses. charges for reconstruction of the Nehr Dam ordered by Government to be made against revenue, under Code II, IX, 13. These special charges and the revenue charges proper of the year are shown below :-

|  | Special charges. | Working expenses proper. | Total. |
| :---: | :---: | :---: | :---: |
|  | Rs. | Rs. | Re. |
| Works ... ... | 13,647 | 3,866 | 17,513 |
| Establisbment | 3,829 | 1,255 | 5,084 |
| Tools and Plant ... | 112 |  | 112 |
| Collection ... ... | ** | 331 | 331 |
| Leave and Pension Allowauces ... | 586 | 176 | 712 |
| Total ... | 18,124 | 5,628 | 23,752 |

Thus the working expenses proper amounted to Rs. 5,628, as against Rs. 5,964 for the previous jear, showing a reduction of Rs. 336.

As the gross assessed revenue amounted to Rs. 9,691, there would, but for the exceptional and special outlay on the reconstruction of the Nehr Tank Dam, have been a net surplus revenue of Rs. 4,063 .

Cost of measurement.
Were:-
7. The average water-rate and cost of the measurement, as compared with the previous three years,


Excluding the charge for the revenue establishment, the cost of crop measurement alone was Ris. 216 and Re. 0-1-j per acre against Rs. 212 and Re. 0-1-9 per acre, for 1893-9\%.

Duty of water.
8. The average duty of water obtained was for kharif 21 acres per cubic foot per second, and for rabi 107.

Storage.
9. The following table shows the principal levels of Nehr Tank: -


There were no waste-weir floods over 2 feet deep during the year.
Plantations.
10. The number of trees of all classes on the canal at the beginning of the year was 22,167 , and that at its close 30,715 .

The principal varieties are bábul 24,476 , mango 3,212 , karanj 539 , and baviboo 332. The net revenue from plantation was Rs. 784.

## (28).-CHIKHLI CANAL.

Closure of contruction estimate.

Rainfall.

The construction estimate of this canal was closed on 31st March 1883.
2. The rainfall, as gauged at Chikhli near the head of the irrigated area, is shown in the following table:-

| $\mathrm{Y}_{\text {ear }}$ |  | Kharif. |  | Rabi. |  | Total. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Inches. | Cents. | Inches. | Cents. | Inches. | Cents. |
| 1894.95 |  | 15 | 09 | 4 | 93 | 20 | 02 |
| 1893-94 |  | 15 | 64 | - 5 | 60 | 21 | 24 |
| Arerage 1890-93 |  | 15. | 76 | 7 | 73 | 23 | 49 |

3. The area irrigated, assessments, working expenses and average waterArea irrigated and assess- rate, as compared with the averages of the previous ment. four years, were as follows :-

| Year, | - Kharif. |  | Rabi. |  | Total. |  | Average water-rate | Working expensea |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - . | A.cres. | Rs. | Acres. | Rs. | Acres. | Rs. | Rs. | Rs. |
| 1894-95 ... .. | 147 | 1,061 | 258 | 916 | 405 | 1,977 | 4.88 | 874 |
| Average 1890-93. | 295 | 1,425 | 65 | 261 | 360 | 1,686 | $4 \cdot 69$ | 829 |
| Increase . | $\cdots$ | -•• | 193 | 655 | 45 | 291 | $0 \cdot 19$ | 45 |
| Decrease ... ... | 148 | 364 | -•• |  | -•• | .'• | ..' | . $*$ |

- There was a decrease, as compared with the average in kharif revenve of Rs. 364, and in area irrigated of 148 acres. In rali, there was an increase of Rs. 655 in revenue and 193 acres in area irrigated. The reason for this is that on account of favourable rainfall in the kbarif season, some of the principal crops, such as groundunts, \&c., did not require water in that season, but were after wards watered in the rabi season on account of insufficient rainfall in that season.
The net increase-in the water-rate assessment is Rs. 291 over the average of previous four years.

Principal crops.
4. The principal crops irrigated during the year were as follows, compared with the previous four
jears:-

5. The area irrigated was 27 per cent. of the irrigable area and 18 per cent. Area applied for. more than that for which applications were received.

Miscellaneous revenue,
6. Revenue from other sources was Rs. 63. and the gross revenue amounted to Rs. 2,010.
7. The working expenses, including direct and indirect charges, were Rs. 874 . The expenses amounted to 43 per cent. on the gross revenue an. to Rs. 134 per mile of canal open and Rs. $2 \cdot 16$ per acre irrigated.
8. The operations of the year show a net profit of Rs. 1,166, or 2 per cent. Net proft. on the direct capifal outlay of Rs. 53,803 .

Cost of measurement.
9. The average water-rate and cost of measurement as compared with previous three years were :-


Excluding the charge of revenue establishment, the cost of the measurement alone was Rs, 36 and Rs. 0-1-7 per acre against Rs, 36 and 0-1.7 per acre for 1893-94.
10. The average duty of water obtained was for the kharif season, 33 acres .

Duty of water. per cubic foot per second and for the rabi 43 acres.
11. The number of all classes of trees on the canal at the beginning of the Plantation. year was 2,68j and at its close 2,763.
The principal varieties are lábul 2,519 , manga 140 , nimb 34.
The net revenue from plantation was Rs. 63.
(29).-MIAINI TANK CANAL.

Clogare of conatruction The construction estimate of this canal was closed estimate. . on 31st March 1892.
2. The rainfall, as gauged at Maini at the head of the irrigated area, is Raiutall. shown in the following table:-

| Yenr. | Kharif. | Rabi. | Total. |
| :---: | :---: | :---: | :---: |
|  | Inch. cents. | Inch. cents. | Inch. cents. |
| 1894-95 . ... | $12 \quad 31$ | 2.12 | $14 \quad 43$ |
| 1893-94 ... | 11 54 | 402 | $15 \quad 56$ |
| Average 1892-93 | 16 8t | 756 | 2440 |

3. The area irrigated, assessments, working expenses and average waterArea irrigated and assess- rate, as compared with the average of the previous ment. four years, were as follows:-

| Year. | Eharif. |  | Rali. |  | Total, |  | Average water rate. | Working expenres. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Acres. | Rs. | Acres. | Rs. | Acres. | Rs. | Acres. | Rs. |
| 1894-95 | 272 | 1,760 | 1,008 | 3,331 | 1,280 | 5,091 | 3.98 | 3,827 |
| Average 1890-93 | 1,003 | 5,091 | 465 | 1,726 | 1,468 | 6,817 | $4 \cdot 64$ | 8,602 |
| Increaso | . $\cdot$ | ... |  |  |  | ... | ... | ... |
| Decrease ... | 731 | 3,331 | ... |  |  | 1,726 | $\bigcirc 66$ | 4,775 |

The kharif area irrigated during the year was less by 731 acres and the rabi greater by 54,3 acres than the average irrigated during the previous four years. The assessment during the year is less than that of the average of the past four years by Rs, 1,726. The reason for this decrease is the same as was reported in the revenue report for 1893-94, that is insufficient rainfall and the accumulation of silt in the tank, now 14 feet higher than the outlet sill. Unless the contents of the tank are increased there will be no growth of irrigation on this canal. Enquiries are proceeding as to whetter anything can be done.
4. The principal crops irrigated during the year were as follows, compared

Principal crops,
with the previous four years:-

5. The area irrigated was 27 per cent. of the irrigable area under command

Area applied for. of the canal and 11 per cent. in excess of that applied for.

6, The revenue from other sources amounted to Rs. 515 and the gross Miscellaneous revenne. revenue to Rs . 5,606.
7. The working expenses, including direct and indirect charges, amounted Working expenses. to Rs. 3,827 or Rs. 227 per mile for canal open Rs. $2 \cdot 99$ per acre irrigated and about 68 per cent. of the gross revenue.
-1340-15

Net profit.
8. The operations of the year show a net profit of Rs. 1,779.
9. The average water-rate and cost of measurement, as compared with

Cost of measarement. previous three years, were as under :-

| Years, |  | $\begin{gathered} \text { Total } \\ \text { area } \\ \text { irrigated. } \end{gathered}$ | Average incidence of water rate per acra. | Coat of Mrabtrbmestand <br> Refinti Ebtablighmert. |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Total Cort. |  | Per Acre. |
|  |  |  | Acres. |  | Rs. | Rs. a. p |
| 1891-92 | * | 1,687 | 4.74 | 237 | 02 |
| 1892.93 | ... | 1,101 | 446 | 419 | 06 |
| 1893-94 | ... | 1,359 | 481 | 532 | 00 |
| 1894-95 | *** | 1,280 | 3.98 | 440 | 05 |

Excluding the charge for revenue establishment, the cost of crop measurement alone was Rs. 224 and Re. $0.2-9$ per acre against Rs. 334 and and Re. 0-3-11 per acre for 1893-94.
10. The average duty of water obtained for the kbarif season was $\$ 2$ acres Duty of water. yer cubic foot per second and for the rabi season, 139.

Storage.
11. The following table shows the principal levels of the Maini I'ank:-

| Date, |  | Above M. S. L. | Rexames. |
| :---: | :---: | :---: | :---: |
| $\because$ |  |  |  |
| 31st March 1894 ... | .. | 2,289•94 | Lowest pre-monsoon level. Highest monsoon level. Level at end of monsoon. |
| 3 rd June 1894 . ... | $\cdots$ | 2,287-14 |  |
| 30th September 1891 | $\cdots$ | 2,300.57 |  |
| 25 th October 1834... | .. | 2,300.08 |  |
| 31st March 1895 ... | . | 2,291.02 |  |
| Outhet sill ... | . | 2,269 32 |  |
| Full supply level ... |  | 2,300.52 |  |

Tie average depth of sill above the outlet sluice is 14 feet. There was only one waste-weir flood nearly 2 feet deep during the year.
12. The number of trees of all classes on the canal at the beginning of the Plantation. - year was 9,681 and at its close 8,800 . 'lhe net revenue from plantation was Rus. 493.
(30).-MUCLKUNDI TANK.

1. The rainfall of the year compares with that of the previous year and with Rainfall. the average of the 10 previous years as under:-

|  | Ebarit | Habi. | Total. |
| :---: | :---: | :---: | :---: |
| Average of 10 years ... | 12.38 | 8.38 | 20.76 |
| 1893-94 | 10.68 | 10.88 | 21.56 |
| 1894-95 | 13.22 | 4.65 | $17 \cdot 57$ |

Areairrigated and assessments.
2. The areas irrigated and assessed revenues of the past 3 years are shown below:-

| Yeara. |  | Arbab irbigated, |  |  | Abseriminmts, |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Kharif. | Rabi. | Totaj. | Kharit. | Rabl. | Total. |
|  |  | Acres. | Ac res. | Acres. | Re. | Rs. | Rs. |
| 1892-93 | ** | 3 |  | 3 | 25 | $\cdots$ | 25 |
| 1893-94 | . ${ }^{\text {. }}$ | 10 | 2 | 12 | 54 | 6 | 60 |
| 1894-95 | ... | 16 | 3 | 19 | 82 | 7 | 89 |

In 1891-92, when the rain almost entirely failed during the rabi season, there were 200 acres irrigated, but that was an exceptional year. Since then the tank irrigation has very slowly been increasing as seen from the above figures.
3. Besides water-rates, the sum of Rs. 200 was realized under miscellaneous Miscollaneous revenue. revenue from the sale of grass within the tank limits.
4. Working expenses amounted to Rs. 566 as against Rs. 387 last year Working expenses. the increase being due to a small survey during the year for enlarging the catchment area of the tank.
5. There was ample supply in the tank throughout the year for the small Storage. area under irrigation. At the end of the monsoon the tank held 14.64 feet of water. The run-off during the year into the tank amounted to 0.165 , or almost exactly one-sixth of the rainfall.
6. The total number of trees and plants on the main and branch canals was Plantation. $\quad 753$, consisting of bábul 722, nimb 28 and tamarind 3. The bábul are mostly fair-sized trees, the others are only small plants.
(31).-NILGUND TANK.

An expenditure of Rs. 20 was incurred on this work only for clearing prickly pear on the dam. No other work has been carried out. There is no irrigation under this tank, as in accordance with Government Resolution No. $\frac{18 \mathrm{~W} . \mathrm{I} .}{\mathrm{b}, 14 \mathrm{t}}$ of 17 th July 1894 the sluice is left full open in order that the water may not rise above sluice level.

> (32).-GADIKERI TANK.

The management of thistankis under the control of the Revenue Department
2. The rainfall of the year was 28.53 inches, almost exactly the average Rainfall. (28.63) for the last 27 years, gauged at Sampgaon six miles from the tank.
3. The area irrigated was 337 acres and the irrigation share of the consoliArea irvigated and revenue. dated revenue amounted to Rs. 1,987.
4. The working expenses, direct and indirect, amounted to Rs. 236 against : Working expenses. Rs. 304 of the previous year.
5. After deducting working expenses the net revenue amounted to

Net revenue. Rs. 1,751 , which represents a return of 18.87 per cent. per annum on the gross capital outlay of Rs. 9,279 . This small work was carried out for the relief of famine in 1876.77, and has financially been most successful.

> (33).-DA'MBAL TANK.

The rainfall of the year was considerably less than that of the last year. It
Rainfall. was 12.98 inches (during the kharif 8.22 and during rabi 4.76) against 20.37 inches of the previous year. The average total fall of the previous 10 years was 20.73 inches.
2. At the beginming of the year there was a depth of 6 feet of water in the Stornge. tank. It fell to 438 on the 2 Cth April 1894, when the first replenishment occurred. On the 26th October the greatest storage was reached, namely 9.65 feet abore the bed of the tank. The tank ran dry on the 31st March 1895.
3. The new area irrigated, assessment, working expenses and average water-rate, as compared with the two previous years, were:-

| Years, | Kharif, |  | Ralis. |  | Total. |  | Average water-rate. | Working expense.. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Acres. | Rs. | Acres. | Rs. | Acres. | Rs. |  | Ins. |
| 1892.93 | 261 | 272 | 54 | 115 | 315 | 387 | 1.23 | 571 |
| 1893-94 | 110 | 629 | 17 | 50 | 127 | 679 | $5 \cdot 35$ | 560 |
| 1894-95 | 98 | 624 | 74 | 261 | 172 | 885 | $5 \cdot 15$ | 918 |

The increase of 45 acres in the area irrigated, as compared with that of the previous year, was due to the scanty later rainfall of the year under report. 143 acres were irrigated under consolidated rates bearing assessment (irrigation revenue) of Rs. 982. The total revenue from both these sources, amounted to Rs. 1,867 , giving an incidence of Rs. $5 \cdot 15$ and Rs. 6.87 per acre for new and old irrigation, respectively,
4. In addition to the above revenue a sum of Rs. 204 was derived from sale of grass, trees, \&c., in this Department, and Rs. 321 in the Revenue Department, on account of other canal produce, making a total of Rs. 525 under this miscellaveous head.
5. The tank revenue from all sources thus amounted to Rs. 2,193, and

Net profit. : after deducting the direct and indirect working expenses, Rs. 918, there was a net profit of Rs. 1,295 equal to $2 \cdot 10$ 'per cent. on the direct capital outlay of Rs, 60,844 .
6. The average water duty per cubic foot per second was during the kharit Duty of water. season 143 acres and during the rabi season 54 acres.

- . (34).-MEDLERI TANK.

Rainfall. . The rainfall of the year mas-

| Kharif | .. | 2.64 |
| :--- | :--- | :--- |
| Rabi | I. | 6.65 |
|  | $\underline{0.09}$ |  |

as compared with 14.98 inches of the previous jear, the average fall of the previous 10 years being $21: 39$ inches.

- 2, At the commencement of the jear the water level was 8.52 above the

Storago. outlet sluices. The higbest level reached was 10.25 feet on the 31st May 1894, after which date it fell steadily, and the tank became dry on 18th February 1895.
3. The area irrigated, the assessment, working expeuses and average water-rate, as compared with the tro previous ycars, Ares irrigated and assessment. were :-

4. It will be seen from the above figures that there was an increase in the area irrigated and the revenue assessed, as compared with the previous year. The increase was due to the failure of rainfall of the year.

Miscellaneons revenue. $\quad$. $\because \quad 5$. Amount of miscellaneous receipts was Rs. 16 , the total revenue from all sources was, therefore, Rs. 493.

Daty of water.
6. The average duty of water per cubic foot per second during the kbarif was 238 acres and during the rabi 110 acres.
(35).-MADAG TAŃK.

The rainfall of the year (during kharif 11.72 inches and rabi 8.02 inches)
Raidfall. was 19.74 inches against $25 \% 31$ inches of the previous year. The average rainfall of the previous 10 years was $28 \cdot 99$ inches.

Area irrigated and assess.
ment. ment.
2. The area irrigated, water assessment, the work. ing expenses, and average water-rate, as compared with the two previous years, were:-

| Years. |  | Kharif. |  | Rabi. |  | Total. |  | Average water-rate | Working expenses. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Acres. | Rs. | Acres. | Rs. | Acres. | Rs. |  | Rs. |
| 1832-93 ... | ... | 359 | 1,081 | 382 | 1,134 | 741 | 2,215 | $2 \cdot 99$ | 1,050 |
| 1833.94... | ... | 318 | 796 | 374 | 1,096 | 632 | 1,532 | $2 \cdot 73$ | 920 |
| 1894-95... | ... | 583 | 1,274 | 335 | 965 | 924. | 2,239 | $2 \cdot 42$ | 1,687 |

The increase of 232 acres in the area irrigated, as compared with bat of the previous jear, was due to the insufficient rainfall of year.
3. In addition to the above revenue Rs , 308 were realized on account

Miscellaneous revenue. vious year.

## Plautation.

 and tamarind.5. Deducting Rs. 1,687, the amount of working espenses, direct and inNet profit. direct, from the amount of the total revenue derived from the tank this year, there is a net profit of Rs. 860 , equal to about $\frac{1}{2}$ per cent. on the direct capital outlay of Rs. $1,61,248$.
6. The average water duty per cubic foot per second was during the

Daty of water. lelarif season 120 acres and during the rabi season 48 acres.
(36),-ASUNDI TANK.

The rainfall of the year was during kharif $7 \cdot 07$ inches and rabi 6.42 inches,
Rainfall.
2444 was inches.
2. The tank received replenishments in the last week of April, and it filled Storage. on the 19th of May and water flowed over the weir fell, but the tank again frest till 21 st idem, The water level then graduater level stood between 10 and 7.88 above the outlet sluices till 22 nd of October, and then fell steadily oring to the demand for canal water for irriration purpuses on account of scanty rainfall, and there was no water in the tank on 3lst Mardi 159.
3. The area irrigated, assessment, norking es.

Area irrigated and assess. ment.
penses and average water-rate, as compared with the two previous jears, were:-

| Years. | . Kharif. |  | Cavid. |  | Tutal. |  | Averate | Wurkins: thimines. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Acres. | Rs. | Acres. | Rs. | Acres. | Rs. |  | Is. |
| 1592-93... | 46 | 190 | 18 | 120 | 64 | 316 | $4 \cdot 19$ | 1,102 |
| 1593-94... | 60 | 175 | 25 | 116 | 85 | 991 | $3+2$ | 301 |
| 1594-95 ... | 112 | 476 | 99 | 303 | 211 | 78 | 369 | 909 |

The above figures show a considerable increase in the area irrigated, and the water-rates assessed over those of the previous year or any other year since 1854-55. The increase was due to scanty rainfall.
4. In addition to the above, 185 acres, with an itrigation revenue of Rs. 632, Miscellaneons revenue. were irrigated under old irrigation with the amount of Re. I as miscellaneous receipts:
5. The total amount of revenue was Rs. 1,412 , and the working expenses Net profit. direct and indirect amounted to Rs. 000, learing a net profit of Rs. 503 on the nperations of the year, or equal to 0.83 per cent. on the direct capital outlay of Rs. $60,7+1$.

Daty of water.
6. The average water duty per culic font per second was during kharif season 62 acres, and during rabi season 149 acres.

## (37).-MA'VINKOP TANK.

Water distcibation, \&c., under this tank is managed by the cultivators concerned under the control of the Revenue $\mathrm{D}_{\text {epartment. }}$
2. The-area irrigated, all kharif, was 492 acres with a consolidated assersiment of Rs. 1,265 , which is the same as that of the previous year. Fuur-fifths or. Rs. 1,012 were credited for water share. Rs. 5 were realized on areount of miscellaneous receipts, the total revenue from the tank, therefore, anounted to lis. 1,017.
3. The Collector of Kínara, in his No. 3104 of 1 Sth June 180., stateil that new rates have been assessed on the lands irrigated by the tank water, which are to come into foree in 1895-96. They are as follows:-

| . |  | Jiry.erop. |  |  |  | 'rotat. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Arca. | Asscorment. | Aria. | Absessment, |  |
| New Akarbaml | $\cdots$ | A. r. lis. a. A. g. Iis. a. <br> 520 15 520 0 010 23 2,395 10 <br> 647 95 302 15 488 10 1,275 2 <br>       Incrave .  |  |  |  | IV. |
|  |  |  |  |  |  | 2,401 |
| Ohl do. |  |  |  |  |  | 1,5\% |
|  | ... |  |  |  |  | 1,143 |

'Ihis is adlitional revenue due to the improvenent of the tank. .

## (33).-GOLA'K CANAL, Ist SECHON, and SHOLAGE WORKS,

The carital expenditure, including dincet and indirect charerex, durines the
Capital ruthay. - year was lis. 18,095 , and the total outlay up the the cd amount of Rs. 12,33,013. The principal items of the year's outlay on woms only were Land Compensation (Rs. 471), Extension of Gokák Cinal, 1st Section, (Ils. 1,857), and Improving Konur Ford (lis. 1,22:).

The short extension of the canal sanctioned in Government Resolution No. 151 W.I. -1940 , dated 21st December 1801, was finished soon after the close of the year. It will add $1 ; 030$ acres to the present irrigalle command of 6,170 acres.

Rainfall.

- 2. The rainfall gauged at the head of the canal compares with the average of the last ten years and with fall of 1593-91, ns under:-


It will be seen that there was a decrease of 2.36 inches in the kharif and $7 \cdot 85$ inches in the rabi, as compared with last year. The total fall was less by 7.88 inches than the average, and not much more than half the fall of the previous year.
3. The lowest level of storage in the hot weather of 189 L was on 21 st

Riror supply. March when the tank level was 17.50 feet above the sill of the canal sluice. On the 19th May the tank was again at about the same level, but it then quickly filled to overflowing. The late rain failed, and storage began to be drawn upon on the unusually early date of 19 th December. There was some anxiety, whether the supply to the mills and to the canal would last out through the season, but happily a freshet in the river gave relief on the 11th April 189:, on which date there was only a depth of $10 \frac{3}{3}$ feet in the tank, equal to about 25 days' supply. Afterthe replenishment, there was no further cause for anxiety.

The maximum flood occurred on the 20th July, rising 3.70 feet above the weir crest, representing a volume of 73,000 cubic feet per second and a run-off of 0.10 inches from the catchment area of the river of 1,083 square miles.

Area irrignted and waterrate assessments. rate assessments.
4. 'I'he following table compares the areas irrigated and water-rate assessments of the year with the average of the last three years, since the works were completed in the hot weather of 1891 :-

| Years. |  | Area mbitatep, |  |  | Assessment. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Eharif. | Rabi. | Total. | Kharif. | Rabi. | Total. |
|  |  | Acres. | Acres. | Acres. | Rs. | Rs. | Rs. |
| 1891-92... | ... | 3,699 | 2,371 | 6,000 | 6,160 | 5,281 | 11,441 |
| 1892-43... | ... | 2,821 | 1,027 | 3,848 | 7,132 | 2,218 | -1,357 |
| 189:3-94... | ... | 3,014 | 1,223 | 4,237 | 8,509 | 3,120 | 11,629 |
|  | Arerage | 3,155 | 1,540 | 4,695 | 7,269 | 3,540 | 10,803 |
| 1834-95... | ... | 3,038 | 1,355 | 4,363 | 8,507 | 3,408 | 11,915 |

Area.- The kharif area was about equal to that of last rear. In the rabi season there was au increaze of 102 acres over that of the previous year due to short raiufall.

The area irrigated during the hot weather was 34 acres against 43 in the previous year.

No applications for perennial crops were refused during the year. The irrigated area ( 4,363 acres) amounted to 71 per cent. of the entire irrigable area $(0,170)$ acres of the canal, so far as it was then constructed. In 1895-96 the
irrigable area under command will have been increased to 7,200 acres by the completion of the short extension of canal alluded to in the first para. ante.

Assessment.-The kharif assessments were the same as last year, but show a substantial increase over the average of the three previous years. The increase of Rs. 288 in the rabi over that of last year was mostly due to the 102 acres additional area.

No remissions were granted during the year.
5. The average water-rate per acre irrigated

Average water-rate per acre.
Realizations and outstandings.
6. The realizations of the year amounted to Rs. 16,780, including Rs. 4,920 paid by the Mill Company. There were no outstandings.
7. In addition to water-rates the following mis.

Miscellaneous revenue. cellaneous revenue was derised by the canal:-


The assessment for the continuous supply of 47 cubic feet per second to the mills was Rs. 9,840 , but half of this sum had been paid in advance last year (see para. 9, page 62 of the printed Irrigation hevenue Report for 1893.9.1), so that the actual realization of the year for water power was Rs. 4,920 only.
8. The total assessed revenue of the year was

Total assessed revenue.
therefore:-

| Water-rates ... | $\cdots$ |  |  | Re. |
| :---: | :---: | :---: | :---: | :---: |
|  |  | ... | ... 11,915 |  |
| Water power ... Canal produce |  | ... |  | 9,840 |
|  | .. | ... | ... | 23. |
|  | Total ... 21,087 |  |  |  |

Working expenses.
9. The working expenses, including direct and indirect charges, compare as under for the last four years, being the period in which the present works have been in operation :-


The outlay on works was the same as last year, Establishment cost Rs. 272 more in consequence of the new rules directing a delit of share of Subordinate Establishment to revenue management. Collection charyes were less by Rs. 295 than last year, and the whole cost of working was lis. 3 üc less.
Cost of working per mile of canal aud per acre irrigated.
10. The cost of working was:-


The high cost per mile is misleading as in consequence of the falls ( 200 feet high) just below the main weir, the canal in a length of only $2 \frac{5}{8}$ miles attains its present command of 7,200 acres irrigable land. At $2 \frac{1}{2}$ miles the canal gives off its first and at present its only great branch to Wadarbatti. With the canal only constructed for the 1st section, this Wadarhatti Branch is virtually the main Canal, and if its length, 12 miles, be added, to the $2 \frac{5}{3}$ miles of canal proper, the working expenses per mile of canal become $\frac{5,58 \theta}{\frac{5.88}{1+8}}=$ Rs. 390 .

The cost of working per acre irrigated is seen to be rather less than in the two previous years.
11. The following table compares the gross assessed revenue with the working expenses for the last four years :-

| Years |  |  |  | Gross assessed revenue. | Working expenses. | Per cent. | Surplas revenue. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1891-92 |  |  | . | 19,317 | 5,383 | 27.9 | 13,934 |
| 1892-93 | ... | ... | . | 19,340 | 6,718 | $29 \cdot 6$ | 13,622 |
| 1893-9.4 | ... | ... |  | *21,665 | 6,052 | $35 \cdot 8$ | 15,613 |
| 1894.95 | ... | ... | . | 21,987 | 5,686 | $25 \cdot 9$ | 16,301 |

" Excludes Rs. 4, 920 paid in adrance for 1894-96.
The working expenses as seen from this table compare very favourably with those of any of the previous years, the percentage to assessed revenue being only $25 \cdot 9$, as compared with $27 \cdot 9$, the lowest on record since the completion of the works.

After deducting working expenses from the assessed revenue of the year, there remains a surplus of Rs. 16,301, which represents a net return of nearly $1 \frac{1}{2}$ per cent. on the whole capital outlay (Bs. $11,94,876$ ) to end of the year, direct and indirect. In the case of so young a canal, this is a very favourable and promising result. The current water-rates last till 1897-98 inclusive, when they will be again considered, and there is little doubt that the rates can then be substantially increased without in any way prejudicially affecting the popularity of this canal. Moreover, the increased command of 1,030 acres (irrigable) secured by the extension of the canal (see para. I) will in a year or two add sensibly to the favourable results already a attained.
12. The quantity of water given out during the year to the Mills Company Water sapply to the mills. remained as before at 47 cubic feet per second continuous supply night and day. During 1895-96 the company have applied for an increased supply up to 58 cubic feet per second continuous flow.
13. The area irrigated was measured by a special establishment consist-

Cost of measurement. ing of one measurer and the required number of khalásis. The cost of measurement was Rs. 749 equal to Re. 0-2-9 per acre irrigated against Rs. 772 equal to $R_{e} .0-2-10$ of the previous year.
14. The duty of water was 238 acres in the kharif and 144 acres in the

Duty of water rabi season per cubic foot per second. The former very high duty is due to the fact that although the rainfall was below the average, the periods during which the rain fell were so timely and convenient for the crops, that the ordinary discharge from the canal was not required. The same reason influenced the duty of rabi, but to a less extent.
15. The number of existing trees during the year was 7,134, consisting

Plantations. chiefly of bábul 6,500 , nimb 147 , shemi 133 , tamarind 80 , banian 76 , pimpri 64 and mango 54 . of the total number about half are over $\mathbf{6}$ feet in height, and the remainder are seed. lings from 2 feet high upwards.

## PARTII

## WORKS IN OPERATION FOR WHICH ONLY REVENUE ACCOUNTS ARE KEPT.

1. The folloring table shors the areas irrigated in the different districts in the Deccan and Gujarat and the consolidated revenue assessed during the year :-

| Collectorsten. | Number of works. | Ares irri. gated. | Revenup. |  |  | Rivabis. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Irrigation share. | Land share. | Total. |  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|  |  | Acres. | Re. | Rs. | R. |  |
| Almedabad | $66^{\circ}$ | 10,802 | 21,948 | 29,128 | 51,076 |  |
| Kaira ... | $\bullet 2$ | *7,992 | *27,916 | -11,361 | *39,277 | - Figures of 1893.94. Infurmation fur 1894.95 |
| Sarat | 290 | 19,365 | 49,391 | 1,17154 | 1,66,545 | recoria of the Collector of Kbira, |
| Broach ... | 28 | 905 | 3,027 | 4,739 | 7,766 |  |
| Khándesh | 83 | 9,188 | 58,782 | 12,670 | 71,452 |  |
| Násik | $\{191$ | 17,817 | 80,804 | 26,002 | 1,06,806 |  |
| Násis | 1 +80 | 10,631 | 80,6٪0 | 11,771 | 93,391 | +In charge of the Khan- |
| Ahmednagar | - 2 | 147 | 353 | 132 | 485 | desh Irrigation District. |
| Poona ... | 3 | 515 | 2,857 | 1,015 | 3,872 |  |
| Sátára ... | 1 | 100 | 623 | 415 | 1, 338 |  |
| Belgaum... | 67 | 0,910 | 33,049 | 8,255 | 41,30t |  |
| Dhárwár... | 474 | 60,746 | 1,72,894 | 43,221 | 2,16,115 |  |
| Bijápur ... | 17 | 1,440 | - 5,924 | 1,474 | 7,398 |  |
| Ratuagiri | 4 | 1,349 | 3,664 | 2,798 | 6,46: |  |
| Tótal | 1,308 | 1,43,907 | 5,41,852 | 2,70,135 | $\ddagger 8,11,987$ | + Not consolidated asbesnment for the Revenue year 1894.95. |

2. The following table shows the actual expenditure and receipts for the Expenditure and receipts. year 189t-95 on all the irrigation works in the Deccan and Gujarat for which only Revenue $\Delta$ ccounts are kept:-

| Collectorate. | Expmotrem. |  |  |  |  |  |  |  | Actuan Recaiftm. |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Direct Chargee. |  |  |  |  |  | Indirect <br> ehargea. <br> Share <br> of <br> enllec- <br> tina <br> char- <br> gte-: | Grad Total. | Direct Booeipts. |  |  |  | Gipund <br> Total <br> Direct and <br> Indirent <br> Deveipute. |  |  |
|  | Exten* sirms and Impriremente. | Maintenance and Bepaire. | Establishment. |  | Toole and Plant. | Tintal Direct Chargee. |  |  |  |  |  |  |  |  |  |
|  |  |  | Dircetiva. | Execntive. |  |  |  |  | Irrifa. tull $\qquad$ | lanciat. | Roреіри. |  |  |  |  |
| 1 | 2 | 8 | 6 | 5 | 0 | 7 | $\theta$ | $\bigcirc$ | 10 | 11 | 12 | 13 | 16 | 15 | 10 |
|  | Re. | B. | R. | He. | B. | $\mathrm{RH}_{6}$ | $\mathrm{Hr}_{0}$ | 8. | da, | 8 E . | Re. | He. | R. |  | B. |
|  | ${ }^{48}$ | 1,783 8,222 | 272 | 1,216 | 115 | 7,046 | \{2,195 | f 0,342 | $\{\cdots$ | 1:77 | 488 | 21.919 127.416 | 21,018 $42.3: 4$ | $\cdots$ | 21,948 |
| Eurat … | 13,781 | 19,316 |  |  | 408 | (36,080 | ( 4,007 | \} 41,960 | $\cdots$ | 878 | 678 | 49,951 | W, \%48 | $\ldots$ | 4vimet |
| Brach ... | 618 | 839 | 1,858 | 0,00 | 4 | 130,000 |  | \% $\$ 1,000$ |  | $\cdots$ |  | 8,097 | 8,127 | $\cdots$ | 8.047 |
| Sanit ... | ${ }^{6.3115}$ | 807 | 1,254 | 16,588 | 191 | 24,696 |  | 82,74 | 1, 94 | 4 | 78 | 80,44 | 80,4nt |  | 90, 94.8 |
| Khandelh... | . $\left\{\begin{array}{l}11,117 \\ 13,197\end{array}\right.$ |  | \} 6,028 | 20,634 | 806 | 64,671 |  | ] 78,900 | $\{1,240$ |  | 1,2000 | 80.6 no | 61,010 |  | 81.010 |
| Khandeah... | - \{ 13,007 | 2,146 | $\int 0,0 m$ | 20,004 | 80 | \%,8 | (5,878 | f 70, | … | 129 | 120 | Br, inz | 60,411 | $\cdots$ | 86. 011 |
| Ahmednagar | ${ }^{\text {m }} 27$ | ${ }_{288}$ | $\cdots$ | ${ }^{-6} 129$ | $\cdots$ | $\cdots$ | 858 | [ ${ }_{818}^{85}$ | -680 |  | \%0 | $\xrightarrow{8,459}$ | 8, 8197 | $\cdots$ | 8.7448 |
| Pmam | $\cdots{ }^{-1 .} 27$ | 228 | 68 | 128 | $\cdots$ | ${ }^{-2} 5$ | 350 Hi | 818 62 | . 680 | . 200 | 00 | 8,8097 | 8,717 | $\cdots$ | 8,747 |
| melpaum ... | $\cdots$ | 2,81 | 178 | 611 | 800 | 4.705 | 8, 813 | 8,010 |  | $\cdots$ | $\cdots$ | 88.040 | 8s,04 | $\ldots$ | 89,0008 |
| Dhismar | ... 18, 213 | 85,90 | 2,841 | 30,445 | 1,3069 | 67.007 | 17,471 | 1,08,318 | b4 | 1,63A | 2,0no | 1,72,044 | 1,76,4:4 | $\cdots$ | 171.054 |
| Hijapar | $\ldots$ | ces | 47 | 177 | 11 | 3,144 | 640 | 1,760 | $\cdots$ | 68 | ${ }^{2} 8$ | 8.0.0.4 | 1, 8, \%nd | $\cdots$ | 6.0.0 |
| Batodigiol ... | ... ... | 158 | 8 | 40 | 2 | 197 | yed | 563 | ... | $\cdots$ | ... | $8, \mathrm{X}, \mathrm{c}$ | 8,0604 | ... | 3,064 |
| Total | ... 05,043 | 64,971 | 11,840 | 61,276 | 3,147 | 12,17,1402 | 51.124 | 4,78,400 | 2,677 | 2,040 | 6,373 | 6,61,602 | 8,47,405 | $\cdots$ | 8,47,423 |

[^7]\[

$$
\begin{aligned}
& \times 7232.231 \gamma \\
& \quad 65
\end{aligned}
$$
\]

48886
3. The total amount of revenue realized from

Comparison with previons јеara. and the working expenses of this class of works during the past three years were as follows :-

|  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

4. The expenditure from contributions and Pátphála funds on all irriga-
tion works for which only revenue accounts are
Contribotions and Pattphála
Ceess.

| - Collactorate, |  |  | Expanditure. |  |  | Reimargs, |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Contributions. | $\begin{aligned} & \text { Patphála } \\ & \text { Fund. } \end{aligned}$ | Total. |  |
| - 1 | 1 |  |  | 2 | 3 | 4 | 5 |
|  |  |  | Rs. | Rs. | Re. |  |
| Ahmedabad | ... | $\ldots$ | 159 | .', | 159 |  |
| ${ }_{\text {Karat }}$ K | $\cdots$ | $\cdots$ | 3,060 | $\cdots$ | 3 |  |
| Broach | '... | ... | 95 | ... | 95 |  |
| Násik | ... | $\ldots$ | 670 | 2,759 | 3,429 |  |
| Khándesh | ... | ... | 148 | 2,013 | 2,161 |  |
| ${ }_{\text {Almadnagar }}$ | ... | $\cdots$ | $\cdots$ | ... | ... |  |
| ${ }_{\text {Paona }}$ | $\cdots$ | $\cdots$ | ... | ... | .'. |  |
| Belgaum | ... | $\cdots$ | 971 | ... | 971 |  |
| Dharmár | ... | ... | 5,617 | ... | 5,617 |  |
| Bijápur | ... | $\cdots$ | ... | ... | ... |  |
| - Total :. |  |  | $\ldots$ | ... | ... | - Accounted $\begin{gathered}\text { for in the } \text { thinance } \\ \text { Acounta } \\ \text { under "Works for }\end{gathered}$ |
|  |  |  | 10,720 | 4,772 | *15,492 | Which neither Capltal nor Revenue Accounta are kept." |

## AHMEDABAD DISTRICT.

5. The only new work which was in progress during the year was the Khári Irrigation Sluices. improvement and extension of the Naika Channel estimated to cost Rs. 16,274 and sanctioned in Government Resolution No. 24-W.I.- 262 of 13th February 1891. On this an expenditure of Rs. 72 was incurred, leaving an unespended balance of Rs. 1,203, which will be utilized in making certain improvements lately sanctioned.
6. The working expenses during the year, exclusive of charges for revenue collection, amounted to Rs. 1,133.
7. The old works in this district were fully des-

Old works. cribed in the report for 1892-93 and there is nothing to add thereto.
8. During the year under report five tanks were repaired at a total cost of Rs. 2,411 of which Rs. 1,806 were spent on repairs and Rs. 605, including Rs. 261 contributed by the villagers concerned, on improvements.
9. The revenue derived and areas irrigated from tanks in this district are as under:-


## SURAT AND BROACII.

10. Dưring the jear under report 38 tanks were repaired at a total cost Tanks, of Rs. 31,360 , of which Rs. 15,200 were spent on repairs, and Rs. 16,160 on improvements. Of the above a sum of Rs. 3,083 was contributed by the villagers interested in the irrigation of lands under the different tanks, and Rs. 75 by the Taluka Local Board, Chikhli, in aid of water-supply privileges:
11. Of the 38 tanks, 2 belong to the Broach District, the total cost of repairs and improvements carried out to them amounting to Rs, 1,869 .
12. A sum of Rs. 496 was expended in surveying tanks for preparation of estimates for repairs and improvements.
13. The total area irrigated and the consolidated revenue assessed on irrigation tanks in the Surat and Broach Districts, as reported in Canal Return No. VIII by the Collec. tors, are as under :-

|  | District, |  | Area. | Net consolidated assessment. | Irrigation share, | Land elarr. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Acres. | Rs. | Rs. | Rs. |
| Surat ... | ... | *" | 12,365 | 1,66,545 | 49,391 | 1,17,154 |
| Broach |  |  | 952 | 7,766 | 3,027 | 4,739 |

## NA'SIK DISTRICT.

15. The area under permanent bágáyat is 17,817 acres, paying Rs. $1,00,806$ consolidated assessment, of which the Irrigation share is Rs. 80,804 : that is about Rs. $4 \frac{1}{2}$ per acre.
16. The expenditure on maintaining the works has been Rs. 6,840 on estension and improvements, and Rs. 452 on repairs, Expenditare, These amounts include contributions. by the rayats of Rs, 585 for improvements and Rs, 85 for repairs.
17. Rs. 4,856 is the estimated cost of works in progress for the improvement of the Datali bandhára in the Sinnar taluka, and an increase of Rs. 30 in the Revenue is anticipated when the works are completed. Similarly for the Rs. 1,952 expended on Gulkhadi Nala, an increase of R.s. 104 in the revenue is expected. The other works are all small and unimportant. They consist chiefly of diversions in bad places where the channels run near the river.

Dotails of expenditure.
18. The expenditure in detail was as follows :-

19. The following statement shows the areas irrigated and the consoliRevenae.
dated revenue assessed on second class revenue works during the year:-
в 1340-18


KHA'NDESH IRRIGATION DISTRICT.
20. The following table gives a summary of the

Area irrigated and revenne. area irrigated and the revenue derived from old irrigation works :-


These figures are exclusive of the old irrigation under the Lower Panjbra system. The miscellaneous revente amounts to Rs. 129, which being added to the above, the gross revenue from these works amounts to Rs. $1,40,976$.
21. A sum of Rs. 800 is outstanding from the separate water-rates due from works improved by the State.
22. The cost of the maintenance and improvement of these old irrigation Expenditure works is exhibited in the following table in contrast with the outlay of the previous year :-


The year's operations have been described in the annual Administration Report of the year. Despite the increase in expenditure on improvements and repairs, the establishment charges have decreased by Rs. 5,923 , as these charges are now distributed equally on all works in proportion to the outlay, and the undue debit of charges to these works has disappeared.
23. In the foregoing table the Government share in the maintenance of these works is represented, but that alone is not all that is required to keep up these works. The irrigators aliso have an obligation to perform in the matter of silt clearance and petty earth-works, and the construction of works of local interest, such as small road bridges, minor diversions, escapes, \&c. The latter are carried out from the "Patphála Fund" a voluntary cess contributed by the irrigators, and from partial grants from local funds, and the former are supposed to be done by the people themselves, Government stepping in to help when the works are beyond the capability of the people. The "Pátphala Fund" money spent during the year amounts to :-

| Improvements |  |  | Rs. |
| :---: | :---: | :---: | :---: |
|  | ... | ... | ... 2,039 |
| Repairs ... | ... | .. | ... 2,733 |
|  | Total ... 4,772 |  |  |

against Rs. 1,522 in the previous year, and endeavours are being made to keep the unspent balance of the people's contribution at as low an amount as practicable. The Local Fund expenditure has been on-

| Works ... | ... | ... | $\cdots$ | ${ }_{959}$ |
| :---: | :---: | :---: | :---: | :---: |
| Repairs ... | $\ldots$ | $\ldots$ | ... | 21 |
| Establishment | $\cdots$ | ... | .. | 91 |
| Tools and Plant | ... | ... |  | 11 |
|  |  | Total .... 1,282 |  |  |

24. The work of silt clearances and petty earthworks is not satisfactorily done by the irrigators, and the question formed the subject of deliberations of a special committee at Poona during the year under report.

## AHMEDNAGAR DISTRICT.

25. The only two works of this class are situated in the Akola Taluka-
26. Sâvargaon bandhára.
27. Gardeni do.
28. The following table shows the area irrigated and the consolidated Area irrigated and revenue. revenue assessed during the year.

|  | Name of Bandhára. |  |  | Ares Irrigated. | Rutbsues. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Incigation |  | Land Bhare. | Total. |
| Sávargaon <br> Gardani |  |  |  |  | Acres, | Re. | Rs. | Rs. |
|  |  |  |  | 76 | 200. | 61 | 261 |
|  |  |  |  | 71 | 153 | 71 | 224 |
|  |  |  |  | 147 | 353 | 132 | 485 |

## P00NA DISTRICT.

27. The following are the works in this Collectorate, for which only revOld works.
evenue accounts are hept.:-
28. Dam at Kasur.
29. Dam at Náráyengaon.
30. Dam at Vadaj.
31. Dam at Pátue.
32. Dam at Agar.
33. Tank at Wadlả̉na.

The description of these works has been given in the Revenue Report for 1881.82.
28. During the year 1894-95, a sum of Rs. 228 has been expended on mainte-

Expenditure. nance and repairs of the dam at Náráyengaon as under:-

1. Strengthening the banks of the existing claannel ... ... | R. |
| :--- |
| $1+6$ |
2. Diverting the eála close to the bandhâra headworks .... 82
3. Rs. 27 were expended during the year for gauging the heights of water in Supa, Wadhána and new Pátus Tanks.

## BELGAUM DISTRICTI.

. Total number of second class tanks irrigating over 50 acres each in this - district is 67 , with an irrigation area of 9,910 acres, paying a consolidated assessment, amounting to Rs. 41,304 , of which the irrigation share is Rs. 33,049 . Of these only one tank was repaired and irnproved during the year at a total cost of Rs. 4,532 . Rs. 24 were paid during the year for land compensation on account of repairs to Hirekeri at Bechinkeri carried out in the previous year.

## DHA'RWA'R DISTRICT.

31. The total number of tanks of this class is 3,220 , of which 471 irrigate above 50 acres.
32. The following table shows the progress made in repairing and imExpenditure. proving these tanks during the year:-

| Fature of Tanks, | Commerced in previous year. |  | Commenced and completrd deaING thB yRAR. |  | Commenoed, but not completed dering the yEAR, |  | Toral. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number of Tanks. | Cost of Work. | Number of Tanks. | Cost of Work, | Number of Tauk: | Cost of Work. | Number of Tanks. | Cobt of Work, |
|  |  | Rs. |  | Rs. |  | $\mathrm{R}_{3}$, |  | $\mathrm{Rs}_{4}$ |
| Irrigating over 50 Acres ... ... | 19 | 7,595 | 14 | 13,290 | 18 | 23,735 | 51 | 44,626 |
| Do. less that do, .. ... | 22 | 818 | 70 | 9,302 | 10 | 4,243 | 111 | 14,363 |
| Total ... | 41 | 8,413 | 93 | 22,598 | 28 | 27,978 | 162 | 58,96? |

giving a total of 51 of the larger tanks attended to at a cost Rs. 44, 626 and of 111 of the smaller tanks at a cost of Rs. 14,363. The rayats' contribution towards this expenditure was Rs. 5,371:
33. The area irrigated and the assessment on lands below the tanks irrigatArea irrigated and revenue. ing over 50 acres are as under :-


In addition to the above the following direct receipts were realized during the year：－

| － |  |  | Rs． |
| :---: | :---: | :---: | :---: |
| From direct water－rates | ．．． | ．．． | ．．． 524 |
| Do，miscellaneons sources | ．．． | ．．． | ．．．1，536 |
|  |  |  | 2，060 |

As in former years no portion of the revenue from land irrigated under the smaller tanks bas been credited to the Public Works Department．

## BIJAPUR DISTRICT．

34．The fifteen old irrigation works in this district in charge of the Public Works Department shown in the revised list of tanks approved and published during 1893－94 have been reduced during the year by one，the Nandikeshvar Tank in Bádámi Táluka having been struck off the list，vide Government Resolution No． 129 W．I－ 1607 of 2nd October 1894．The area irrigated was 1，440 acres and the irrigation revenue under the 14 tanks was Rs． 5,924 ．

35．During the year Rs． 882 were expended on repairs to 7 tanks and Rs． 67 on improvements to 2 tanks．

## RATNA＇GIRI DISTRICT．

36．There are three tanks in this district with an irrigated area of $\mathbf{1 , 1 0 5}$ acres and an irrigation revenue of Rs．4，988．

37．Annual ordinary repairs to two of them，viz．，the Pat and Warad，were executed during the year at a cost of Rs． 72 and 86 ，respectively．

## AGRICULTURAL WORKS．

38．The following table shows the financial results of the several Drainage channels in drainage channels constructed in the Broach Collec． Broach： torate．

| －Names of Channels． |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Jambusar Taluka． | Rs． | Rs． | Rs． | Rs． | Acres， | Acres． | Rs． | Rs． | R． |
| 1．Kora－Madafar Channel in－ cluding Jantram Branch． | － 0 | 16，003 | 2，376 | 13，627 | 2，750 | 1，478 | 6，405 | ．．＂ | $39 \cdot 66$ |
| 2．Amanpur－Nadiad Channel．．． |  | 14，302 | 2，104 | 12，198 | ． 980 | 748 | 3，093 |  | $25 \cdot 35$ |
| 3．Eindhav Channel ．．．．．． | 1，238 | 1，238 | $\cdots$ | 1，238 | 63 | 1 | 3， | $\cdots$ | 2 |
| Fȧgra Taluka． |  |  |  |  |  |  |  |  |  |
| 4．Samadpor－Kadolra－Paniadra Chanael． |  | 7，072 | 3，800 | 3，272 | 495 | 477 | 1，006 |  | 20．74 |
| 5．Pakhajan－dmbhel Channel．．． | 16，494 | 23，917 | 8，242 | 15，675 | 1，251 | 573 | 1，429 | ．．． | $9 \cdot 12$ |
| Ankleektuar Taluka， |  |  |  |  |  |  |  |  |  |
| 6．Adol－Hajat－Piludra Chan－ nel．．． | 7 | 12，296 | 3，408 | 8，888 | 653 | 490 | 1，967 | ．．． | 22：13 |
| Total ．．． | 17，739 | 74，828 | 19，930 | 54，898 | 6，192 | 3，766 | 12，900 | ．．． | 23•49 |

39．The amounts realized from sales of occupancy right during the year 1894－95 were as follows ：－
40. The Pakbajan-Ambhel Channel which was commenced in 1893-94 was all but completed during the year, and has already given a return of over 9 per cent. on the net outlay.
41. The Sindhav drainage channel was completed during the year at a cost of Rs. 1,238 , but no land has been taken up owing to the past two seasons being unfarourable. If the present season proves favourable, most of the assessed waste land on the channel is likely to be taken up.
42. The total revenue from all the drainage channels amounts to 23.49 per cent. of the total net outlay.
43. Current repairsto the dam at Borvi in the Kolába Collectorate were Dam at Borvi. : carried out during the year at a cost of Rs. 35.

> Revenue Report of Irrigation Works in the Bombay. Presidency, excluding Sind, for 1894-95-Reriewo of the.

No. 9 W. I.-123 or 1896.
Public Works Department.

> Bombay Castle, 28th January 1896.

- Letter from the Chief Engineer, Northern Division, No. 4649, dated 14th September 1895.

Forwards the Irrigation Revenue Report for 1894-95, Part I.
Letter from the Chief Engineer, Northern Division, No. 5056, dated 25th September 1895.

Forwards the Irrigation Revenue Report for 1894-95, Part II.
Letter from the Superintending Engineer, Central Division, No. 5581, dated 30th September 1895.

Forwards the Irrigation Revenue Report for 1894.95,'Parts I and II.
Letter from the Examiner of Public Works Accounts, No, B.-3-1322, dated 11th October 1895.

Submits the statements and tables required in connection with the Revenue Report of Irrigation Works in the Deccan and Gujaratt for 1894-95.

Memorandum from the Superintending Engineer, Southern Division, No. 4341, dated 14th October 1895.

Forwards the Irrigation Revenue Report, 1894-95, Parts I and II.
Memorandam from the Chief Engineer, Northern Division, No. 5299, dated 8th October 1895 .

Forwards a letter from the Executive Engineer, Ahmedabad District, together with a revised statement IV. E in accordance with Government Resolution No, 129 W. I.-1460, dated 17th September 1895.

Memorandum from the Chief Engineer, Northern Division, No. 5572, dated 22nd October 1895.

Letter from the Superintending Engineer, Central Division, No. 5977, dated 23rd October 1895.

Memorandum from the Superintendisg Engineer, Central Division, No. 6109, dated 30th October 1895.

Memorandum from the Superintonding Engineer, Southern Division, No. 4566, dated 1st Novenher 1895.

Memoramdum from the Superintending Engineer, Southern Division, No. 4902, dated 18th November 1895.

Forwards revised Statement IV. E.
Letter from the Superintending Engineer, Central Division, No. 6560, dated November 1895.

Furnishes the additional information required to complete Statement IV. E.
Memorandam from the Superintending Engineer, Southern Division, No. D.-1317, dated 7th December 1895.

Advises certain corrections in his general remarks accompanying the Irrigation Revenue Report.

Memoranduri from the Superintending Engineer, Southern Division, No. D.-13057 dated 6th Deeember 1895.

Forwards amended Statement III. E.
Letter from the, Superintending Engineer, Southern Division, No, D.-1377, dated 9th December 1895.

Meinorandum from the Superintending Engineer. Sonthern Division. No. D.-1399. dated 10th December 1895.

Forwards revised Statement I. E.
-1961-1

Memorandum from the Superintending Engineer, Southern Division, No. D.-14ô7, dated 14th December 1893.

Submits an amended Statement IV. E to be subsituted for the revised statement previously sent.

Memorandum fram the Superintending Engineer, Central Division, No. 6923, dated 13th December 1895. .

Resolumion. The salient features of the year's operations are, as usual, detailed in the general remarks embodied in the report.
, 2. . The number of works in operation, for which Capital and Revenue
Part I.-Number of Works.
Accounts are kept, is the same as in the previous year, viz. 36.
3. The Capital espenditure amounted to Rs. $3,74,724$, "distributed as Capital outlay.
follows:-


Of the total sum of Rs. $3,74,724$, Rs. $1,66,888$ were on account of Indirect charges, of which, Rs. 1,33,312, were on account of Capitalization of assessment on land taken up for the Nira Canal. The Direct charges amounted to Rs. 2,07,836 and were incurred almost wholly on the Major works, Nira and Mutha Canals. On the Nira Canal the expenditure was, as in the previous year,. "chiefly on the Bhatghar reservoir, but some work was also carried out at Vir. On the Mutha Canals the expenditure was in connection with the water-suphly. works in progress in the foregoing year.

The entire Capital outlay at the end of the year under all heads was Rs. $2,61,17,514$, of which Rs. $1,85,81,514$ represents expenditure on Major works.
4. The Interest charges on Productive and Protective Works to the end.

- Interest charges. of the year were Rs, $1,21,86,574$, and deducting the total net revenue realized, riz. Lis. $19,38,317$, the deficit at the end of $1894-95$ amounted to Rs. $1,02,48,557$.

5. The total length of main canals completed was 6.22 miies and of dis-

Length of canals. tributaries 562 miles. When the report for $1893-91$ was reviewed, discrepancies were noticed between the figures showing the length of 'Main Canals', 'Branch Canals' and 'Distributaries,' as given in Statements I. A and II. A accompanying the Revenue Reports and Table No. I of the statements of Financial results of Irrigation Works annually prepared for submission to the Secretary of State for India, and orders were issued in Government Resolution No. 73 W. I.-773, dated 14 th May 1895, with a view to correct these discrepancies.
6. In revieming the report for the previous year it was observed that there

## Irrigable area.

 were grounds for suspicion that the termsoindicating the areas "commanded" and 'irrigable' as used in Statements I. A, II. A and IV. E, were not uniformly interpreted, and the orders of the Government of India were requested for the cguidance of the officers concerned. These orders were received and communicated to the officers concerned in Government Resolution No. 81 W. I.- 853 , dated 30th May 1895. The figures entered in the statements accompanying the reprrt under review have been - determined in the light of the interpretation placed by th: Government of India on the terms in question, and any comparison with the firures appearing in the report for the previous year will therefore be mindeading. For the year under report the gross area under command and the area irrigable at present were 885,342 and 315,694 acres respectively.The Government of India were further addressed in June list on the subject of the headings of columns 3 and 4 of Statement IV. E, and it was sugerested that the firures in those columns, as also the corresponding figures in the anmual
comparative statement of irrigation and rainfall, should respectively represent the area irrigable by the complete project concerned and the area irrigable by it at the date of the report. The Government of India, however, replied that. the olject of Statement IV. E is to show how the area (1) cultivated and (2) irrigated out of the total area of each district is affected by the raiufall of the -year, that the headings in Statement IV. E were correct, and explanation was given as to how the columns should be filled up, aid the addition of three new columns was ordered. The Statement IV'. E, accolupanying this report, bas been prepared in the revised furm. From the explanation given by the Government of India it appears that they desire that this sfatement should furnish the necessary information by Districts. This however cannot be done consistently with the maintenance of the form accompanyitg the Goyernment of India letter No. 166 I, dated 11th July 1885, which requires that the works should be arranged according to their classification as ' Protective, ' Productive' or ' Minor.' In these circumstances the memorandum, forwarded by the Government of India, which explains the objects of Statement IV. E and the correct method of filling in that statement, has been taken as a ghide, and the form has Leen recaistrto admit of works appearing by districts. The Government of India should be requested to favour this Government with an èxpression of opinion as to whether the statement as now prepared satisfies all requirements.
7. The total area irrigated was 84,237 acres as compared with 79,950 acres in the previous year. The increase is not very remarkable. The average.rainfall was $23 \cdot 13$ inches as conpared with $22 \cdot 74$ in 1893-94.
8. The principal crops irrigated were jowari ( 19,955 acres), sugarcane Principal crops irrigaticd. ( 14,624 acres), groundnut ( 9,084 acres), wheat $(8,833$ -acres), bájri ( 6,722 acres) and rice (6;187 acres). All these crops, except wheat and groundnut, show increases, the most noticeable leing that under jowári ( 8,351 acres). The Nira Canal shows an increase under this crop of 4,577 acres. The area under groundnut shows a considerable falling off, the wocks chiefly responsible for it being the Nira Canal, the Mhasvad Tank and the works in the Sátíra District. Under sugarcane the increase was only 1,561 acres. Last year it was noticed that the area of sugarcane on the Nira Canal had risen from 1,639 to 3,436 acres. This year it has further increaṣed to 4,329 acres, but the development has not been equal to what was antioipated. -It is stated that perennial irrigation received a severe check owing to the poor outturn obtained and the low market rate for molasses. In several cases unsuitable soil irrigated for the first time kept the cane stunted, and in others the cultivators were new to the sort of irrigation required. $\cdot$ On the Krishna Canal the area of sugarcane has been steadily increasing, and has nearly doubled during the last five years. On the Mutha Canals an effort was made to induce the cultivators to try the cultivation of superior rice. The crops that were grown are reported to have exceeded all expectations both as to outturn and quality of the grain. The area was however snall, but it proved that the water-supply was sufficient and the results were generally encouraging. It is now intended to use the whole of the storage at Lake Fife for perennial and eight monthss" crops, and the only other class of irrigation will be that obtained during the monsoon.
9. The assessed revenue amounted to Rs. 5,93,737 against Rs. $5,91,487$

Assessed Revenae. of the previous year. The assessments show a suall increase under all heads except plantations and waterpower. The decrease under plantations was mainly on the Hartala Tank and Jamda Canals, while that under water-power was on the Gokak Canal, Ist Section. The average water-rate per acre was $5 \cdot 10$ as compared with $5: 27$ of the previous year.
10. The gross actual revenue realized from all sorrces, after deducting Gross actual Revente. refunds (Rs. 4, 430 ), was Rs. $5,63,482$ against Rs. $5,73,746$ of the previous year. The net revenue realized was R.s. $\cdot 2,12,556$ as compared with Rs. $2,86,329$. The outstandings amounted to Ihs. 40,417 , the greater portion of which has since beeqrialized.
2. 11 "The working expenses during the jear amounted to Bs. $3,50,926$ as Working expenses. compared with Rs. 2,87,418, showing an increase of riations in the figure 03,509 . The causes of the increase and the variations in the figures for the sereral works are commented upon in paragraphula of the general reinarks. - The actual increase in expenditure on works and repairs was abouth 14,000 , the balance being mainly due to a difference in the megdèiffdistributing theq charges for establishment.

as compared with Rs. $3,04,069$ and Rs. 2,86,328. There is a decrease under both heads for which the increased working expenses are principally responsible.

Hinancial reailts. $\because$ all heads. Thé financial results are unfavourable under
14. Under Protective Works the Nira Canal shows an increase under net revenue of Rs. 12,760, which is more than counterProtective Works. . balanced by a falling off of Rs. 18,709 under the Mhasvad Tank, due to heavy charges for unavoidable special repairs to the tank embankment, the result being a decrease of Rs. 5,949. On the Nira Canal; the receipts have been more and the working expenses less, while the opposite is. the case with the Mhasvad Tank.

## 15.. 'The Productive Works show a profit of Rs. $2,10,824$ against Rs. 2,19,618

## Prodactive Works.

 of the previous year. The decrease is athe total of decreases under the Lower Panjhra, Kadva and Pravara River Works and the Mutha Canals, and is principally due to heary working expenses, but partly also to a considerable falling off in the revenue on the Mutha Canals, The decrease would have been very heavy but far the favourable. returns on the Ekruk Tank and the Krishna Canal, on the former of which the. net revenue rose from Rs, $-2,609$ to $\mathrm{Rs} .16,821$, and an the latter from Rs. 23,833 to Rs, 41,783 ,16. The Imperial Minor Works show a deficit of Rs. 21,862 againsf a profit Minor Works. of Rs. 23,667 of the previous year, the works showing the greatest deficit being the Ojhar Canal and Yerla River Works. The question of handing over some of these works to the Revenue. Department has now been fully considered and the Government of India will shortly be addressed separately on the subject. The only Provincial Minor Work (Gokák Canal) shows a net revenue of R. 11,094 against Rs. 24,594 of 1893-94, the decrease being however apparent only and not real, as is shiown in the body of the report.
17. Under Works for which only Revenue Accounts are kept the area irri: rart II. gated shows a decrease of $\mathbf{3 , 4 8 6}$ acres. and gross revenue an increase of Rs. 1,092. 'The expenditure on Extensions and Improvements and Maintenance and Repairs continues to increase, showing that the necessity for the efficient maintenance and improvement of these works is fully recagnised. - Orders have been issued on the reports of the committees appointed to report on tanks in the Northern and Southern Divisions, and have been communicated to the Government of India.
18. The issue of the report under review has been delayed this year partly on account of the preparation of revised Statement IV. E, and partly on account of : the number of corrections found necessary. Instructions have been issued whict will, it is hoped, reduce these delays in future.
19. The record for the year under review, as already stated, shows unsatisfactory resulte, and the conditions are unfortunatily
Concluding romarks, such as to make this unavoidable. The reasons why the results for the Deccan and Gujarit comprare so unfavourably with irrigation
in many other parts of India, including the Province of Sind in this Presidency, have been fully explained to the Goverument of India, and the possibility of improving the existing conditions has long been under consideration and is still engaying the attention of this Government. Measured by direct financial results, the experience of the past is very disappointing; but it iss some consolation to find that althongh many of the projects have failed to give any adequate retarn on their capitil outlay, the total value of the produce under the irrigated area amounts to more than half a crore of rupees, a large share of this being due to iriligation. The sanguine anticipations of the past bave unfortunately proved unreliable in many instances, and all that can now be done is (1) to endeavour to keep domn working charges, including establishment; (2) to endeavour to ohtain a reasonable price for the water according to its value to the cultivators and to encourage its use ; (3) to limit further capital expenditure to works of development of a clearly remunerative character. While admitting that the figares for the year are not satisfactory, it is necessary to point out that a considerable share of the unfavourable results, as compared to the preceding year, is due to modifications in the method of charging establishment, and nuch of the loss debitable to this cause is counterbalanced by gain under other heads. Further it is hoped that certain items of special repairs will not recur, and as far as can be foreseen at present, it appears probable that many of the works will show a healthy improvement in the future owing to an increase in revenue; and it is also possible that charges under establishment may be reduced when certain modifications now under consideration are carried out.
$\therefore 20$ Copies of the report and of this Resolation should, as usual, be forwarded to the Government of Iodia and the Secretary of State.
T. D. LITTLE, Secretary to Government.

| The Revenue Department, Secretariat. 'I'he Finanoial Department, Secretariat. |  |
| :---: | :---: |
| The Commissioner N. D. |  |
| The Commissioner C. D. |  |
| The Commissioner S. D. |  |
| The Survey Cominissioner aud Director of Land Records and Agriculture. |  |
| The Chief Engineer C. D. | With copies of report. |
| The Superintending Engineer N. D. |  |
| 'The Superintending Engineer S. D. |  |
| The Superintending Engineer Indus Right Bank Division. |  |
| The Superintending Engineer Indus Left Bank |  |
| Division. |  |
| The Examiner of Publio Works Account. |  |
| The Government of India. |  |
| $\therefore$ The Secretary of State for India. | \} By letter. | The Editors' Table.



[^8]


[^0]:    Nos. 3 and 4, or Chankzpur and Maladevi Tanks, are not incloded, as the works were not in operation; the former has been suspended and the latter has not yet been approved. No. 38 -Gokak causl, 2 ud Eection, is in abeyance.

[^1]:    Noter, - (1) The Lrigation thare of the Land Rovenue Ascecument relatet to the Revenue your 1884-96.

[^2]:    F. HUTCHINSON,

    Examiuer, Public Works Accounts.

[^3]:    (a) Excluding remisions shown in Canal Roturn No. Y for kharif and rabi ceagone of 1804.01
    (b) Irrigatign ghare of land peremue manement.

[^4]:    
     taken in calcmatarn.

[^5]:    Gross and irrigable area

[^6]:    Evaporation and absorption.
    15. The loss by evaporation and absorption was в $1340-9$

[^7]:    
    

[^8]:    
    
    

