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CHAPTER VI.


1 15-a

# ADMINISTRATION REPORT OF THE FOREST CIRCLES IN THE BOMBAY PRESIDENCY, INCLUDING SIND, FOR THE YEAR 1916-1917. 

Conservators in olarge of Ciroles dubing the year.<br>Northern Circle.<br>W. F. D. Fisher, Esquire.<br>Central Circle.<br>O. H. L. Napier, Esquire.<br>Southern Circle.<br>T. R. Bell, Esquire.<br>Sind Circle.<br>G. R. Duxbury, Esquire.

CHAPTER I.
CONSTITUTION OF STATE FORESTS.
1.-Alteration in Area.

Northern Circle.

| Class of forest. | Area on 1st July 1916. |  | Added during the year. | Excluded during the уear. | $\begin{aligned} & \text { Area on on } \\ & \text { June } \end{aligned}$ | 80th 917. | Remarks. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Reserved | $\begin{array}{cc}\text { Sq. } . \mathrm{m} & \text { Acres. } \\ 2,688 & 195\end{array}$ |  | $\left.\begin{array}{cc} \text { Sq. } \mathrm{m} . & \text { Acres. } \\ 0 & 55 \end{array} \right\rvert\,$ | $\begin{array}{cc} \text { Sq. } \mathrm{m} . & \text { Aores. } \\ { }^{*} 1 & 279 \end{array}$ | $\begin{aligned} & \text { sq. } m . \\ & 2,686 \end{aligned}$ | Aores. $611$ | * Of which |
| Protected | 488 |  | 064 | $0 \quad 53$ | 488 |  | assigned to a mils farm at Palghar |
| Leased . $\left\{\begin{array}{l}\text { Reserved } \\ \text { Protected. }\end{array}\right.$ | $\begin{array}{rrr}330 & 595 \\ \cdots & 325 & 13\end{array}$ |  | ... | ... | 330 | 595 | in North Thani and 184 aores of forest land given |
|  |  |  | ... | $\ldots$ | 325 | 13 | up for coltrivation in North Nasik. |
|  | 3,832 432 |  | 0119 | 1332 | 3,831. | 219 |  |

During the year, as set forth in Government Orders Nos. 11646 and 11786 dated 28th and 30th November 1916, the Násik and Thána forest divisions were reorganized, resulting in greatly increased efficiency of the executive staff without additional expenditure.

## Central Circle.

The forest area at the close of the year was 5,400 square miles 239 acres as against 5,436 square miles 431 acres at its commencement. Alterations in areas in charge of the department were trifling, 1 square mile 541 acres being added to reserved forest and 201 acres deducted. The main cause of the net reduction in area of 36 square miles 192 acres lay in the disforestment for cultivation of 37 square miles 526 acres of pasture forests in charge of the Revenue Department in the Poons and Ahmednagar districts. Six acres of protected forest were disforested and leased forests remained unchanged. Eight square miles 280 acres of pasture forest in the Poona division were handed over to the Revenue Department after clearance of the tree growth, and this operation is now practically completed, one village alone remaining. Areas in charge of the Forést Department now totaI 3,731 square miles 217 acres, in charge of the Revenue Department 1,669 square miles 22 acres.

D 15-1

## Southern Circle.

The total area of forest was reduced by 5 square miles and 212 acres during the year as follows:-

| Class of forest. | $\begin{gathered} \text { Area on } \\ \text { 1st July } 1916 . \end{gathered}$ | Added during the year. | Exoluded during the year. | $\begin{gathered} \text { Area on } \\ \text { 30th June } 1917 . \end{gathered}$ | Remarks. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Reserved | Sq. m. Acres $4,456 \quad 228$ $\ldots$ | Sq. m. Acres | $\begin{array}{cc}\text { Sq. m. } & \text { Acres } \\ 0 & 134 \\ 11 & 219\end{array}$ | $\begin{gathered} \text { Sq. m. Acres } \\ 4,449 \quad 473 \end{gathered}$ | Oh anges due rectifications of errors intimated by the Forest Settio |
| Protected | 132103 | $\left\{\begin{array}{rrr}* 0 & 2 \\ 1 & 181\end{array}\right.$ | $\left.\begin{array}{l}\text {... } \\ \cdots\end{array}\right\}$ | 133286 | comparison of forest registors with |
| Total | 4,588 331 | $\begin{array}{rr}4 & 105 \\ * 2 & .36\end{array}$ | $\left.\begin{array}{rr}0 & 134 \\ * 11 & 219\end{array}\right\}$ | 4,583119 | of areas in Kánara and Dhárwár. |

The real additions to, and the exclusions from, the area were 4 square miles and 105 acres, and 134 acres, respectively.

The additions to reserved forest occur mainly in the Kanara Northern and Belgaum divisions and are mostly from Government assessed waste lands relinquished by occupants and from scattered waste lands not in demand for cultivation. A few more in other divisions, wedged in betwieen existing patches of jungles, were afforested. Disforestments in Kánara, Dhárwár and Bijápur were in the interests of agriculture.

In completion of the rearrangements of divisions in Kánara, Dhárwár and Bijápur as per Government Order No. 11396 of 27th October 1915 and in continuation of the readjustments, referred to in the last Annual Report as introduced from 1st February and 1st May 1916, the following changes were effected in Kánara Eastern, Central and Western divisions from 1st July 1916:-
(a) portions of the Bhartnalli and Katur ranges of the Kanara Eastern division were transferred to the Sirsi range of the Kánara Central division-resulting in the sub-division of this range into two others styled the Sirsi East and Sirsi West ranges;
(b) a bit of the Yellápur range of the Kánara Eastern division was similarly transferred to the Kadra range of the Kánara Western division.
These interchanges bave not affected the total area of the circle.
An area of 7 square miles and 133 acres of pasture forests of the Parasgad taluka in the Belgaum division was transferred from the management of the Reveuue Department to that of the Forest Department to complete the blocks of the Gokák working plan, sanctioned in Government Order No. 7352 dated 25th July 1916.

Sind Circle.
The alterations in area were:-

| Class of forest. | Ast July 1916. | Added during | Excluded during the year. | Ares on 30th June 1917. |
| :---: | :---: | :---: | :---: | :---: |
| 。 | Sq. m. Acres. | Sq. m. Acres. | Sq. m'. Acres. | Sq. m. Acres. |
| Reserved | 1,159 141 | $32 \quad 433$ | 18346 | 1,173 228 |
| Protected | 0585 | ... | ... | 0585 |
| Total | 1,160 86 | $32 \quad 433$ | $18 \quad 346$ | 1,174 173 |



In the previous year the total erosion was 16,180 acres.
The value of the material exploited from eroded areas (vide Government Resolution No. 804 of 2nd February 1900) was-

|  | ares. |  |  |
| :---: | :---: | :---: | :---: |
| Approximate area eroded after exploitation |  |  |  |
| Average value per acre |  | 612 | ${ }^{\text {p. }}$ |
| Estimated value of timber before exploitation | $\ldots$ | 4,996 7 | 9 |
| Actual receipts | ... | 4,996 | 9 |

Contractors agreed to pay the price asked by the department.
Eight hundred and twenty-two acres, 800 of which were in Alláhbux, Bahádipur and Achámárho forests containing growth valued at Rs. 6,910 were eroded before exploitation was possible owing to a sudden change in the course of the river during the inundation season.

One thousand seven hundred and sixty acres threatened with erosion were exploited. The resultant material was sold for Rs. 12,494.

Acquisition of kachas adjoining forest-
$\left.\begin{array}{llcc}\text { Kacha claims pending at the end of last year } & & \text { Aores. } \\ \text { New claims made during the year } & \ldots & 12 \\ \text { Decided in favour of the Forest Department } & \ldots & 31 \\ \text { Decided against the Forest Department } & \ldots & 31 \\ \text { Claim withdrawn } & \ldots . . & \ldots & \ldots\end{array}\right)$ Nil.

Two thousand three hundred and eighty-two acres and 2 gunthas were temporarily alienated to other departments; of these 2,353 acres were handed over to the military farm near Ruk.

> 2.-Forest Settilements. Northern Circle.

These are complete. Central Circle.
Settlement work consisted of the notification under section 19 of the Forest Act of 1 square mile 541 acres, comprising small areas taken up for inclusion in forest or for buildings. Under section 4 of the Act notifications regarding 22 square miles 405 acres of waste lands in West Khändesh, and of 331 acres in other divisions were issued by Forest Settlement Officers.

Outstanding work as mentioned in last year's report consists of the acquisition of teak bearing lands within the demarcation line in Sátára and Poona, and a report on the subject will shortly be submitted to Government. Minute examination of these lands has been found necessary in order to determine which are really required for forest purposes and which can be excluded for good and all, and this has delayed the submission of proposals in this important matter.

Southern Circle.
Four square miles and 105 acres were notified under section 19, and 2 square miles and 154 acres under section 4, of the Forest Act.

The proposals for the appointment of special Forest Settlement Officers for Kánara and Belgaum having been negatived by Government, the arrear work, detailed in the Annual Report for 1914-15, will have to be cleared in the usual way by the Assistant Collectors in the order of urgency. Proposals for afforestation of assessed waste lands in the Dhárwár and Bijapur districts were submitted to the respective Collectors during the year.

Rs. 9,674 were spent on " Forest Settlements" as under :-

| Acquisition of land for forest in Belgaum | ${ }_{1,044}^{\text {Rs, }}$ |
| :---: | :---: |
| Acquisition of land for forest in Kánara S. D. | 26 |
| Acquisition of land for a fuel depôt in Kanara C. D. | 380 |
| Compensation for a building acquired for Range |  |
| Forest Officer's rèsidence at Ankola in Kánara |  |
| C. D. | 2,000 |

Cost of the Wild Tribes (Berads) settlement at Khánápur in the Belgaum division (G. R., J. D., No. 7784, dated 30th November 1916) chargeable to "exploitation of fuel-A-I-b" but shown under the above head by the Accountant General

6,224

Sind Circle.


| Area actually settled under section | 19 | of the | Indian |  |
| :--- | :---: | :---: | :---: | :---: |
| F'orest Act | $\ldots$ | $\ldots$, | $\ldots$ | 480 |
| Balance awaiting settlement | $\ldots$ | $\ldots$ | 286 |  |
| Expenditure | $\ldots$ | $\ldots$ | $\ldots$ | Nil. |

The need for more riverain forest in Upper Sind has been pointed out to the Commissioner in Sind.
3.-Demarcation.

Northern Circle.
Of the 109 miles remaining to complete the demarcation of the circle, 3 miles out of the 42 in Igatpuri range and 3 miles out of the 66 in the Dindori and Peint ranges were demarcated during the jear, leaving 103 in all to be completed.

Central Circlé.
In the 1915-16 report outstanding work was said to consist of 162 miles in Kolába, and 658 in the Akola and Rajur ranges, Nagar district, but forming part of the Poona division. The former figure was an underestimate, as actually 192 miles have been. demarcated during the year, which completes, the work in Kolába. The latter figure was largely overestimated; Akola has been completed by the demarcation of 68 miles, and 124 miles only in Rajur now remain to be taken in hand, the error in last year's figures being due to
the two ranges having only a short time before been transferred to the cirole, and to accurate estimation not having been made of the lines which required demarcation. In West Khándesh 26 miles of boundary of the lands under afforestation were completed.

The final results of the year were 286 miles of new boundaries costing Rs. 3,096 and 5,124 miles of existing boundaries repaired at a cost of Rs. 2,591.

## Southern Circle.

The details of work done, and expenditure incurred, under this head are shown in Form No. 9.

New dernarcation amounted to 37 miles of external boundaries as detailed below and 510 miles of internal boundaries:-

|  | Line demarcated. | Cost. | Oost por mile. |
| :--- | :---: | :---: | :---: |
| The Mysore State frontier line in the Kánara | Miles. | Rs. | Rs. |
| Southern division.: |  |  |  |
| The Portuguese territory frontier line in the | 24 | 281 | 47 |
| Kánara Western division. <br> The Sávantwádi State frontier line in the <br> Belgaum division. | 6 | 1,301 | 54 |
| Boandary between two inam villages and <br> British territory in the Kalghátgi range <br> of the Kánara Northern division. | 1 | 419 | 70 |

The cost of demarcation of these frontier boundaries varies with the nature of the country according as it is covered with thick jungle and hilly or otherwise. The cost of the Mysore frontier line, for instance, which was the heaviest in 1915-16, viz., Rs. 131 per mile, came down to Rs. 47 or about one-third in 1916-17. About three miles now remain to be cut of this line and about 14 miles of the Portuguese frontier line, both of which will be completed in 1917-18.

The internal lines are beundaries of betta lands, 30 miles in Kánara Central division and 480 miles in Kánara Southern division. The cost of these amounted to Rs. 223 or Rs. 0.4 per mile, being easy work. Betta demarcation is reported to be complete now and the Divisional Forest Officer, Kánara Southern division, states that the Betta Officer's establishment may be discharged from October 1917.

In the Dhárwár-Bijápur division much work of clearing old lines was done as usual with the help of villagers on the concession of removing for their own use the wood and thorns cut. It is understood that the Collector of Dhárwár has issued orders requiring inamdars to olear the 00 mmon boundaries between their lands and Government forests. The Collectors of the other districts will be required to issue similar orders in their districts.

Sind Circle.
Internal boundaries.-The forests are divided into half-mile squares by rides 20 feet wide.

Fifty-two and one-fourth miles of new compartment lines were cut during the year by the free labour of herdgmen except in Lárkána where the 9 miles cut through thick growth cost Rs ${ }^{\circ} 150$.

Two thousand seven hundred and seventy miles of previously out rides were kept clear by free labour valued at Rs. 5,541.
Ninty-eight thousand one hundred and fifty-nine acres remain round which rides have still to be cut. Most of this area contains very young lai (Tamarix gallica) growth in kachas, which in the course of time will be replaced by babul, and the work will then be taken in hand. The Deputy Conservatar found arrears of demarcation work in the Hyderabad division
especially in the mature Bahan forest of Keti Khasai, and this work will ber commenced at once.

D $15-2$

External boundaries.-Fifteen miles and 4,224 feet were demarcated with 241 new boundary marks. Nineteen thousand and seven old boundary marks on 2,022 miles 1,787 feet of line were repaired free of cost.

## 4.-Forestr Surveys. <br> Northern Circle.

None were carried out.
The total expenditure under the heading "Constitution of State Forests" was Rs. 2,200 as against Rs. 3,269 in 1915-16.

Central Circle.
None were carried out.
The total expenditure on "Constitution of State Forests" was Rs. 8,625 as against Rs, 6,630 last year.

## Southern Circle.

There were none.
The total expenditure on the "Constitution of State Forests" was Rs. 12,586 as against Rs. 6,630 last year.

Sind Circle.
The work done by the Working Plans Assistant and his staff and the surveyors attached to each division is given below separately :-

| By whom. | Division. | River course surveyed. | Forest boundaries surveyed and checked. | $\begin{aligned} & \text { No. of } \\ & \text { test } \\ & \text { trees } \\ & \text { measur- } \\ & \text { ed. } \end{aligned}$ | Measurement of compartment lines. | No. of maps prepared. | No. of courpes marked and their area. | Levelling of bunds and drain age projects. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Working Plans Assistant and his staff. |  | Sa. m. Feet. | Sq. m. Feet. |  | Sq. m. Feet. |  | No. A. g. | Miles. |
|  | Sukkur ... | 65 1,848 | $725 \quad 3,300$ | 995 | 776 2,772 | ...... | $44=3.806 \quad 6$ | ..... |
|  | Hyderabad... |  |  | $\ldots$ | ...... | ...... | $26=1,877 \quad 0$ | $\cdots$ |
| Divisional surveyors. | Sukkur ... | 100 | 70 | ..... | $27 \quad 0$ | 41 | ...... | ..... |
|  | Hyderabad... | 125 0 | .... | ...... | ...... | 275 | $59=3.366 \quad 0$ | ...... |
|  | Lárkȧna ... |  | 20 | *.... | ...... | 81 | $34=2,87629$ | . |
|  | Jerruck ... | $96 \quad 0$ | ...... | *.... | ...... | 20 | $37=2,273 \quad 6$ | 15 |

The survey of river frontages and marking of coupes was carried out as usual by Range Forest Officers, the number of miles surveyed being $97 \frac{1}{2}$. Fifty-four tracings were prepared in the Lárkána div̌ision. Two sets of coupes were laid out during the year, both in the Hyderabad and Jerruck divisions, as a precaution in case the amount of firewood available was not sufficient for the military contract and the markets of Lower Sind, and to enable the selection of reserves for large babul timber to be done with greater care during the ensuing working season.

## CHAPTER II.

MANAGEMENT OF STATE FORESTS.

> 1.-Regulation and Management.
(a) Preparation and Control of Regular Working Plans.

## Northern Circle.

A plan for the hitherto unorganized forests of the South Dángs was sanctioned by Government Order No. 4726 ,dated 16th April 1917. The only forests remaining to be brought under working plans are those of the Central Dangs ( 267 square miles) and some 13 square miles of protected forests in West Thána division.

Owing to the transfer of the former Divisional Forest Officer, Panch Mabals, to the Indian Army Reserve of Officers, the revised working plan for the Eastern Maháls was left undrafted, but its provisions, as laid down by the Superintendent of Working Plans, were applied, and the same principles are being extended to the Western Maháls forests of Godhra and Kallol. These provisions hinge mainly on the introduction of clear cutting in the place of coppice "with standards, the rotation being suitably lengthened.

All the Thána forest working plans, after scrutiny, approval and suggestions on the spot by the Inspector-General of Forests in the months of January-February 1917, are being similarly revised under one plan, the draft of which is still in hand, and as the matter is urgent, its provisions are being introduced in anticipation of Government sanction.

It is satisfactory to note that in each of the above cases the result has been more conservative exploitation, together with more intenise management, greater economy in working, and a higher revenue-though this last has been due to continued rise in prices of all material.

The revision of the working plan of the teak forests of the Nasilk divisions will, if possible, be considered in the coming year, but the reduced Imperial staff makes the matter difficult. In other forests the presoriptions of existing plans were duly carried out.

Central Circle.
Preparation.-The Inspector-General of Forests having been invited by Government to visit the Presidency and advise regarding the revision of existing and the preparation of new working plans, he was shown the Sitpuda forests of East Khándesh for which a plan had been drawn up in the previous year, but not submitted, the Sátpuda forests of North Khándesh on the revision of which the Working Plans Officer was at the time engaged, and the teak and babul forests in Poona which were under revision by the Divisional Officer. In the East Khándesh plan he recommended radical alterations, as also its combination with the North Khándesh plan, the forests of both being contiguous, of the same nature, and requiring similar treatment; in Poona he approved the lines on which the plans were based, but advised the adoption of the practice prevailing in other Provinces of having one plan for a whole division, with separate working circles for areas containing species requiring separate treatment, such practice making much for convenience and also for economy in printing. His advice on the above points is being followed and the results will reach Government during the current year. Naturally the taking in hand of the revision of all the plans of a division as a whole, instead of piecemeal as has hitherto been done, has caused delay in submission of the reports, but the delay is well worth while, and many of the Inspector-General's recommendations in matters of detail have already been brought into force.

The Working Plans Officer completed his plan for the Jávli, Wái and Sátára ranges of the Sátára division during the year, and this will shortly reach Government. It did not in all respects meet the Conservator's views and was held back for further consideration and alteration.

Control.-The prescriptions of existing plans were duly carried out subject to minor deviations resulting from shortage of labour, inferiority of growth, or inaccessibility of coupes. On the other hand, the keen demand for forest material resulted in these causes being less marked than usual and to coupes being more thoroughly worked.

Southern Circle.
Preparation.-Three working plans were sanctioned during the year:-

|  | System of working. . | Area. | Total cost. | Cost per square mile. |
| :---: | :---: | :---: | :---: | :---: |
| (1) The Gokák fuel working plan in the Belgaum division. | Coppice with standards. | $\text { Sq. } \mathrm{m} .$ | Rs. <br> None but sum spe few pho tive of th <br> (23) | Re. <br> a trifling <br> nt for a tos illustrae plan. |
| (2) A revised plan for Bhagvati forestsBlocks VIII, IX and XX in Kánara N. D. <br> (3) A revised plan for Kirwatti teak pole | High forest selection system. Coppice with | 61 80 | 7,198 1,359 | 118 45 |
| area-Blocks XIV and X.V in Kánara E. D. | standards with a long rotation. |  |  |  |

The first plan was compiled by Mr. Hodgson, Divisional Forest Officer, Belgaum, in the course of his ordinary duties with no extra cost, for which he was granted a special allowance of Rs. 500 by Goverument. The other two plans were done by Mr. Miller, Divisional Forest Officer, Working Plans.

Control.-The provisions of existing plans were carried out as far as the supply of labour and demand for the produce would admit. Some work is in arrears, particularly in Kánara Western and Eastern divisions, as will be seen from the detailed statement annexed to Form No. 11 in accordance with Government Order No. 9358 of 28th September 1916.

The work of improving the beds of the Kálinadi and Kaneri for floating timber was continued but no definite results have yet been obtained. The work was done by Mr. Pipe, deputed from the Public Works Department and cost Rs. 12,997 (vide remarks under Cbapter VI, 'General ').

The survey of the Dándeli-Alnávar railway line (Dándeli-Távargátti in last year's report) was actually carried out this year but nothing has jet transpired as to when it is to be built. It is badly wanted.

If the railway line from Hubli to Sirsi vid Kalghatgi and Mundgod, the survey of which has recently been sanctioned, is soon constructed and opened for traffic, the difficulties of forest transport, experienced in Kánara Eastern and Central divisions, will be much lessened.

## Sind Circle.

The special work taken in hand during the year under report was in connection with the revision of the existing working plan of the forests of the Sukkur division. The field work was begun in November 1916 and completed at the end of April 1917.

The work comprised-
(a) Resurvey of external boundaries where inaccuracy had been revealed on comparison with forest maps ;
(b) Resarvey of the course of the river Indus to ascertain and define its present position, and the changes effected by it in forest areas;
(c) Re-measurement of compartment lines;
(d) Measurement of sample trees;
(e) Detailed examination of compartments with a view to ascertain the composition and condition of the growing stock, and prepare stock maps accordingly.
The total cost incurred on the field work, inclusive of the pay of the Working Plans Assistant, Sind Circle, and his staff amounted during the year to Rs. 11,575.

The data collected during the previous working season was put on paper, and a revised plan for the Lárkana division is ready for criticism by the Deputy Conservator during the ensuing touring season.

## (b) Preliminary Working Plans.

 Northern Circle.There were none. - Central Circle.

None were submitted, but in Sátára data were collected by the SubDivisional Officer for an extension of the areas now included in the Mahábleshwár plan, a work necessitated by the ever increasing consumption of fuel at that hill-station and the importance of checking illicit cuttings to meet the demand. In Poona the Divisional Officer will include in his general plan for the division fresh areas in Máwal and els9where, the organization of which appeared a short time back to be quite unnecessary, but which are now readily taken up by contractors; all data for the purpose were collected by him during his tour.

## Southern Circle.

The following plans were sent to press during the year:-
(1) The Kalghátgi range plan;
(2) The Bankápur and Hangal forest plan.

Plans under preparation :-
(1) Revised plan for Yellápur slopes-completed;
(2) Revised plan for Mundgod high forest;
(3) Revised plan for Mundgod teak pole area;
(4) The Houávar-Bhátkal fuel plan;
(5) The working plan for Bijápur forests;
(6) The Belgaum range plan;
(7) Revised Khánápur fuel plan. (Has been submitted to the Conservator);
(8) Revised Golihali-Godoli teak pole plan.

Nos. 1 to 5 are being prepared by Mr. Miller, Divisional Forest Offioer, Working plans, and Nos. 6 to 8 by Mr. Hodgson, Divisional Forest Officer, Belgaum; but owing to the deputation of the latter as Deputy Controller of Timber Supplies under the Munitions Board to Bombay during the year and the appointment of Mr. Miller as Divisional Forest Officer, Belgaum, further progress with these plans is hardly possible until Mr. Miller is relieved of the charge of the Belgaum division or at least an independent Imperial officer becomes available for the Working Plans division.

The field work done by the Working Plans party during the year was confined to Kánara N. D. and Bijápur ; the expenditure on field work was:-

Inspection of Bijápur forests ... Rs. 4,223 or 5.8 pies per acre.
Revision of Supa Blocks III, IV and $V \quad$... Rs. 3,881 or 15 pies per acre.

$$
\text { Total ... Rs. } \overline{8,104}
$$

Sind Circle.
Nil.
(c) Plans of Operations.

Northern Circle.
These were duly prepared and subwitted by the Divisional Forest Officers. There was no important deviation from them during the year.

Central Circle.
These were duly prepared and carried out.

## Southern Circle.

Plans of operations were submitted by all the Divisional Forest Officers and carried out as far as possible, expenditure on unremunerative works, such as buildings and wells, being postponed with a view to economy as in last year. In Kánara N. D., owing to the prevalence of plague and cholera and the crossing over the Kálinadi river at Bailpár baing out of repair, some of the contractors in the high forest could not extract as much timber to the Tavargatti dep $\delta \mathrm{t}$ as was expected. In the Belgaum division also, contractors' work has hindered to a certain estent owing to plague and cholera and the late heavy rains-which last item delayed work everywhere else also.

## Sind Circle.

These were prepared in all divisions and carried out as far as possible.

> 2.-Communications and Buildinas.
> (a) Roads and Bridges. Northern Circle.

New roads were constructed in:-

| Surat division (Dángs) |  | Rs. |
| :--- | :--- | ---: |
| Mahal-Dulda, 1 mile | $\ldots$. | 1,000 |
| Borkhal-Bhawandagad, 2 miles | $\ldots$ | 1,000 |
| Galkund-Pandwa, $\frac{1}{2}$ mile | $\ldots$ | 1,500 |
| Málegaon-Zaria, 6 miles | $\ldots$ | 5,000 |
| Málegaon-Chip ghát, 2 miles | $\cdots$ | $\cdots$ |


| North Thdna- |  | Rs. |
| :---: | :---: | :---: |
| Káse-Udhwa, $5 \frac{1}{2}$ miles | $\cdots$ | 3,410 |
| West Thnáa- |  |  |
| - Potgaon-Badlápur, 1 mile | ... | 677 |
|  |  | 14,087 |
| Cart tracks in East Thána and |  |  |
| South Násik | ... | 2,926 |
| Total, New works | ... | 17013 |
| Total repairs in the circle, 196 miles | ... | 7;816 |
| Grand total, Roads | ... | 24,829 |

## Central Circle.

The total expenditure under this head was Rs. 9,378 as against Rs. 8,277 in 1915-16, 10 miles of new roads being cunstructed or partially so, or surveyed, at a cost of Rs. 2,071, and 144 miles of existing roads and paths repaired at a cost of Rs. 7,307.

In North Khándesh the final 3 miles of the Hisala-Bhoiti road, 10 miles long in all, were cut and levelled; though open to carts and alraady giving increased facilities for exploitation of coupes, this section still requires to be metalled before being fit to carry heavy traffic. On the Wásardi-Kodit road consolidation was continued, and extension towards Malkátar will be taken up. Other work consisted of conversion of bullock tracks into cart tracks, and of repairs to bridle paths. The advantage of pushing road communications deeper into the Sátpuda hills and of opening out areas from which at present none but the most valuable material is removable, is being kept in mind, and the work will be pushed on as quickly as funds and labour are available. The Conservator discussed these matters on the spot with the Divisional Forest Officer, and also inspected the alignment proposed by the Forest Department for the road into the Akráni, as an alternative to that proposed by the Public Works Department. From the forest point of view the former is incomparably the better, and Government have already ordered the Public Works Department to consider the point in detail.

In East Khándesh no work was carried out beyond improvement of difficult gradients on the rough cart tracks that alone exist in the Satpudas. The country is difficult in the extreme, and careful surveys were the first essential. For this purpose a special surveyor was engaged, and 36 miles carefully aligned and pegged out. Systematic construction for a number of years can now commence; until these hills are properly opened up, the forests can never yield their full value.

In West Thbandesh existing roads were repaired and improved. The Local Board road from Nawápur to Borzar is now almost finished, a work of great utility to the Forest Department; and, to the maintenance of which on completion the latter has undertaken to contribute for a period of ten years.

In Poona 1 mile of ghát crest bridle path was converted into a cart track, giving access to a village 9 miles frum Lonávla, a locality where there are considerable prospects of an increase in forest exploitation. Existing roads and bridle paths were kept in repair.

In Sátara the question of the partial abandonment of the Koyna valley road scheme referred to in last year's report is now before Government. The Vang valley road was repaired, and improved by the construction of Irish bridges, but further work in this direction is still required; the full utility of this road is somewhat detracted from by the bad state of repair in which its continuation towards the east is kept by the Local Board, and the Forest Department is proposing to take over this section if the Board will contribute the amount they now allot for repairs. Furtber extensions to the west into teak-bearing areas are contemplated.

In Kolába the few existing tracks were repaired.

Southern Circle.
Rs. 18,460 were spent on the construction of the undermentioned roads and bridges during the year as against Rs, 12,846 last year :-


Of the above, the last five only are new constructions. The KadraShivpur road, costing in difficult places up to the present Rs. 1,000 and over per mile, will be one of the most important in Kánara as it will ensure the extraction of heary timber from Gund and the Kálinadi valley. When the six extra miles aligned up to the Holegadda slide during the year is constructed and made fit for cart traffic, the whole road will be very useful and remunerative. The expenditure of Rs. 560 on the Kanbárgi road has raised the fuel revenue of the fellings affected from Rs. 1,930 in 1915-16 to Rs. 5,980 in 1916-17, or by Ris. 4,050.

A detailed scheme of forest roads was submitted to the Commissioner, S. D., in connection with the measures to be taken for obtaining additional revenue and orders thereon are awaited.

About 304 miles of forest roads and paths, besides the above, were repaired at a total cost of Rs. 25,205 , compared with 252 miles repaired for Rs. 26,770 in the previous year.

The usual contribution of Rs. 5,00) was paid by each of the Kanara Northern and Western divisions for repairs of Locul Board roads.

## Sind Circle.

In Sind water carriage is usually resorted to, there is no metal for permanent forest roads, but the 20 feet rides throughout the forest are used to conver the material to the river banks, etc. These were repaired free of cost in all divisions.

> (b) Buildings.
> Northern Circle.
> The following buildings were constructed in :-
> Surat- - Rs.
> Dharamshala at Fort Songad to accommodate timber merchants during auction sale period ... 3,750
> Additional ward to Ahwa jail . ... . 500
> North Thdina-
> Offices and quarters for the Range Forest Officers of the three newly created ranges
> 13,107
> Guards' posts (kachba) ... 60
> Repairs
> Total, New works ... 17,417
> Grand total, Buildings $\quad . . \overline{20,151}$

Expenditure under this head was Rs. 250 only on new works, Rs. 200 being spent on the completion of a guard's post in Satára and Rs. 50 on temporary guard's quarters in Kolába. Elsewhere for financial reascns no buildings could be undertaken. Repairs to existing buildings cost Rs. 2,188. The provision of inspection bungalows in North Khändesh is very necessary; tent life there in the hot weather with no shade available does not conduce to an officer's health and efficiency, and it is hoped to start on a definite programme as soon as circumstances adinit. On the housing of the subordinate establishment also there is much to be done in all divisions.

Southern Circle.
The cost of new buildings was Rs. 2,227 as under :-
Rin S. Guan, Rs.
Dhárwár-Bijápur.-Guards' quarters at Makarwalli. . . 619
Belganm.-Guards' temporary huts, six ... 52
Rest-house at Nagargali completed ... . 490
Kánara N. D.-Minor fittings to rest-houses ... 84
Paving the floor of the Divisional Forest Office with stones ... 48 Guard's naka at Kambarganvi, special repairs ... ... 107

Total for 1916-1917 ... 2,227
Total for 1915-1916 ... 12,439
Total for 1914-1915 ... 29,981
The above comparison shows how expenditure has to be curtailed from year to year for the sake of economy, though many buildings are urgently required.

Repairs to buildings cost Rs. 6,017 against Rs. 4,127 last year.
Sind Circle.
Rs. 580 were spent on new buildings or portions of buildings as under :-Sukkur-

Rs. 125 on paving with pacca brick the floors of the office, record room and verandah of the Range Forest Officer, Abad ; Rs. 197 on paving with pacca brick the floor of the quarters of the Range Forest Officer, Abad, including verandab.
$\because$ Larkána-
Rs. 258 on building a new compound wall round the depot at Lárkána.
Repairs to existing buildings cost Rs. 2,214.
The Public Works Department spent Rs. 177 on repairs to buildings in Sukkur.
(c) Miscellaneous.

Northern Circle.


Rs. 622 were spent on wells including repairs in all divisions and one new work in West Khándesh. In Kolába wire fencing of a casuarina plantation cost Rs. 449.

Southern Circle.


The telephone connections between. Yellápur and Kirwatti (Kánara E. D.) and between Tavargatti and Dándeli (Kánara N. D.) were maintained at annual rentals of Rs. 335 and Rs. 450 , respectively.

## Sind Circle.

New minor irrigation works were undertaken by the department as follows at a cost of Rs. 788 :-

## Lárkana-

$$
\begin{array}{ll}
\text { kana- } & \text { Res. } \\
\text { Construction of a new bund in Hassanwahan forest to keep } \\
\text { forest irrigation water of local fund road ... } & \text {... }
\end{array}
$$

Construction of a culvert for local fund road in Hassan-

| Construction of a culvert for local fund road in Hassan- |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| wahan forest | ... | ... | ... | ... |

This work was carried out under the orders of the Deputy Conservatcr as forest irrigation water had damaged the local fund road, and was likely to damage it in the future.

Sukkur-
Bund in Shergarh forest, Abad range ... ... 236
Repairs to existing irrigation works cost Rs. 2,593.
D 15-4

The Public Works Department constructed the following sluices during the year:-

Rs.


## 3.-Protection of Forests.

(a) General Protection.

Northern Circle.
Statement of offences by nature and treatment and comparison with former years.

|  | Cases taken into Court. |  |  |  | Cases compounded. |  |  |  | Cases undetected. |  |  |  | Total. |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Division. |  |  |  |  |  |  |  | Other offences. |  |  |  |  |  |  |  | Other offences. | 宝 |
| - ${ }^{1916-17 . . .}$ | 5 | 16 | 18 | 1 | 6 | 550 | 824 | 18 | 50 | 256 | 1 | $\cdots$ | 61 | 822 | 843 | 19 | 1,745 |
| Panch MEhalg ${ }_{\text {1915-16 }}$ | 5 | 2 | 10 | $\ldots$ | 7 | 571 | 853 | 76 | $43^{\circ}$ | 27 | 1 | 6 | 55 | 848 | 864 | 82 | 1,849 |
| 916-17 | 3 |  |  | 3 | 16 | 21 | 36 | 10 | 2 | 3 |  | ... | 21 | 25 | 36 | 13. | 95 |
| 1915-16... | 4 |  |  | ... | 4 | 19 | 20 | 8 | 4 |  |  | 2 | 12 | 22 | 20 | 10 | 64 |
|  |  | 21 | 1 | $\ldots$ | ... | 191 | 228 | 27 | 55 | 151 | ... | ... | 55 | 363 | 229 | 27 | 674 |
| North Tháne $\left\{\begin{array}{l}\text { 1915-16... }\end{array}\right.$ | 1 | 13 |  | 1 | 4 | 142 | 197 | 31 | 57 | 135 |  | 2 | 62 | 290 | 198 | 34 | 584 |
| 16-1 | 6 | 27 | 9 | 1 | 4 | 197 | 362 | 26 | 31 |  | 2 | 3 | 41 | 339 | 373 | 30 | 783 |
| 1915-1 | 3 | 9 | 13 | 2 | 1 | 259 | 36 | 35 | 71 | 181 | 2 | 1 | 75 | 449 | 383 | 58 | 945 |
| [ 1916 -17 | 5 | 18 | 6 | 4 | 9 | 329 | 240 | 48 | 64 | 113 | 7 | 1 | 78 | 460 | 25 | 53 | 844 |
| - ${ }_{\text {1915-16... }}$ | 4 | 17 | 12 | 4 |  | 315 | 248 | 60 |  | 124 | 1 | ... | 75 | 456 | 261 | 65 | 857 |
| Sout Nér $\left\{^{1916-17}\right.$ | 1 | 7 |  | 2 | 5 | 163 | 123 | 38 |  | 36 |  | ... | 47 | 206 | 132 | 40 | 425 |
| South Nrgik... $\left\{\begin{array}{l}\text { 1915-16... }\end{array}\right.$ | , 1 |  |  |  | 7 | 142 | 128 | 22 | 42 |  |  | .. | 50 | 186 | 13 | 25 | 396 |
|  | 1 | 8 |  |  | 1 | 180 | 334 | 46 | 6 |  |  | 1 | 8 | 202 | ${ }^{33}$ | 48 | 595 |
| $\cdot\left\{\begin{array}{l}1915 \\ \hline\end{array}\right.$ | . 1 | 6 | 2 |  | 3 | 239 | 14 | 53 | 22 | 37 | ... | $\ldots$ | 26 | 282 | 316 | 54 | 677 |
| Násik ${ }^{\text {c }}$ ( Sub- ${ }^{1916}$ |  | 3 | 5 |  | 1 | 30 | 278 | 11 | 13 | 36 | $\ldots$ | ... | 14 | 340 | 283 | 11 | 648 |
| Division. $\}_{\text {1915-16... }}$ | 1 | 5 | 17 | 1 | 1 | 299 | 351 | 22 | 13 | 23 | ... | 1 | 15 | 257 | 358 | 24 | 654 |
| Total of 1916-17 | 21 | 101 | 51 | $\underline{1}$ | 42 | 1.932 | 2,425 | 294 | 262 | 724 | 10 | 5 | 325 | 2.757 | 2.486 | 241 | 5,809 |
| Total of 1915-16 | 20 | 157 | 52 | 12 | 32 | 1.916 | 2,479 | 307 | 918 | 817 | 4 | 12 | 370 | 2.790 | 2.53 | 331 | 6,026 |
| $\begin{gathered} \text { Average of the past } \\ \text { three years. } \\ \hline \end{gathered}$ | 52 | 68 | 58 | 13 | 40 | 2,014 | 2,061 | 258 | 370 | 870 |  | 12 | 462 | 2.946 | 2,124 | 289 | 5,816 |

The circle figures for the year are unremarkable. Protection generally was as satisfactory as can be reasonably hoped for in view of the steadily increasing state of inefficiency and shortage of staff, especially the former. The forest protective staff is the guard of an otherwise open treasury and requires greater immunity from common want. •The uncertainty of prospects under a graded cadre of appointments accentuates present hardship.

Protection against theft.-The total number of cases of illicit fellings reported was approximately the same as last year, being 2,757 against 2,790. The number of cases prosecuted rose from 57 to 101 -every division showing an increase owing to the need for deterrent action. Compounded cases rose from 1,916 to 1,932 and undetected cases fell from 817 to 724, which are tendencies in the right direction. The number of unreported cases is legion, bat if adequate notice were taken of these the staff would be so reduced as to make work impossible.

Panch Maháls-The return from this division shows little diminution from the excessive figure of last year, then attributed to scaroity. It is hoped that the Divisional Forest Oficer's remark about increased vigilanoe is the real explanation. More energy is required throughout.

Surat-This is the only division in which protection is really satisfaotory. It is so in spite of difficulty with establishment which is ohronic, and due to the extensive privileges of a small population and the paramount position of the Divisional Forest Officer. The inefficiency of the staft is chiefly felt in sylvicultural matters to the detriment of the future crop.

North Thana-The Divisional Forest Officer writes that theft of the best young teak is on the increase owing to the absence of the large bamboo which died six or seven years ago. He hopes to mitigate the evil by supply from thinnings under the revised working plan introduced this year. The worst of it is that in the absence of an efficient staff these casual misfortunes show the people our helplessness and give rise to temptations which threaten to assume the form of habit.

West Thána-In recording a decrease of unauthorized fellings reported in all ranges except Kalyán the Divisional Forest Officer says: " To my mind the improvement is more apparent than real. I am afraid in some rounds the offences are not correctly reported." It is satisfactory to note that in the last three years a reduction of offences in Bassein from 172 to 89 is attributable to the satisfactory working of special depôts in that taluka. The monetary loss to Government by such arrangements is considerable but is deemed justified and similar depôts are suggested for Thána, Bhiwandi and Murbad. The matter will be considered, but each case must rest on its merits or the whole country side will demand Government usurping the place of the retail trader.

East Thána-The Divisional Forest Officer mentions an increase in the number of offences in Igatpuri and South Sháhápur ranges but hopes the newly started firewood depôt at the former place will improve matters especially when he starts one at Ghoti also. There is justification for both these depôts. The increase in South Sháhápur was anticipated and is due to better reporting since the creation of the new range.

South Násik-The protection in the above-ghat portions of the Dindori range is, as usual, the worst in all respects, in spite of repeated warnings and communal punishments. It is bad also in Násik. In Dindori four villages have been reported to the Collector with the recommendation for the levying of double grazing fees and twenty-two villages are reported for warnings; while in Násik range two villages have been reported for double grazing fees and fourteen for warnings. The firewood depôt at Trimbak was carried on with some effect but, as usual, much difficulty was experienced in obtaining labour.

North Násik.-A decrease from 282•to 202 cases is reported. This is undoubtedly a false picture and as the Divisional Forest Officer remarks regarding reduction in reported offences generally "...indicates slackness on the part of subordinates especially. in Kalwan". An able Ranger has recently been appointed in Kálwan in the place of the late man who was long past for active work and it is hoped things will now improve.

Násic Sub-Division.-The figures"in this charge show a considerable increase, doubtless due to its consisting of an area which up to date has had little inspection from superior officers. These are early days to say more.

## Central Circle.

The following table classifies the number of offences reported during the year as compared with those of 1915-16 and with the average of the three preceding years:-


The total shows an increase of 633 as compared with 1915-16, every class of offence contributing, fires by 87, fellings by 123, grazing by 273 and other offences by 150. Comparing results with the previous three year average, fires increased by 61 , felling decreased by 564 , and grazings and other offences increased respectively by 350 and 87 , giving a total decrease of 66.

Fires and grazing are dealt with in detail later; as regards illicit fellings the variations, whether increase or decrease, are hardly of sufficient importance to call for much comment; the main point is that no serious thefts took place. As is only to be expected, the divisions that show an increase are Poona, Sátára and Kolaba, those where there is least growth outside forest limits, and where temptation to commit depredations on forest to meet petty requirements is greatest; in this connection the evacuation of villages in several talukas of Poona on account of plague is said to bave led villagers to steal forest material for erection of temporary huts. Other offences mostly consisted of encroachments on forest boundaries and breaches of the rules for control of forest material in transit.

Cases of the year taken into court numbered 388 as against 428. Inclu'ding cases pending from 1915-16, 390 involving 956 persons, were disposed of. Of these 3 were withdrawn, and of the remaining 387,344 or 88.8 per cent., involving 843 persons, resulted in convictions, and 43 or $11^{\cdot 2}$ per cent., with 113 persons in acquittals. North Kbándesh for the second year in succession bad 100 per cent. of convictions. Prosecution was only resorted to in comparatively serious cases or where offenders refused to compound, for every case taken into ccurt means that the time of forest officials is wasted when it could be far more profitably employed elsewhere. In one case only had a Divisional Officer to make representations to the District Magistrate regarding an inadequate sentence.

The number of cases compounded rose from 4,230 to 4,966 ; those in which offenders were merely warned fell from 569 to 498, and undetected cases rose from 1,048 to 1,056 . The amount of compensation taken was Rs. 33,833 , or an average of Rs. 3-13-11 from 8,741 persons.

Offences are summarized below according to the jurisdictions of two Commissioners.

|  |
| :--- |

Communal punishment in the shape of enhancement of grazing fees or suspension of privileges was inflicted by the Collectors of Poona and Kolaba on twenty-one villages where persistent damage by cutting or grazing had taken place; on the other hand in the former division in five villages where such punishment had resulted in improved behaviour, grazing fees were again reduced to the normal rate. In Kolába the system was continued of working selected coupes for the supply of timber, firewood and agricultural implements to the coast towns and villages; previously these people having no other source from which their wants could be met, and seeing the outturn from the forests all exported to Bombay, were driven to purchase from Katkaries and Thakurs who in their turn had to manufacture dead wood to keep up the supply. The system while of great convenience to the public is of equally great benefit to the forests in that it does away with the main incentive to abuse of the dead wood privilege by the wild tribes. From 15 depots established for the above purpose 1,874 agricultural implements and $8,830,976 \mathrm{lbs}$. of fuel were sold by the coupe contractors.

A further indirect measure which is no less in the interests. of forest protection than of the public is the tahal campaign carried on in Kolaba by Revenue and Forest officers; for an increase in the supply available from private lands must cause a corresponding decrease in depredations on the forests. While a noticeable improvement is apparent in methods of cutting, it cannot be said that there is as yet any inclination on the part of landholders to increase the supply by artificial propagation. For breaches of tahal rules three villages were punished by doubling of grazing fees or suspension of privileges, and for notably good work one village had its grazing fees remitted.

## Southern Circle.

The following bable gives the number and classification of forest offences reported during the year, as compared with those of 1915.16 and with the average of the past three years:-

D 15-5


The total number of offences reported exceeded those of the previous yeur by 108 but were less than the average of the past three years by 120.

There was an increase in the number of fires, due to a larger numker detected in betta lands of Kánara C. D., as per new betta rules introduced from February 1917 and to the several fires in the Siddápur range of Kanara S. D., purposely set by people to manufacture dead wood.

The offences of unauthorized grazing also slightly increased in Kánara N. D. and E. D. and Belgaum. The increase is ascribed to greater vigilance on the part of the staff and to more systematic reporting rather than to any actual increase of cases.

Unauthorized fellings and other offonces decreased notably in Kánara S. D.

The policy of rewarding forest subordinates and villagers for detecting forest offences and punishing them for neglect was continued.

The results of casss tried by courts are compared. in the following table:-

| Division. | 1916.17. |  | 1915-16. |  | Perountage of aoquittals. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Conviotions. | Aoquittals. | Conviotions. | Acquittale, | 1916-17. | 1915-16. |
| Kánara N. D. ... | 11 | 2 | 13 | 2 | 15-4 | $13 \cdot 3$ |
| Kánara E. D. ... | 5 | 1 | 4 | 4 | 16.7 | 50.0 |
| Kánara C. D. ... | 23 | 9 | 8 | 4 | 23.0 | $83 \cdot 3$ |
| Eánara S. D. ... | 41 | 11 | 36 | 17 | 21.2 | $32 \cdot 1$ |
| Kánara W. D. '... | 20 | 2 | 6 | 5 | 9.1 | $45 \cdot 4$ |
| Belgaum : ... | 27 | 2 | 16 | 3 | 6.9 | 15.8 |
| Dhárwár-Bijápur. | 8 | 2 | 21 | 3 | $20 \cdot 0$ | 12.5 |
| Hatnágiri ... | 1 | ... | 1 | ... | ... | ... |
| Total . | 136 | 29 | 105 | 33 | $17 \cdot 6$ | $26 \cdot 6$ |

The percentage of acquittals bas decre red by 9 par cent. and is shared by all divisions except Kánara N. D. and Dbárwár-Bijápur.

Cases sent to court were largely thoss in which the offenders refused to compound; only $2 \cdot 9$ per cent of the t.till cases of the year were thus dealt with.

There was formerly a bad practice in Kanara which caused a lot of trouble to both the Magistrates and the forest staff. The fines levied by subordinate Magistrates from offenders were generally much less than the compensation originally fixed by the Forest Department with the result that offenders naturally refused to compound and preferred to go to courts. The Collector has, however, suitably dealt with such instances and they are not likely to give further trouble.

There were four important cases during the jear, one in Kánara E.D. and three in Kanara C. D. In the Yellapur range of the former a serious case of theft of timber was detected, in whioh heary compensation was recovered from offenders. In the latter a certain Mahomedan of Isloor in the Sirsi
range who systematically committed forest offences in the past was caught in two cases of theft of timber and fined Rs. 513 by the Sub-Divisional Magistrate, Sirsi. In another case of illicit cutting the offender was fined Rs. 300 by the court but, owing to some error in the legal procedure, the case was ordered to be re-tried and is pending disposal. The person who gave false evidence in the case of assault on a guard of the Badami range in the Bijapur sub-division, referred to in the last repert, was tried and convicted.

The number of cases compounded a.3d the compensation recovered are compared in the following table:-

| 1916-17. |  | 1915-16. |  | Average of past three yoars. |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| No. of eases. | Compensation. | No. of cases. | Compensation: | No. of caseen | Compansation. |
|  | Rs. |  | Rs. |  | Re. |
| . 3,785 | 23,873 | 3,809 | 21,397 | 3,906 | 20,975 |

Nine-hundred and ninety-five offenders involved in 379 cases were let off with simple warning.

The numbar of undetected offences rose from 1,278 last year to 1,359 during the year, the increase being due to fires which ard always difficult to trace.

Sind Circle.
The classification of forest offences detected during the year is given in the following prescribed form :-


The total numter of cases is less by 90 than the average of the past three years and is less under every head but that of unauthorized fellings. There is a great increase in the number of cases of unauthorized fellings reported; this number varies directly with the amount of walking done by the administrative officers.

Rain in the Kohistan hills during the month of March kept the number of illicit grazing cases down considerably, the total number being 1,972 compared with 2,752 during the previous year, and 2,436 the average of the past three years.

Undetected cases increased from 550 to 580 as compared with a threeyearly average of 482, but the increase was entirely under the head of unauthorized fellings. The form itself gives all statistical details.

The 3,132 cases compounded produced Re. 11,937 in compensation as compared with 3,876 cases and Rs. 12,919 of last year.

Eighty-one cases were let off with a marning against 153 of the previous year.

The offences taken into court are detailed below :-

| Pending from last year |  | $\ldots$ | 54 |
| :--- | :--- | :--- | :--- |
| Cases of the year | $\cdots$ |  | $\cdots$ |
|  |  | Total | ... |
|  |  | 180 |  |

Of these 122 were decided during the year, three cases pending last year in the Jerruck division were withdrawn, and two compounded. Of the 122 cases 94 resulted in conviction and 28 in acquittal: the percentage of acquittals being as follows :-

| flo |  |  | 1916-17. | 1915-16 |
| :---: | :---: | :---: | :---: | :---: |
| Subkur | $\cdots$ | ... | $34 \cdot 8$ | $13 \cdot 7$ |
| Lárlána | $\ldots$ | ... | 27.2 | $20^{\circ}$ |
| Hyderabad | ... | ... |  | $7 \cdot 69$ |
| Jerruck | ... | ... | $16 \cdot 6$ | 6 |

Out of the 23 cases lost in Sulikur no less than 16 were in the Kot Sultan range alone where they were tried by the Honorary Second Class Magistrate.

The two fire cases taken to court in the Sukkur range were not decided by the end of the year.

A case of obstructing a forest guard in the performance of his duty was successfully prosecuted in the Lartána division, and a similar result was obtained in the Hála range of Hyderabad division. In the latter case the accused was sentenced to one month's rigorous imprisonment. In another case in which the services of the Public Prosecutor were obtained the nine accused were fined Rs. 40 each. 'It is satisfactory to note that afl the eight cases reported pending in the Hyderabad division last year ended in conviction.

## (b) Protection from Fire.

Northern Circle.
On the whole the fire protection of the circle was satisfactory there being 317 fres burning 24,119 acres as against 362 fires burning 38,576 in the last year, a reduction of $12 \frac{1}{2}$ per cent. in number aud 37 per cent. in the area and last year showed a marked improvement on formor years. Circumstances in different districts vary very much and it is difficult to find any common cause for the improvement recorded. That rainy weather continued till the end of November and began again at the end of April doubtless reduced the area burnt in many instances. There is also little doubt that the people generally are steadily acquiescing to a greater extent in the undesirability of firing the forests. The disappearance cf dead bamboos has relieved the forests of much inflammable material in many localities. Incendiarism continued in the old centres but was less extensive and continued to show an absence of malice towards the department, hunting and local jealousies among those interested in grass being the motives.

Panch Maháls.-Actual fires (neglecting mere breaches of rules) were 53 burning 5,573 acres as against 47 burning 4,874 acres in the last year. The Divisional Forest Officer's explanation that last year being a year of scarcity taught the people to protect their grass is a little difficult to accept. The figures of both years are about half the normal and when it is found that in spite of a normal season grazing offences maintained famine proportions it is feared that the reduction of fires was partly due to the absence of grass, which cannot be eaten and burnt.

Surat.-Results were as good as usual.
North Thana.-There were 55 fires burning 4,465 acres against an average of 59 fires burning 4,645 . Half the area burnt is closed forest. The Dahanu range showed by far the worst result but it is noted that the Range Forest Officer was very shart of roundguards owing to sickness. Results are satisfactory.

West Thána,-There were only 41 fires buraing 1,544 acres as against 75 burning 5,126 acres last year. The decrease is attributed to a very wet season. Eight fires are stated to have been cases of incendiarism of which
six were made cases of prosecution. Only three were disposed of during the year and three were pending at the close which shows very undesirable delay in disposal. Of those disposed of, punishments varying from a fine of Rs. 2 to Rs. 10 were given, displaying a laok of appreciation of the gravity of the offence by the trying magistrates.

East Thána.-There were 78 fires burning 7,732 acres as against 75 - burning 9,992 acres in the last year. Except in the Tansa catchment area fires were not serious and in this centre of incendiarism the area burnt has been reduced by 50 per cent. in the last three years-a very satisfactory result.

South Nasik.-There were 47 fires burning 3,231' aores as against 50 burning 4,469 acres in the last year. Dindori range was answerable for 26 fires burning 2,419 acres and Násik for 15 burning 549 acres. The valuable forests of Peint are almost immune from fires. There was only one fire in these ranges, viz., of 215 acres in North Peint. Some cartinen who were responsible were caught and punished.

North Násily.-A decrease from 26 fires burning 5,404 in the last year to 8 fires burning 250 acres is at first rather startling, but last year showed a big increase over the former years, and the average of the last three years is still only 16 fires, so that coupled with a wet season the result is not so surprising. The Divisional Forest Officer describes it as a 'lucky' year in fire conservancy. The Conservator fears it is largely 'luck' where slackness among subordinates is recognized.

Násik Sub-division.-This sub-division shows one fire less than last year but a reduction of two-third of the area burnt. No reason is given.

The following statement required by Government Resolution No. 248 of 12th January 1904 shows the area protected :-

| Division. | Total forest ares of the division in charge of the Forest Department. | Extent of valuable forest for which centinuous protection from fire is desirable. | Proportion of valuable forest which hay been continuously protected from fire for five years. | Extent of forest naturally immune from fire. | Extent of forest burnt. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Open forest. | Closed forest. | Total. |
|  | Acres. | Acres. | Peroentage. | Acres. | Acres. | Aores. | Acres. |
| Panch Maháls | 2,12,152 | 2,12,152 | $74 \cdot 7$ | ... | 1,679 | 3,894 | 5,578 |
| Surat | 4,63,507 | 4,63,507 | $99 \cdot 3$ | ... | 42 | 81 | 73 |
| North Thána | 2,08,206 | 2,08,206 | $90 \cdot 8$ | ... | 2,373 | 2,092 | 4,465 |
| West Thána | 2,05,974 | 1,97,778 | $88 \cdot 4$ | 1,500 | 914. | 630 | 1,544 |
| E'ast Thána , ... | 2,94,530 | 2,80,531 | $70 \cdot 2$ | 4,356 | 2,869 | 4,863 | 7,732 |
| South Násik | 2,17,860 | 2,17,860 | 95.9 |  | 2,105 | 1,126 | 8,231 |
| North Násik | 3,16,214 | 2,75,102 | $97 \cdot 9$ | 49,920 | 100 | 150 | 250 |
| Násik Sub-division | 1,65,133 | 1,65,133 | $78 \cdot 6$ |  | 867 | 884 | 1,251 |
| Total | 20,83,576 | 20,20,269 | 89.0 | 55,776 | 10,449 | 18,670 | 24,119 |

Central Circle.
The number of fires increased by 75 , from 432 in 1915-16 to 507 in the year under report, and the area burned by 48,741. acres, from 1,55,471 to 2,04,212. Separating the figures for the Commissioners' jurisdictions, the Central Division has 431 fires and $2.02,815$ acres, as against 385 and $1,54,638$ in 1915-16, and the Southern Division has 76 fires and 1,397 acres, as against 47 and 833. Results, therefore, must be put down as unsatisfactory.

East Khándesh, it is true, shows a decrease in the area burned of a few thousand acres, though an increase of nine in the number of fires; but it has to be admitted that it is little more than chance whether the acreage is more or less, for in the Satpudas, where the bulk of the fires occur, conditions and arrangements for the fire protection are not at present such that the Forest Department can ascribe success or failure to any one measure that it carried

д 15-6
out or failed to carry out. The difficulties that are experienced, and the measures that it was proposed to take to counteract them, were dealt. with at some length last year, and Government having called for a special report, which bas been submitted, it is unnecessary to go into the matter in detail now. But the problem may be stated briefly to be firstly, the introduction into these now uninhabited hills of a resident population, dependent on the forests for their livelihood and available at any season for preventive and protective fire messures; secondly, the exaction from forest villagers living near the forests of the help which it is their duty to give in return for the geverous privileges they enjoy, but which help they now sedulously refrain from giving; thirdly, greater control, both as to place and season, over the movements of the casual fire-causing non-forest villager who now visits the forests for the sole purpose of taking something from them, but who has no interest whatever in their protection.

West Khaudesh calls for no special comment other than that the area burned was slightly less than last year even though the number of fires was greater. The favourable results as regards area are ascribed partly to the effect of communal punishment in the previous year, partly to energetic work by the forest staff, and several of the fires were in comparatively valueless areas recently transferred from pasture to forest proper.

North Khándesh shows a decided setback, the number of fires rose from 44 to 72 and the area burned from 61,261 acres to $1,24,004$, the division being thus responsible for more than the whole net increase shown for the circle. The greater part of the area burned was in the Akrani where the forests are unorganized, and if the 92,884 acres accounted for in this way be deducted from the total, there remain 31,120 acres of organized forest burned, a figure which is practically the same as that of last year for the corresponding areas. For the disappointing results in the Akrani the Divisional Officer gives two explanations, one that three fres started almost simultaneously and the population is too limited for such an emergency to be successfully met, the other that some patils and villagers showed gross negligence in fire matters, negligence which it may be mentioned was promptly punished.

Poona and Sátára are divisions which call for few remarks, the total burned area of the two amounting to no more than 7,089 acres. In nuwbers fires are comparatively large 124 in the former 86 in the latter, but partly because grass is so valuable a commodity, mainly because it is so scanty and confined to limited and isolated areas, no fire that breaks out is allowed to or can spread far; the anxieties that confront Khandesh officers are unknown here.

Kolába also presents a simple problem with a total area burned of but 1,397 acres, that is, an average of -18 acres for the 76 fires that broke out. Here the careless rab-burner is the main source of danger, and 35 of the 76 fires originated in this way; in 23 cases the offender being prosecuted.

Communal help rendered to Government in extinguishing fires lies very much on lines that might be expected. In Khándesh where no villager cares whether the grass is burned or not, and where work on a fire involves extremes of exertion and discomfort, much pressure, moral and material, is required to keep the people up to the mark. Thus in one division alone, North Khándesh, communal punishment bad to be inflicted on 23 villages, four only being found to deserve reward for good help. In East Khándesh, a report has recently been made to Government asking for permission to substitute individual for communal punishment, the peculiar conditions and statas of the privilege holders of the Sátpuda ranges makiug the latter form impracticable for successful application. In Poona, Sátára and Kolába, on the other hand, extinguishing a fire is not only a comparatively simple matter but one in which, as a rule, villagers in their own ivterests readily help; in Poona, however, exceptions to this as usual occurred in areas in temporary charge of the Military Department, the villagers' personal interest in such being less, and they, no doubt, having a score to pay off against the Military rakhawaldars for impounding of illicitly grazed cattle; four villages had their grazing fees doubled as a result.

For the whole circle the area under special protection was $23,88,058$ acres and. the cost incurred Rs. 16,819 ; $21,83,846$ acres, or $91 \cdot 4$ per cent. were saved. Of the $2,04,212$ acres burned 23,259 acres or $11 \cdot 3$ per cent. which is only balf of last year's percentage were closed forest.

As regards origins of fires North and East Khándesh both show 11 cases due to carelessness in burning fire lines, though it is only fair to state that all these cases were not the result of departmental work, but that a large proportion were due to negligence of coupe contractors ; it is satisfactory to note that the latter division has not to be pilloried this year, as has been the case for several years past, for the bad work of the forest staff in this respect. Eighty-nine cases occurred through fires crossing external boundaries, careless rab-burning in Kolába being the chief cause of offence in this respect. In 47 cases malioious firing is said to have been the cause, though proof of the same is generally wanting. In 188 cases the cause was unknown.

Fifty-four cases were taken into court, and in 31 of them convictions were obtained, in two the offenders were acquitted, three were withdrawn and 18 were pending at the close of the year. Seventy-one cases, either trivial ones in which little or no damage occurred, or rab-burning cases where the offenders made every effort to prevent damage occurring, were disposed of by compounding.

## Southern Circle.

The area attempted to be protected from fire was 4,085 square miles as compared with 3,603 square miles in the preceding year. The percentage of failures was 2.0 against 8.7 which is satisfactory. The cost of protection was Rs. $5 \cdot 6$ per square mile against $5 \cdot 3$ in the previous year. Fire protection was, on the whole, much better this year than ever before, because of chiefly the late heavy rains in November, which kept the forests green longer than usual, and the special measures taken as a result of the disastrous fires of the previous year. The detailed results are compared with those of the previous year in the following statement:-


It.will thus be seen that fire protection was satisfactory in all divisions except the Kanára S. D., where the increase of six square miles noticeable in the area burnt was due to fires in betta lands. Under the betta rules, introduced during the year, the holders of betta lands are responsible for any fires in their bettas. In all the divisions the usual fire-protertion measures of clearing fire traces were systematically followed. In three blocks of organized forests (Maingini, Goyar and Nagi) in Kárwár range, Kánara W. D., the fire protection was entrusted completely to the villigers and they were paid lump sums by the Divisional Forest Officer in person, and the headmen awarded turbans in cases of good work; the three blocks are reported to have been thus kept immune from fire during the whole year at a small cost of Rs. 65.' Besides money rewards and presents, liberal free
grants of timber and free grazing werd also given for good protection. Communal rewards and punishments were given as under :-

| Division. | Number of villages |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Eewarded with free or conoession grazing for good general proteotion. |  | Punished for bad protection by enhanced grazing fees. |  |
|  | 1916-17. | 1915-16. | 1916-17. . | 1915-16. |
| Kánara N. D. | 2 | 58 | 28 | 21 |
| Kánara E. D. ... | 54 | 63 | 25 | 70 |
| Kánara C. D. $\quad .$. | 16 | 1 | 16 | 16 |
| Kánara S. D. ... | $\ldots$ | .... | 25 | 19 |
| Kánara W. D. ... | 33 | 6 | 27 | 80 |
| Belgaum | 98 | 77 | 166 | 239 |
| Dhárwár-Bijȧpur | 2 | 14 | 1.7 | 37 |
| Total .. | 205 | 219 | 304 | 482 |

Form No. 15 shows the number and origin of fires. The particulars of detection and disposal, compared with those of last year, stand as under:-

Total number of fires reported Number detected Number compounded Number prosecuted

|  | 1916-17. | - 1915-16. |
| :---: | :---: | :---: |
|  | 1,141 ( 100 per cent.) | 976 (100 per cent.) |
|  | 152 (13.3 ", | 96 ( 9.8 , ) |
|  | 125 (109 \% ) | 68 (7.0 " ) |
| ... | 27 ( 24.4 ) | 28 (2.8 ") |

Of the 27 cases prosecuted conviction was obtained in eight, the rest remaining pending in Magistrates' courts. The percentages of detection and disposal show much improvement over the previous year, and the Divisional Forest Officers report that detected cases were all suitably dealt with.

The statement showing areas enjoying continuous immunity from fire for a period of seven years, prescribed in Government Resolution No. 248 of 12th January 1904, is given below:-

| , Division. | Total forest area of the division in charge of the Forest Department. | Extent of valuable forest for which continnous protection from fire is desirable. | Proportion of valuable forest which has been continuously. protected from fire for seven years. | Extent of forest naturally immune from fire. | Extent of forest burnt during the year. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Open forest. | Closed forest. | Total. |
|  | Acres. | Acres. | Percent. Acres. | Acres. | Acres. | Acres. | Aores. |
| Kanara N. D. ... | 2,72,843 | 2,72,843 | 58,030 or 21.3 | 500 | 1,448 | 4,993 | 6,441 |
| Kánara E. D. ... | 3,75,223 | 3,75,223 | $3,24,775$ or $86 \cdot 5$ | 6,000 | 2,539 | 346 | 2,885 |
| Kánara C. D. ... | 5,33,496 | Accurate | figures not | available | $\cdots$ | $\cdots$ | 12,986 |
| Kánara S. D. :.. | 4,53,055 | 4,11,045 | 2,00,000 or $48 \cdot 6$ | 1,09,180 | 7,149 | 2 | 7,151 |
| Kánara W. D. ... | 5,30,398 | 1,30,808 | 1,11,127 or 85.0 | 52,994 | 1,813 | 8,151 | 4,964 |
| Belgaum | 4,07,138 | 4,07,138 | 48,500 or $11 \cdot 9$ | 48,500 | 6,079 | 6,703 | 12,782 |
| Dhárwár-Bijápur. | 1,85,712 | 1,83,407 | 1,32,638 or 72.3 | 2,297 | 4,231 | 1,379 | 5,610 |
| Ratnágiri | 12,054 | - 2,546 |  | 9,508 |  | 25 | 25 |
| Total | 27,69,919 | ...... | $\ldots$ |  | ... |  | 52,794 |

Sind Circle.
Form No. 15 shows the number and origin of fires. It will suffice here to contrast results of the present year under report and the previous year:-


The general improvement is due chiefly to a good inundation, there was less firing of forests for grazing, and the rain in March 1917 kept hill graziers from bringing their cattle to the riverain forests.

At the same time, as the figures show, there were other causes contributing to the successful fire protection of the year.

In Sukkur the average area per fire dropped from 66 to 25 acres; this is stated to be due to prompt_action taken to extinguish fires. In Jerruck the average area decreased from 25 to 10 acres; the Divisional Forest Officer attributes this success to the value of the fire breaks. supplied by traces cleared in all dañgerous areas. New fire tracing work was carried out in the Lárkána, Hyderabad and Jerruck divisions. In Jerruck 9 miles 792 feet of jungle were cleared at a cost of Rs. 235 or Rs. 40 per. mile for 50 feet wide traces and Rs. 20 per mile for 25 feet wide traces; 10 miles were traced free of cost.

In Lárkána fire lines 100 feet wide totalling three miles long were cut free of cost in the Lárkána, Sehwán and Kandiäro ranges.

In Hyderabad three-half mile lengths 100 feet wide were cut free of cost in the Hála and Sakrand ranges.

Firewatchers were entertained in the Mulchand, Sháhbunder and Tatta ranges of the Jerruck division.

The statement required by Government Resolution No. 248 dated 12th January 1904, regarding areas enjoying continuous immunity from fires for a period of seven years is given below for 1910-11 (vide Government. Resolution No. 4081 of 22nd April 1908):-

(c) Protection from Cattle.
Northern Circle. .

The following statement shows the number and kind of animals impounded from open and closed forests respectively compared with previous years :D $15-7$


Panch Mahals.-The number of grazing offences was 843 involving the impounding of 19,564 cattle as compared with 864 involving 23,261 in the last year. But last year's figures were double those of the previous year and were excused on the two-fold ground that it was a year of scarcity causing an influx of outside cattle with turbulent owners and that to save fodder-grass strict protection was necessary. The Divisional Forest Officer is being asked to explain bis figures of offences under all heads as this seems an instance in which lawlessness under exceptional circumstances threatens to become a habit unless promptly checked. It may be the increased figures indicate the necessary checking process.

Surat.-Figures are only remarkable for an unusual amount of trespass in Mándvi in June and July when all jungles are closed. The Conservator doubts the necessity of such a rule, but it is said to be of long standing and the number of cattle involved is not very great. The matter will receive attention in the coming season, change towards laxer control being undesirable without good reason.

North Thána.-Returns from this division are fairly normal showing an increase of 12 per cent. above the comparatively small average total of 3,000 cattle impounded, which was also the total of the last year. Of the total something over . 50 per cent. are cows and bullocks from closed forest and 43 per cent. were goats from all forests. Of the increased number impounded 50 per cent. were buffaloes from closed forest and 50 per cent. cows and bullocks and goats, all from closed forest. The result is satisfactory, though as the Divisional Forest Officer points out better results are likely to accrue under the revised working plan.

West Thanä.-The figures of this division correspond very nearly with those of North Thana; with more open country the total impoundings are slightly larger, viz., 3,851 which is an increase of $10 \frac{1}{2}$ per cent. on last year's figure. Of the total 60 per cent. are cows and bullocks from closed forests while buffaloes from closed forests and goats from all forests each form 17 per cent. Of the $10 \frac{1}{2}$ per cent. increased impoundings, 6 per cent. are buffaloes from closed forests and $4 \frac{1}{2}$ per cent. are goats from all forests, representing an increase of 50 per cent. in the number of buffuloes impounded and 33 per cent. in the case of goats. These results taken in connection with materially improved fire protection are very satisfactory, and as mentioned under North Thána the revised working plan should show improved protection.

East Thána.-This division shows much the same conditions, but Igatpuri being open country swells the total impoundings which are 4,858, showing an increase of about 12 per cent. on last year's figures. Seventy-one per cent. of the total are cows and bullocks from closed forest, 17 per cent. are goats from all forests and $8 \frac{1}{2}$ per cent. are buffaloes, chiefly from closed forest. Eightyseven per cent. of the increased impoundings are cows and buffaloes from closed forest. The Divisional Forest Officer explains the increase as due to cultural operations for which guards are yearly being made more responsible. In self-defence they become keener on keeping the closed forest free of cattle.

The reason is logical and probably correct. The revised working plan will increase this tendency.

South Nasik, North Násik and Nasik Sub-division,-All these oharges show slightly improved results and call for no remark except that the present arrangement of closure in the Násik district handicaps any effort to protect the forests from cattle. As soon as possible the system of olosure will be revised as part of the general revision of the working plan. Igatpuri, as formerly under Násik, is similarly afficted.

## Central Circle.

One thousand six hundred and seventy square miles, representing pastures and protected forests in charge of the Revenue Department, were open to all animals throughout the year. - Of the 3,730 square miles in charge of the Forest Department, 616 square miles or 17 per cent. being organized areas under regeneration, were permanently closed to all animals, and 119 square miles or 3 per cent. of kurans were kept closed during the grass-cutting season but opened to grazing of horned cattle in the hot weather ; 2,995 square miles or 80 per cent. were open to all animals but browsers throughout the year.

The following statement compares the numbers and kinds of cattle impounded from open and closed forests, the total impoundings for the jurisdiction of the Commissioner, Central Division, being 43,087 as against 46,820 - in the previous year; from open areas the figure is 16,680 as against 14,491, from closed areas 26,407 as against 32,329 :-


The net decrease in impoundings for the circle is 3,637 , those from open forest having risen by 1,917 , those from closed forest fallen by 5,554 . The only points that call for remark are that in every division but Kolába there has been a considerable decrease in the number of horned cattle impounded, while sheep and goat trespass, these animals being forbidden in any forest in charge of the department, has largely increased in Poona and West Khándesh and slightly increased in East Khándesh. That impoundings of horned cattle from closed areas should have been less than those of the previous year, may be put down partly to the abundance of grass after a favourable monsoon, partly to efficient protection by the forest staff, while the fact of the same animals having had to be impounded in less numbers from open forest indicates that their owners realized that it was better to pay the fees at once with a good grace than to refuse to do so, and thereby have to pay pound fees and compensation for each occasion of trespass, and inevitably the grazing fees as well later on; at the same time there are still many attempts on the part of the people to evade payment, for in Poona no less than 17,708 animals had to be charged for at double rates, they being caught in the forests after the prescribed date and their owners having declined to pay until they were actually caught. In the same division it is estimated that quite 10 per cent. of the cattle for which fees were eventually paid were caught trespassing, and had to be taken to villages before payment took place ; the owners, of course, when the trespass was in open forest, could avoid impoundment by paying, but the unnecessary labour thrown on the forest staff was enormous. The effect would be salutary if the rules could be so amended that owners who pay voluntarily within the prescribed date be charged the single fee, while those who evade payment until caught be charged double.

Comparison of the number of horned cattle impounded with the number admitted to graze in forests free or on permit is interesting, the figures being 29,160 and $8,59,337$, or slightly over 3 per cent., proof positive that no excessive hardship is caused to the public by the protective measures enforced. The hardship is all on the State, for in this circle most of the forests are hopelessly overgrazed and that too by useless animals; were none but such as are of value kept and stall feeding adopted, the advantage to both sides would be great, impoundings would decrease and the forests be more quickly regenerated. The grazing rules, it is true, allow of limitation of numbers of cattle to be admitted to given areas, but so long as the cattle exist in such quantity facilities-have to be provided somehow, and the rules remsin a dead letter. The whole question is now before Government in the form of a suggestion made by the Inspector General of Forests as to the possible superiority of the Central Provinces' system, and under which differentiation of fees according as the cattle are kept for agricultural purposes or for profit tends both to reduction of useless animals and to less pressure on the forests, and that too with no decrease in revenue obtained.

Southern Circle.
The details of area open and olosed to grazing are given in Form No. 16. An abstract is given below:-

| Year. | Closed to all animals for whole year. | Closed to all animals for part of year. | Opan'to all animals (except browsers) for whole year. | Open to all animals for whole year. |
| :---: | :---: | :---: | :---: | :---: |
| $\begin{array}{ll} 1916-17 & \ldots \\ 1915-16 & \ldots \end{array}$ | Per cent. $20 \cdot 9$ $15 \cdot 3$ | $\begin{gathered} \text { Per cent. } \\ 0.3 \\ 0.3 \end{gathered}$ | $\begin{gathered} \text { Per cent. } \\ 73.2 \\ 78.8 \end{gathered}$ | $\begin{gathered} \text { Per cent. } \\ 5 \cdot 6 \\ 5 \cdot 6 \end{gathered}$ |

The above figures do not, however, furnish an accurate comparison, as the numbers furnished by the Divisional Forest Officers in previous years were not quite accurate.

The number of cattle that grazed in the forests during the past three years are compared below :-

| Year. |  | Hormed catcle. | Sheep and goats. | Other animals. | Total. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $1916-17$ | $\cdots$ | $\ldots$ | 488,167 | 1,386 | 477 |
| $1915-16$ | $\cdots$ | $\cdots$ | 468,991 | 6,328 | 79 |
| $1914-15$ | $\cdots$ | $\cdots$ | 462,441 | 2,135 | 704 |

The following table prescribed in Government Resolution No. 4081 of 22nd April 1908 gives the comparative details of cattle impounded for illicit grazing :-

| Division. | Cows and bullocks. |  | Buffeloes. |  | Goats. |  | Sheop. |  | Other spimals. |  | Total. |  | Total opon andcloned for$1916-17$. | Total open and closed $\xrightarrow{\text { for }}$ 1015-18. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Open. | Closed. | Open. | Ologea. | Open. 1 | Crosea. | Open- | Clobed. | Open. | Closéd. | Open. | Olobed. |  |  |
| Efnera $\mathrm{N} . \mathrm{D}$. |  | 1.758 |  |  |  |  |  | ... |  |  | 70 | 2,281 | 893 | 1.976 |
| Hanara E. D. | $\cdots$ | 887 | $\cdots$ | 195 | 28 | 181 |  |  |  |  | 28 | 1504 |  | 1,088 |
| Kánara C.D. | 19 | 120 | $\cdots$ | 21 |  | 190 |  |  |  | $\cdots$ |  |  | 1,298 | 986 |
| Kádare S. D. |  |  |  |  |  |  | .. |  | $\cdots$ | ... | 18 | 840 | 858 | 838 |
| Eánara S. D.- ${ }^{\text {co. }}$ | 7 | 49 |  | 14 | 63 | ... | 8 | ... | $\cdots$ | ... | 148 | 63 | 211 | 183. |
| Kánara W. D. | ... | 255 | ... | 46 | $\cdots$ | ... | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | ... | 801 | 501 | 450 |
| Belgaum . ... ... | $\cdots$ | 1,408 | ... | 948 | $\cdots$ | ... | $\cdots$ | 768 | $\cdots$ | 8 | ... | 8.118 | 301 |  |
| Dhárwír-Bijápur. | 80 | 1.468 | 10 | 235 | $\cdots$ | 1.240 |  |  |  |  |  |  |  | 5,208 |
| Rataatgiri ... |  | 6 |  |  | $\cdots$ |  |  |  | $\cdots$ | 25 | 103 | 4,098 | 4.201 | 8.823 |
|  |  |  |  |  |  | ... | $\cdots$ | ... | $\cdots$ | ... | ... | 0 | 6 | $41^{-}$ |
| Total, 1016-17 | 230 | 6,946 | 28 | 1,875 | 81 | 1.589 | 19 | 1,848 | $\cdots$ | 84 | 861 |  |  |  |
| Total, 1916-16 | 800 | 6,283 | 109 | 2,741 | 630 | 9,370 | 1 |  |  |  |  |  | 11,762 | ... |
| Average of past | 897 | 6,990 |  | 2.527 | 659 |  |  |  | $\cdots$ | 19 | 940 | 12,933 | ... | 13,279 |
| three years. |  |  |  |  |  |  |  |  |  | 2 | 1,207 | 13,122 | ... | $\cdots$ |

The impoundinge have on the whole decreased in all divisions except Dhárwár－Bijápur，where those of sheep in closed areas rose from 222 last year to 1,080 this year on account of persistence in contravention of rules．The people are，however，beginning to learn that cattle are not to be grazed in closed forest．

## Sind Circle．

93.9 per cent．of the forest area was open to the grazing of cattle except goats and camels．The latter animals were admitted to 561.72 square miles of forest or 64.8 per cent．

Impourdings．－There has been a general decrease in the number of impoundings in the forests of the province as compared with the figures of last year and those of the past three years；the table at the end of this para－ graph shows details．In Lower Sind this was due to the exceptionally favourable condition of rainfall in the Kohistan hill tract，which resulted in large numbers of cattle remaining a way from the forests throughout the year． In Lárkána the decrease is ascribed to the energy displayed by subordinates in reporting illicit grazing cases previously，while in Sukkur it is stated that the herdsmen found the yearly grazing fees much cheaper than those levied under the bi－monthly system and registered most of their cattle．Temporary cattle pounds for the control of gormal（semi－wild cattle）were opened in certain forests frequented by these animals．

In Sukkur 155 cattle were caught，the revenue from fees being Rs． 171 and the expenditure Rs．115．In Lárkana 12 cows were oaught in the Amrot forest，fees being Rs． 12 and expenditure nil，while in Hyderabad 126 cows and calves were caught in nine pounds in the Hala and Sakrand ranges and Rs． 134 recovered from their owners，the pounds having been managed without expense by literate sub－rangers or guards in addition to their own duties．

The result is still not very satisfactory．The animals，though easy to approach are shy and difficult to catch．They are animals for which no grazing fees are paid，and their condition of gor or semi－wildness is brought about by their being turnel loose by their owners to live in the forests night and day．The remedy is to insist that all cattle should be driven by herds－ men at night to their folds by their owners，the people avoid this in order to avoid paying fees during the period when their animals are out of milk．The help of the Revenue Department must，and will be sought．Injury is chiefly done to the young coppice shoots by browsing，and to seedlings by trampling．

Newly exploited coupes were fenced with waste branchwood．The total length of new fences put up amounted to $349 \frac{1}{2}$ miles．

Repairs to existing fences were carried out over $692 \frac{3}{4}$ miles．This work was done by forest guards free of cost with the help of maldars and coupe contractors．Special effort was made this year to start fencing coupes con－ taining coppicing species directly felling operations began．

The animals impounded during the year compared with those of the preceding year are shown in the subjoined table as required by Government Resolution No．4081，dated 22nd April 1908 ：－

Impoundings．

| Division． | Cows and bullocks． |  | Buffaloes． |  | Sheep． |  | Goats． |  | Camels． |  | Other animals． |  | －Total． |  | Total of open and olosed． |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | : |  | 適 |  | 苍 | 䓵 | 关 | 毕 | $\begin{aligned} & \text { í } \\ & \stackrel{\circ}{0} \end{aligned}$ | $\begin{aligned} & \text { "0 } \\ & \text { © } \\ & \text { © } \end{aligned}$ | ．${ }^{\text {¢ }}$ | 芻 | $\stackrel{\text { ¢ }}{\text { ¢ }}$ | － | 1915－16． | 1916－17． |
|  | 606 | 888 | 371 | 509 | 76 | $\cdots$ | 1，687 | 1.629 | 387 | 481 | 52 | 166 | 3，179 | 3，047 | 7.201 | 6，826 |
| Sukiur ．．． | 129 | 387 | 225 | 186 | ．．． | 39 | 166 | 1，162 | 104 | 420 | ．．． | 15 | 624 | 2，198 | 4.113 | 2，822 |
| Larkana ．．．．．． |  | 554 | 197 | 463 |  | ．．． | 296 | 394 | 65 | 186 | 8 | 141 | 704 | 1，798 | 2，796 | 2.442 |
|  |  |  | 215 | 372 | 21 | 99 | 83 | 390 | 83 | 393 | 95 | 153 | 894 | 1，826 | 1，048 | 2，720 |
|  |  |  |  |  |  |  | 2，232 | 3，565 | 639 | 1，480 | 147 | 475 | 5，401 | 9，409 | ．．． | 14，810 |
| Total，1916－17． | ，270 | 2，308 | 1，008 | 1，529 | 97 | 78 | 2，232 |  |  |  |  |  |  |  |  |  |
| Total，1915－16． | 1，575 | 3，549 | 695 | 1,589 |  | 366 | 2，786 | 4，636 | 537 | 1.964 | 185 | 372 | 5，692 | 12，460 | 18，158 | ．．． |
| Average of the past three years． | 1，266 | 3，246 | 512 | 1，591 | 175 | 212 | 3，391 | 4.152 | 528 | 1，282 | 123 | 200 | 5，994 | 11，079 | ．． | ．．． |

## Northern Circle.

In Surat Rs. 343 were spent by employing parties for creeper cutting. Perhaps special circumstances of the locality justify this, but careful check is required; for, as in the case of broad-casting seed; the amount of work done is very susceptible of exaggeration. Generally the cut creepers are a valuable criterion that the protective officer has passed that way, and it is extraordinary the amount of creepers that can be out in that. Way, making extra expense uncesirable.

In the Dahisar range of North Thána and the Bassein range of West Thána small contracts were given to men who out the creepers for the resulting firewood. In the latter range Rs. 1,388 were realized in this way. In all divisions creepers are reported to have been cut by guards.

In the Umbergaon casuarina plantation 20,000 healthy seedlings were destroyed by a small moth. Specimens were sent to Dehra Dun for identification and advice.

## Central Circle.

In all divisions cutting of climbers was carried out by guards. In Kolảba coupe contractors were made to clear out Euphorbia or other growth that interferred with regeneration. In Poona eradication of prickly-pear from babul coupes took place at Government expense, 20,250 cubic feet being removed at cost of Rs. 36 ; and a further usaful work consisted in the freeing of some 15,000 seedlings in teak coupes which were in danger of being suppressed or choked by surrounding growth. Both in• Poona and Sátára construction of 'tals' went on; in the former over one running mile being built at a cost of Rs. 101, in the latter 211 new 'tals' were built for Rs. 45; the value of the work in preventing erosion and in forming suitable plots for artificial plantations behind the 'tals" was very apparent.

## Southern Circle.

In Kanara W. D., a strip varying from 15 to 40 feet wide along the greater length of the Kodibag casuarina plantation was eroded by the heavy tides of June. Over 100 trees came down. The Public Works Department. are taking steps to prevent further erosion by putting up "groins" in the sea and a dam of sand and dry stones inside the plantation at the most dangerous spot, where also, furtheriu, a large area of rice land is threatened. Wild elephants and pigs did some damage to forests in the Supa and Dándeli ranges. Defoliating insects (Eupterote castanea and Hybloca puera) again attacked the tak over a considerable area in the Kanara Northern and Central Divisions. In some of the teak nurseries in Kánara E. D., many of the largest plants were attacked and destroyed by the larvim of beetles. In Kánara S. D., the casuarina trees in Kasarkod and Haldipur suffered to a certhin extent from caterpillars of Arbela guadrinotata; the damaged trees were cut and sold. Prickly-pear, which is a pest in the Bijapur forests, was removed by villagers as far as possible without extra cost to Government. Lantana continues to spread in the Haliyal teals pole area in Kanara N. D., and in parts of Dhárwar, and it is difficult to check its growth. The floods of the Krishna and other rivers of Bijápur, which were very high this year, did some damage to babul kurans by uprooting the trees on the bauks. The planting of zili (Sesbania agyptiaca) along the banks is being continued with a view to check erosion as far as possible.

## Sind Circle.

The weather in the cold season was not severe on the whole and young plantations were not seriously injured by frost in any division. Rats were troublesome, and did some damage by gnawing the stems of young trees below the ground. Porcupines also gave trouble in the plantations of tali (Dalbergia.Sisoo) in the Sukkur division where they tore the bark off young stems; a spring trap is being experimented with a view to get rid of these animals which usually do damage at night. The defoliating caterpillars appeared in onormous numbers in the southern forests of the Jerruck division, and the damage done by them was considerable. Large trees as
well as the smallest seedlings were attacked, but the injury caused actual loss only in the case of the latter. Kamo creeper cutting was carried out by the staff, and in the Jerruck division also by contractors in a large area under thinning operations in all ranges. Small coatracts were also given or the removal of croepers in soms areas in this division.

## 4.-Sylfioulture.

(a) Natural Reproduction.

## Northern Circle.

(i) From seed.-While most divisions made good efforts, by tending, at establishing natural seedlings which otherwise would have perished, only the three Thana Divisional Oficers record exact extent of operations and results. These were very encouraging, percentages of successes var-ying from 25 to 50 por cent. as a rule, and occasionally as high as 90 par cont. All Divisional Forest Officers are being asked to record similar data in future.
(ii) By coppice.-This is everywhere good, though naturally less vigorous above than below ghats. Everywhere more or less tending is necessary for its success.

## Central Circle.

Conditions as regards rainfall were farvourable, and reproduction by seed, that is to say in so far as germination and the first appearance of seedlings was concerned, left little to be desired. The difficulty is to ensure the seedlings withstanding the effects of drought, weeds, fires and grazing, and that is where artificial measures come in. Reproduction by coppioe also, so far as nature is concerned, is entirely satisfactory, though in this respect too heavg toll is taken by fires and grazing. The one exception to good natural reproduction either by seed or coppice is found in the case of the anjan in Khan. desh, where not only can a good seeding not be counted on more than once in three years, but also a very large proportion of felled trees fail to coppioe at all. The absence of regeneration in coupes was much commented on by the Inspector-General, who in the light of Central Provinces experience gave valuable adviee as to experiments which should be carried out, both as regards preparation of the soil to form a more favourable seed bed, and as regards season of felling which may possibly affect coppicing, and adoption of the system of felling the trees at varying heights above ground instead of as is now done flush with it, for, as he pointed out, the standing growth afforded ample evidence that pollarding the anjan almost invariably produced good results.

In Poona and Satitra the natural extension of sandalwood is very noticeable in some localities, affording the promise of good revenue in years to come from this most valuable species.

## Southern Circle.

(i) From seed.-The year was again very good for teak, the other valuable species such as matti, honni and sissum also seeding well. As the year 1915 was excellent for teals seed, the vast number of seedlings, which lay dormant in 1916; have come up in the rains of 1917. The worl of weeding and mulching the natural seedlings has been receiving special attention with satisfactory results everywhere.
(ii) By coppice.-Regeneration by coppice was, as usual, good in all the forests worked under this system, though, unfortunately, fires again devastated many of the old coupes in the the Khánápur Central and East ranges and destroyed both seedlings and coppice. Where the young growth gets a fair chance, it does splendidly and with a little help soon establishes itself. In Kanara W. D. it was noticed that jamba coppice was very susceptible to fires, in some places whole groups of it being completely burnt. The stumps, however, are again coppicing. Mr. Hodgson, Divisional Forest Officer, Kánara N. D., is experimenting with regard to his observations on the effect of fire on teak seedlings, mentioned in the last annual report, and his report is awaited.

## Sind Circle.

## (i) State of existing reproduction.

The area flooded was 4,47,753 acres compared with 2,71,093 acres of the previous year. The rains in Lower Sind were also plentiful. In consequence natural regeneration from seed was good everywhere. Seed had been scattered profusely throughout the forests of Lower Sind by the large number of famine-stricken cattle which grazed in them and on the babul pods prior. to the inundation season of 1916, and in Jerruck division the forests of Viran, Sonda and Hillaya were entirely closed to browsers in order to take full advantage of the extensive natural seeding above referred to. The only setback in Lower Sind was due to the fact that some areas under regeneration received such a depth of flood water that both natural seedlings and coppice shoots died.
(ii) Measures for inducing or aiding reproduction.

There was no felling or girdling of inferior speaies with a view to open * the canopy as this is not necessary under the system adopted, scorched trees not yet dead were cut back in three divisions for fresh coppice shoots. All debris left in coupes after felling was burnt where this could be done without endangering the forest, in order to provide a good seed bed for future babul regeneration, and areas not fully stocked naturally were broad-casted with seed after the inundation season.

Thinnings in natural crops were carried out in all divisions in babul areas; the details are as follows:-


The only repular plantations are of casuarina in North and West Thána, all under the Divisional Forest Officer, North Thana. Rs. 2,458 were spent on four plantations and planting up 27 acres; 10,000 plants were put out and are doing well.

## Cultural operations.

Panch Mahabr:A statement sbows that 385 maunds of seed, chiefly Terminalia tomentosa and Tectona grandis, were dibbled in blanks in all ranges at a cost of Rs. 206 but the only resuls recorded is that the germination of teak was not satisfactory. From the Godhra nursery 10,745 teak and 2,155 plants of other trees were transplanted into exploited coupes. They were subsequently mulched and shaded with recorded good result.

Surat.-In the Bulsár range 69,500 plants were raised in the Welwach nursery and 32,025 in the Delwada nursery at a cost of Rs. 319 and Rs. 50 respectively and 24,175 teak, 8,700 tanach, 4,500 shisam and 100 beo were transplanted to old coupes without recorded result. In the North Dángs 15,000 teak and 2,300 shisam were planted out, of which 9,845 teak and 1,500 shisam were living in the month of May, when there were as many more seedlings ready to plant out.

All three Thana divisions showed even better results but detailed record conveys very little and abbreviated record must fail to do justice. It is rightly recorded in the divisional reports and is appreciated there.

South Nasik division has not had a chance owing to the constant change of officers, but will probably do well though under a climate less favourable for such operations.

North Násik and Násik Sub-divisions have a yet more difficult task and will probably do well to limit themselves to natural seedlings or those raised
by dibbling. For instance, in the present monsoon Málegaon had little over one inch of rain up to the end of August. Not much can be done on that.

Central Circle.
Regular plantations comprise the restocking of casuarina coupes in Kolába by planting out seedlings grown in nurseries, and by sowing of seधd in the babul coupes in Poona and East Khándesh. Results were generally satisfactory.

Cultural operatio is received much attention in Poona, Sitira and Kolaba, and it is clear that a system has now besn found which shows the possibility of obtaining difiuite resulty, which has never besn the oase in the past, and of greatly adding to the value of these furests in the finture. The work which had its inception in Kánara lies in the mulching and tending of young plants, either the natural ones which spring up with the monson, or artificial ones put out from nurseries. The system being more or less in its infancy, precisely the best methods of work are at present a matter of experiment, one division, Poona, maintaining that raised mounds and bēds are essential fôr success, while Sátara and Kolába cluim equally good results from level beds or pits; probably the main factors ars the thorvugh working of the soil before planting and the amount of tending that the plants receive in the ensuing hot weather. What can be said with certainty is that the work has been taken up with enthusiasm in all three divisions with so fir much success, that there : is enormous scope for its extension, and that it has reached a stage at which considerable expenditure on it in future will be justified. Kolába records the successful establisbment of 55,000 plants at the close of the year, while in Poona it is said that of 80,000 seedlings, mostly teak, 70 per cent. survived including many which bat been temporarily cut back by fire; both most creditahle results. Sátàra gives no actual figures, butt the Conservator himself saw the good work done in several places in that division. Khándesh at present has not been uniformily so successful in the uatter, nor is there so much scope fur it thers as for other measures of regeneration; still of 65,000 seedlings treated in North. Khándesh 25 per cent. are said to have survived.

## Southern Circle.

## Regular plantations.

The casuarina plantations on the Kánara and Ratnágiri coast were extended by 37 and 3 acres, respectively, at a total cost of Rs. 4,464. All the plantations were doing well except the one at Harwada in Kánara C. D., where a number of plants, planted two to four years ago, have died.

Cultural operations.
Kanara N. D. -In the pole forest area thousands of natural seedings found in the newly exploited coupes, were weeded and mulched. Junglewood species were planted in ereas where only pure teak seedlings were found, as teak thrives better mixed with other species. Some three lalkh of plants were transplanted in the Kulgi range with good results. In the bigh forest about 30 acres were planted up with teak, honni and sissum.

Kanara E.D.-The planting and tending of teak and junglewood seedlings was carried on as usual in the coupes newly exploited. Teak and junglewood seed were dibbled in on patches where rubbish had previously :been burnt, with fairly good results.

Kánara C. D.-About 230 acres of forest were sown with teak seed. Thousands of teak and matti seedlings were planted in felled areas.

Kainara S: D.-The casuarina coupe cut in 1915-16 was planted up with seedlings raised in the nursery. Teak and junglewood seed was dibblod in in suitable places in the newly exploited coupes.

Kanara W. D.-Natural seedlings were all successfully tended as usual 'by mulching and freeing them from interfering growth. Teak and junglewood seed were sown in suitable patches: A big nursery was made at Rengani in Gund range, whence tealj seedlings were transplanted. The matti plantations made in flat blank areas in the Kadra range last year have survived in about -85 per cent. of cases where the soil was mulched and in every case where this was not done the plants died.

Belgaum.-Nataral teak seedlings were weeded, mulched and shadeđ, and replanted in the case of failures.. Teak, junglewood and sandal seed was collected and sown in different places and seedlings of all species were transplanted from nurseries.

Dhárwar-Bijäpur.-Seeds of different kinds were sown in all the five ranges of the division. Sandal seed, sown broadcast and dibbled in under the shelter of bushes, was successful in a few cases. Sowing and planting was continued in conjunction with, and supplementary to, natural reproduction by coppice. A few of the seedlings raised last year were destroyed by fire. The agriculture-combined with-forestry operations could not be carried out in the Chickgalbal; Ingalgundi and Mamdápur coupes of the Bijapur sub-division as the area was under water for several months.

Ratnágiri.-The nurseries and plantations at Harnåi, Dápoli, Dhámápur and Tondavli were maintained with due care at a total cost of Rs. 412.

## Sind Circle.

Regular plantations.-The regular plantations in Sind are those of tali. There were 301 acres under regular plantation at the commencement of the year, to these 2 acres were added in Lárkana and 1 in Hyderabad, making a present total of 304 acres. The details are :-

Sukkur.-Kot Sultan plantation irrigated by Persian wheel. Six plants of Eucalyptus Stuartiana were added during the year of $\cdot$ which three died ; there were few casualties among the tali plants. Expenditure Rs. 293.

Zarkhel plantation irrigated by a water channel with distributaries from the Sherwàh. Expenditure nil.

Rabuja garden.-Many plants of species of citrus were put out this year, and orders issued to graft varieties of orange on to these. The whole garden has been well weeded, and some of the old tali trees thinned to make room for other trees not indigenous to Sind. All fruit trees did well except the vines which have got old. A corner of the garden has been cleared at the Collector's request for the introduction of the wild hill olive (Olea cuspidata). If this species thrives on the plains it is proposed by this department to graft on to it the European olive (Olea Europea) which has a much better yield of oil and which having failed to ripen its fruits at Sialkot in the Punjab is not likely to succeed from seed in Sind. Grafts can, it is believed, be obtained from Kashmir. The expenditure on the Rahuja garden during the year was Re. 1,529.

Hyderabad.-In Hyderabad one acre was added to the Shah Makai plantation for tali; the area now stands at six acres and the yearly expenditure was Rs. 86.

The Monument, Miani bungalow and the small gardens of mango and divi divi in the Miani range were maintained at a cost of Rs. 1,069.

Jerruck.-The regular plantation for tali in the Jerruck division is at Khatro, the araa being 23 acres. The plants are doing well and were pruned during the year. Means have been devised to secure irrigation in future for most of the plantation by flow from a small canal ex the Fuleli. In this plantation tarwad (Cassia auriculata) was sown in 1912 ; the plants are at present some 20 feet in height in this alluvial soil, and specimens of bars have been sent to Maibar to be tested for tannin.

Cultural operations.-One thousand five hundred and fifty-six acres of uplands were treated under the system of agriculture with forestry in all divisions, the assessment paid being Rs. 2,981 which was credited to the Revenue and Fublic Works Departments by book transfer. Only in the Jerruck division. where in the Katiar range Mr. Nenumal bas shown good supervision can the results be called really satisfactory. Tarwad seed germinated in the Bahman forests of Lárkána and the seedlings are said to be doing well.

In exploited conpes 11,777 acres were broadcasted with 3,126 maunds of babul and kandi seeds ; results in riverain areas after a good inundation were on the whole good, but a second flood late in August rather upset the calculations of some of the Rangers and covered up the germinated seeds. These
were resown except in a few arrears which will be sown up this year. Atten: tion was paid to the resowing of coupes where germination had not sucoeeded and kachas, high enough to keep the resultant seedlings, which had silted sufficiently above flood water, were also broadcasted with seed especially in the Lárkàna and Jerruck divisions.

## (c) Operations for the Improvement of the Growing Stock.

## Northern Circle.

Panch Mahals.-In two blocks of Godhra, one in Kalol and one in Hálol, badly grown teak were out back in formerly exploited coupes and branches of other species threatening teak were cut baok.

North Thaina.-Seventy-nine coupes formerly exploited were thinned in favour of teak at a cost of Rs. 2,333 . The pick of the material was sent to railway and bunder depots while the inferior material was sold locally. The total amount thus realized was Rs. 4,825 .

East Thana.-Similar thinning was done in 40 coupes at a cost of Rs. 950. The best injaili and teak went to the Military and the balance sold locally. Gross realization amounted to Rs. 3,096.

## Central Circle.

- It is under this heading that the teak bearing forests of Kbándesh come into prominence, not so much to give a record of work carried out as to emphasize its necessity in future. The forests are now full of stunted, unsound, missbapen trees of neither present nor future value, and their removal and replacement by sound coppice was a point on the need for which the Inspector-General of Forests laid great stress ; in theory removal in the past has been supposed to be done by contractors, at any rate so far as the larger trees are concerned; in practice contractors knowing the material to be unsaleable have left the trees standing; the new working plan will provide for each coupe being taken in hand after the contractor has finished with it, and for all unsound growth large or small being cut back at departmental expense. Needless to say, if the work is to be of full value fires must be kept down.


## Southern Circle.

In all divisions the usual operations were conducted on a larger scale than ever before : creepers were cut, broken trees cut level with the ground, inferior species girdled and improvement fellings made; the bamboos interfering with the growth of teak were also cut; thinnings, cleanings and prunings were carried out in all the casuarina plantations on the Kanara and Ratnágiri coast.

Sind Circle.
Kamo creepers (Phyllanthus reticulatus) were cut in all divisions and the khabar creeper (Salvadora Persica) also in the Jerruck division. Thinnings were undertaken in all divisions this year and in Jerruck on a fairly large soale, the operations extending over 765 acres and the amount realised being Rs. 9,255.

In Hyderabad mutilated trees were cut back under the orders of the Deputy Conservator.

> b.-Exploitation.
(a) System of Management.
(i) Major Forest Produce.

Northern Cirele.
Statement of area of various systems of exploitation in force with per-centages:-

|  | Method of clear felling by compart－ ment． |  | Uniform Method． |  | Group Method． |  | Selection Method． |  | Simple Coppice． |  | Conpice with －standards． |  | Mothod of Improve－ ment． |  | Unvorkable area and area not under Working Plen． |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Division． |  |  | 高 | 登灾至 $\stackrel{\circ}{9}$ <br>  |  |  |  |  |  |  － <br> 枵品品 <br>  <br>  |  |  |  |  |  | 事䫆畐 <br>  <br> 馬品 <br> 象 |
| Fanch Mahdls ．．． | －． | ．．＂ | 114 | 34－4 | ＇＊ | $\cdots$ |  |  | $\cdots$ | ．．． | 164 | 49.4 | 26 | 9.8 | 28 | $8 \cdot 4$ |
| Burst | ．．＊ | ．．． | ．． | ．．． | $\cdots$ | －． | $\cdots$ |  | $\cdots$ | ＊＊ | 68 | 9＊＊ | 159 | 22.0 | 497 | $68 \cdot 6$ |
| North Thána． | $\cdots$ | $\cdots$ | 307 | $4 \cdot 4$ | ．．． | $\cdots$ | 16 | 5 | ．．＊ | $\cdots$ | $\cdots$ | $\cdots$ | ＊＊ | ＊＊ | 9 | 0.6 |
| ＇West Thenge ． | ．．． | $\cdots$ | 309 | 05.9 | $\cdots$ | ．．． | $\cdots$ | $\cdots$ | $\because$ | $\cdots$ | ＊＊ | $\cdots$ |  | －＊ | 19 | 4－1 |
| East Thine | ．．＂ | －• | 306 | 87－3 | ．．． | $\cdots$ | $\cdots$ | $\cdots$ | ．．． | ．$*$ |  |  | 68 | 12.7 | 1 |  |
| North Násic | ．．＊ | －．＂ | ＊＊ | ＊＊ | $\cdots$ | ．．． | ．．． | ．．． | ．．． | $\cdots$ | 244 | 49. | 37 | 9.6 | 203 | 40.9 |
| South Násit | $\cdots$ | $\cdots$ | $\cdots$ | $\cdots$ | ．．． | $\cdots$ | 247 | 3 |  | ．．． |  | 20 |  | ．．． | 87 | 7－8 |
| Násik sab－divi | 4 | 1.6 | ＊＊ | ．．－ |  | $\cdots$ |  | ＊＊ | $\cdots$ | ．．． | 29 | 11 |  |  | 225 | 87.8 |
| Total | 4 | －．＂ | 1，188 |  | ．．． |  | 263 | $8 \cdot 1$ | ．－ | ．．． |  | 17 | 290 | $9 \cdot 0$ | 996 | $30 \cdot 6$ |

Clear fellings．－These were limited to ten babul coupes of Násik sub－ division in the first instance．－Subsequently；with the approval of the Inspec－ tor－General of Forests，the standards in the coupes of the year in the three Thana divisious were felled in anticipation of the introduction of the revised plan which is under preparation and will introduce the uniform system． Therefore，in the statement the whole of these Thán forests are carried from the heading＂Coppice＇with standards＂to that of＂Uniform method＂．A similar change in treatment of the forests of the Eastern Mahals under the authority of the Superintendent of Working Plans should have been shown in the statement in last year＇s Administration Report．

Selection fellings．－These were confined to the below－gbat forests of the South Násik division．

Coppice with standards．－The forests of the Western Maháls were still included under this method but its application on sylvicultural lines－so approximates to clear cutting that the uniform method will be introduced in the coming season except in the Halol range，the conditions of which require further study．The forests of the Mandvi range of the Surat distriat and the above－ghàt teak forests of North and Suath Násik divisions．and Násik sub－ division come under this heading．

Method of improvement．－This is presoribed in the North and South Dangs and Bulsar－Chikhli of the Surat division also the anjan forests of North Násik．

Unregulated fellings，－These，chiefly，for revenue，take place in the Central Dangs of Surat；but must shortly give place to some method for improverient．

## Central Cirale．

Clear fellings were undertaken in babul and casuarina forests only， 22 babul coupes aggregating 319 acres being felled in Poona and East Khán－ desh，and 1 coupe of 1 acre of casuarina in Kolába．

Improvement fellings comprising mainly a system of seleotion of over－ mature and unsound trees，were carried out in the Sátpuda forests of East and North Khándesh，in the Umarpata，Deomogra，Dhulia and Pimpalner forests of West Khándesh，on the Mahábleshwar and Mátherán pliteaux of Sátára and Kolába，and in．the Akola and Lonápla forests of Poona．The selection system，pure and simple，is nowhere in force in the circle．

Coppice fellings took place in the teak forests of Poona，Satara and Kolába，and of the Edlábad forests in East Khándesh．

Of the total organized areas of the circle amounting to 2,301 square miles， 33 square miles are under clear fellings， 1,516 under improvement fellings， and 752 under coppice with stardards．

Unregalated fellings in forests consisted solely of extraction of material for free grants in all divisions, of clearance of dead and dying trees in babud forests, and of clearance of rides and views at Mahibleshwar and Mátherín ; outside forests, of the sale of royalty trees in occupied lands in all divisions and of reserved trees in unassessed GJvarament wiste in West Kbandesh.

## Southern Circle.

The systems of management were the same as before.
Clear fellings.-These were carried out in the coast casuarina plantations of Kánara on an area of 17 acres realizing Rs. 147 per acre and in bsbul. forests of Bijapur, where two coupes messuring 19 acres in all were exploited, realizing Rs. 72 per acre.

Selection fellings. - The following operations were carriel out in the zanara divisions in accorlance with the provisions of the sanctioned working plans:-


Exploitation in Gund range of Kánara W. D. is somewhat in arrears in respect of junglewood for want of a road but, in view of the progress made in road construction up the Kalinadi valley, the girdling operations this year have been extended to nandi and matti in the hope that, by the time the felling is due, it will be possible, and will pay, to bring these timbers down to Kodibág depot. In Kádra range high forests, besides teak, the usual junglewood species were exploited.

Improvement fellings.-These were carried out as inder:-

|  | Division. |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

Coppiee fellings.-This method of exploitation, which is most common, was adopted in all the divisions except Ratnágiri as under:-

| Dirision. | Area in acres. $\therefore$ | Revenue per acre. |  | - Quality. |
| :---: | :---: | :---: | :---: | :---: |
|  |  | 1016-17. | 1915-16. |  |
| Orgamized area. |  | Rs. | Rs. |  |
| Tánara N. D. ... ... | 1,710 | 94 | 118 | Teak poles, timber and fuel. |
| Kánara.E. D. $\quad .$. | ],368 | 19 | 20 | Teak poles and fuel. |
| Kánara C. D. $\quad \cdots$ | 258 | 22 | 25 | Do. do. |
| Kánara W. D. ... | \% $\begin{array}{r}681 \\ \hline\end{array}$ | 68 | 202 | Etogs, poles and fuel, |
| Belganm - ... | 2,200 | 71 | 85 | Railway fuel. |
| Totar, 1916-17 | 6,295 | 59 | ... |  |
| Total, 1915-16 ... | 5,833 | $\ldots$ | 65 |  |
| Unorganized area. |  |  |  |  |
| Kánara S. D. . ${ }^{\text {d }}$ | 538 | 12. | 17 | Timber and fuel. |
| Kánara W. D. ... ... | 356 | 37. | 8 | Railway fuel. |
| Belgaum ... | 3,501 | 5 | 4 | Local fuel. |
| Dhárwár-Bijảpur ... .. | 1,672 | 5 | 22 | Poles and fuel. |
| Total, 1916-17 ... | 6,167 | 7 | $\ldots$ |  |
| Total, 1915-16 ... | 6,768 | ... | 10 |  |

The revenue realized per acre shows a decrease below that of last year owing to dislocation of business caused by the war and consequent want of bidders for standing coupes.

Unregulated fellings.- In all the divisions, except Kánara Western division and Ratnágiri, dead sandalwood trees exploited from various jungles were convtrted into billets of different sorts, which fetched a revenue of Rs. 46,482 as against Rs. 36,761 in the previous year.

In the Kánara Eastern and Southera divisions and Dhárwár-Bijápur, 721 junglewood trees exploited in various jungles fetched Rs. 741.

In the Kánara Western and Belgaum divisions extraordinary fellings were made in the most suitable areas for supplying the following material ta the Military Department, Bombay, for war purposes:-

| Junglewood poles | ... 21,131 No. |
| :---: | :---: |
| Junglewood logs | 9,593 c. fit. |
| Mango planks | 4,620 running feet. |
| Bamboos of sorts. | ... 201, 150 No . |

The valae of the material was not fully credited during the year.

## Sind Circ'e.

Clear fellings with some reserves to prouide large timber.-Seventeen thousand four hundred and eighty-eight acres of forest were exploited undtr this system in accordance with the provisions of the working plans, as compared with 16,691 acres during the previous year. After exploitation, the branchwood not required for the fencess was burnt where feasible and a ivisable, and the soil resown with babul and kandi seed either broadcast or in drills, With the permission of Government the maximum girth of babul reserves was increased frum $25^{\prime \prime}$ to $36^{\prime \prime}$, it having been found that there were few small trees end that these could not attain the girth of $60^{\prime \prime}$ (the minim'm required for a

- good $\log$ by the Gun Carriage Factory at Jubbulpore) during the short rotation of 30 years. The stools of kandi and baban were carefully coppiced 6verywhere.

Intprovenent fellings.-These include the cutting back of material in burnt areas, and the levelling of stumps of trees illicitily cut.

The statistics are as follows :-
In Sukkur $20 \pm$ acres of burnt area were worked over, the material realizing Rs. 60);

In Lárkána 348 acres of burnt area were exploited, the material realizing Rs. 4,400;

- In Hyderabad the cutting back of mutilated trees yielded 1,081 maunds of fuel which will be sold during the ensuing year;

In Jerruck 82 acres containing a little burnt wood were worked over, this burnt material yielding Rs. 80.

Unregulated fellings.-These include the removal of wood in erosion fellings, all wood actually dead whether standing or fallen, free grants, and wood cut to meet the urgent dewands of the Public Works and otber departments. Statistics are as follows :-

In Sukkur 4,829 acres were cleared against 1,292 acres in the previous year; this included the sits of the Quetta Military Farm near Ruk and a little area cleared for the central passage of the Indus.

In Lárkána owing to good competition 803 dead and fallen trees yielded Rs. 3,525. The area cleared for fear of erosion was only 35 acres against 247 acres of the previous year.

In Hyderabad the area cleared was 141 acres against 107 acres of the previous year.

In Jerruck 85 dangerous trees along the river frontage of Budka realised Rs. 100. F'orty-two dead stumps in Kbatro and 120 dead stumps in Hillaya yielded Rs. 60, and 374 acres threatenel with erosion were exploited in the forests of Ach Marho and Allähbux in Shah Bunder range (being coupés prescribed for 1917-18) ajd yielded Rs. 4,070. Two thousand seven hundred and fifteen babul and 6,945 lye stakes were cut by the Public Works Department at a cost to them of Rs. 966 .
(ii) Miror Forest Produce.

## Northern Cirole.

This is workad without fixed plan as public dem and requires consistently with the well-being of the forests:

## Central Circle.

This is disposed of as occasion dem inds by departmental collection and sale, or by farming the right of collection, or on perwit, Under the first method mhowra ssed and birda form the main itsme, y ieldiog respectively Rs. 4,938 and Rs. 5, 15.); un ler the two lattor hirda yielded Rs. 11,001 and grass and grazing Rs. 2,79,661. Other minor products, roshagrass, leaves, pods and fruits, bamboos, earth aud stone, broughs the total revenue to Rs. $3,38,845$ as azainst Rs. $2,97,381$ in 1915-16.

## Southern Circle.

The systems of exploitation as detailed in Form No. 20 were the same as last year except that a large numbar of bamboos were departmentally extracted for supply to the Military Department; a small quantity of hirda was a'so collected by departmental agency in Kinaría E. D. for experimental purposes. The tital revenue from minor forest produce was R3. 1,95,789 against Rs, 1,80,080 during 1915-16.

## Sind circle.

Form No. 20 gives details.
Minor produce was farmed out to contractors. This includes lac, babul pods, grasses. Fishery rights produced Ris. 44,104: Of these there was a great demand for lac, the contracts rising from Rs. 675 to Rs. 17,100 . Efforts were made to induce the insect to spread to fresh compartments by cutting the topmost branches of suitable trees to obtain succulent shoots on which alone the young larva can exist, while branches of seed-lac were tied in close proximity on the leeward side. The results will be noted during the ensuing. year. It was noticed that the insects from seed-lac -which had swarmed on old branches had died.

Revenue from grazing realized Ris. 37,950.

## (b) Agency of Exploitàtion.

(i) Departmental Agency.

## Northern Circle.

This was confined to the Norta Dángs by which 5,359 logs of teak measuring $3,787 \frac{1}{2}$ khandies (of $12 \frac{1}{2}$ cubic feet) and of other species 963 logs totarling $811 \frac{1}{2}$ khandies were felled and taken to the sale dêpôtat Fort Songad station (Tapti Valley Railway). The Subir saw-mill also prepared the following:-


## Central Circle.

Fellings under this heading are confined to as small limits as possibie, nearly all coupes being sold standing to contractors; for the supply of fuel to Mabábleshwar Rs. 5,537 were spent on the departmental extraction of $\dot{3}, 64,326$ cubic feet, the resulting price being Rs. 11,518; at Mátherán 65,676 cubic feet were extracted, the cost being Rs. 4,818 and the revenue Rs. 7,037. From the Poona babul forests, $1,08,861$ cubic feet, the results of floods, windfalls; erosion, and dead and dying trees, were cut by the department and sold for Rs. 8,453. As regards minor produce mhowra seed was collected departmentally in"North and West Khándesh, the net revenue being Rs. 1,354 , and hirda collected on the share system in the Rajur and Akola ranges of the Pooda division realized Rs. 3,732.

## Southern Circle.

The works carried out under this bead comprise timber and sandalwood brought to depôts for annual sales, fuel supplied to the Madras and Southern Mahrátta Railway for locomotives, other produce cut or collected experimentally to create a market for departmental use or for supply to other Government departments. Details are given in the following table :-


The quantity of timber exploited during the 'jear was $10,93,661$ cubic feet against $9,80,423$ in the previous year, an increase of $1,13,238$ cubic feet. This increase is mainly due to a larger quantity of teak brought to Kodibag depôt from Gund and the Kalinadi slopes in Kanara W. D. and to the extraction of poles and other material for war purposes in Kánara W. D. and Belgaum. Though considerable progress in communications was made between Gund and Kadra they have not yet reached the stage where they can affect the outturn from that (Gund) range. A scheme for the improvement of communications from Gund to Kodibag depôt is being drawn up by Mr. Pipe, the Engineer specially deputed to make preliminary investigations during the year. The percentage of timber exploited departmentally to the total outturn was. 47 against 55 in the previous year.

The quantity of fuel extracted departmentally during the year was $4,115,014$ cubic feet against $3,660,641$ cubic feet in the previous year, an increase of 454,373 which is due to larger quantities of railway fuel extracted in Kanara W. D. and to the departmental exploitation of fuel from coupes for retail sale to the public at the Honávar, Bhatkal and Shirali fuel depots in Kánara S. D. owing to want of contractors to run the depôts. The percentage of fuel extracted: by Government ageney to the total outturn was 44 against 31 in 1915-16.

The outturn of sandalwnod was slightly greater in quantity than that of the previous year, but the revenue therefrom increased considerably, the prices obtained during the year being on an average nearly 50 per cent. higher all round. The revenue from this source was Rs. 46,482 against 30,675 in the previous year.

The departmental exploitation of bamboos worth Rs. 11,712 is an unusual operation and was undertaken in Kánara N., E. and W. divisions and Belgaum for supply to the Military Department.

In the Belgaum division, grass was cut departmentally and sold. Experiments in ensilage were not made as there is no demand for fodder of this description. In Kánara E. D. a small qnantity of hirda was collected for experiment. In the Dhárwár-Bijápur division some gum was collected departmentally and sold for Rs. 202 at a net profit of Rs. 71.

The Government buffaloes (11) in Kánara N. D. carted firewood for the use of the Government saw-mills in that division and helped to cart sawn material from the mills to the railway station. The cart depats in Kánara N. and E. divisions, established in the year 1915 as per Government Resolution No. 2198 dated 9th March 1914, are independent of the above buffaloes and they worked at a net profit of Rs. 516 during the year as separately reported to Government shortly after the close of the year.

The monorail in the Belgaum division was again not used owing to frequent breakages and inexperience of the contractor's men to repair them.

The work turned out by the two Government saw-mills in Kánara N. D. was as under:-


The results of the year show a satisfactory improvement over the previous year. Three new saw-mills were purchased at the close of the year as per Government Order, Financial Department, No. 1250 of 21st April 1917 :-

One 1C horse-power mill with accessories and fittings complete for use in Kánara E. D., cost Rs. 10,222;

One 12 horse-power mill with accessories and fittings complete for use in Kánara C. D., cost Rs. 16,600;

One 14 horse-power mill with accessories and fittings complete for use in Kánara W. D., cost Rs. 20,110.

A contractor's saw-mill operating in Kánara E. D. is reported to have doue the following work for this department:-

| 6 feet teak sleepers |  | ... | ... | ... | No. 14,891 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 7 | " | .. | ... | ... | 626 |
| Planks | ... - | ... | ... | ... | C.ft. 2,800 |
| Battens | ... | ... | ... | ... | " 3,389 |
| Scantling |  | ... | ... | ..- | 3,140 |

For sleepers the contractor gets the usual wages fixed in his contract agreement; for all other material be is paid a $\frac{5}{8}$ th share on the sale price of the material, the remaiving $\frac{8}{8}$ th share going to the department; the Government share during the year amounted to Rs. 4,515.

## Sind Cirele.

With the exception of the extraction of wood from Budka coupe in the Jerruck division which has been mentioned under Chapter IV-Research and : Experiments, departmental operations were confined to the supply of fuel to Goveroment steamors on the Indus. The quantity supplied totalled 1,04,717 cubic.feef, the value being Rs. 2,911 and the expenditure Rs. 2,679.

## (ii) Purchasers.

## Northern Circle.

All forest produce except that mentioned above, that removed by privilege holders and free grants was removed by purchasers (under contract). For quantities and value see statement under " (c) Outturn and sources of forest produce ".

## Central Circle.

By this agency is removed the greater part of the produce of the circle. Two hundred and fourteen coupes in all divisions were sold, less by 19 than in the previous year, but the price realized rose from Rs. $2,32,849$ to Rs. $2,54,209$ as a result of keen demand for timber and fuel. In Khándesh large quautities of dead wood were removed by purchasers either on permit or by sale of the right to collect in definite areas.

Disposal of royalty trees from revenue lands in accordance with the policy of Government that occupants should become the owners of such trees at a moderate price, and clearance of growth in revenue waste in West Khändesh, brought in Rs. 1,40,037 from 1,74,774 trees. as against Rs. 1,00,661 from 1,23,768 in 1915-16.

Grass and grazing receipts both showed a steady increase, the former from Rs. 1,02,433 to Rs. 1,11,398, the latter from Rs. 1,43,083 to Rs. 1,68,263 or a total increase from Rs. 2,45,516 to Rs. 2,79,661. The number of animals on which grazing fees were paid was $9,47,862$ as against $8,68,069$, and 65,395 animals belonging to privilege holders grazed free of charge.

Bamboo revenue rose from Rs. 8,301 to Rs. 11,086 ; rosha-grass from Rs. 2,617 to Rs. 5,469 , but hirda and shikekai fell slightly. On the other hand, the demand for tanning materials such as tarwad bark and ghatbor fruits rose to such an extent that miscellaneous revenue increased from Rs. 11,048 to Rs: 21,237.

## Southern Circle.

The value of produce removed by purchasers was:-


The increase in the area of coupes sold accounts for the increase in the revenue from the major produce.

The increase in the number and value of bamboos is due to the increased demand as a result of the extensive destruction of houses in Dharwar district by floods in November 1916; a considerable number was also purchased by Mr. Strickland of Shimoga from Kánara W. D. for sale to the Military Department.

The increase in the amount of grazing fees collected is due to the larger number of animals tbat grazed in the forests.

The decrease in the value of other minor produce is trivial and it is due to the fall in the prices for hirda farms.

Sind Circle.
Receipts from the sale of coupes and deadwood at the annual sales are shown below:-

lo the above must be added the revenue from all irregular fellings and thinnings amounting to Rs. 26,791 received during the rest. of the year. It will be noticed that there is a rise in the receipts of Rs. 55,362 or a 22 per cent. increase on last year's figures; this is chigfly due to the rise in the price of fuel. The excess yield from the Hyderabad coupes alone was Rus. 33,246, the sales being held for the first time at Karachi.

The revenue realized by the ssile of fuel under the permit system was Rs. 7,095 against Rs. 6,704 of the previous year. There were increases in

Sukkur and Hyderabad divisions and a slight decrease at Tatia in Jerruck. Prospects for the coupe revenue during the coming year as also the permit revenue in the Hyderabad division are excellent.

The grazing fee collection was as under:-

| Division. |  | 1915-16. Rs. | 1916-17. <br> Rs. |
| :---: | :---: | :---: | :---: |
| Sukkur | - | 13,136 | 13,748 |
| Lárkána | ... | 6,797 | 6,991 |
| Hyderabad | ... | 14,815 | 9,994 |
| Jerruck | ... | 11,435 | 7,217 |
| Total | ... | 46,183 | 37,950 |

The fall in grazing revenue in Lower Sind is due to the unusual rains in the Kohistan hills which resulted in the herdsmen staying at home and in Kutch, outside the forests.

Minor forest produce.-The revenue derived from minor forest produce farmed out and assessment levied on lands leased out for cultivation as compared with last year's results is detailed below :-


As the figures show there was a drop in the revenue from babul pods owing to the absence of many of the hill herdsmen, and a large increase in lac revenue.
(iii) Rights and Privileges.

Northern Circle.
These were as usual. There were no complaints. Full details are given in Forms 19 and 20 and statement under " (c) Outturn and sources of forest produce" below.

- Central Circle.

The value of the produce removed under this head was:-

| Timber |  |  | Rs. |
| :---: | :---: | :---: | :---: |
|  | ... | ... | 15 |
| Fuel | ... | ... | 11,039 |
| Grass and grazing | ... | ... | 28,481 |
| Minor produce | ... | ... | 2,531 |
|  |  | ... | 42,066 |

the major part representing privileges in Khándesh exercised under the Tápti Codes. In addition Rs. 11,032 were paid in cash as khoti shares on the forest revenue in the Kolaba division.

Southern Circle.
There are no right-holders in this circle. Privileges are many and they are abused, though endeavours are made to check the abuse by enbancement of grazing fees and curtailment of free grants of forest produce ordinarily allowed by rules. It is difficult to give accurate figures under this head and the following is but a repetition of the figures returned in previous years:-


Sind Circle.
The extent and value of forest proluce and grazing enjoyed free under privileges amounted to:-

|  | Value Rs. |  |  |
| :--- | :--- | :--- | :---: |
| Grazing, 9,989 animals | $\ldots$ | $\ldots$ | 3,859 |
| Firewood, 18,642 cubic feet | $\ldots$. | $\ldots$ | 179 |

(io) Free Grants,
Northern Circle.
Timber and other produce to the value of Rs. 4,503 as against Rs. 4,888 in 1915-16 was granted free. These grants were normal.

## Central Circle.

These were made to a value of Rs. 3,631 , as against Rs. 5,008 in 1915-16, and for the usual objects such as rewards for fire protection, rebuilding houses, schools, temples, tals and wellis.

Southern Circle.
The value of forest produce granted free, compared with the average of the past three years, is as under:-


Free grants of timber worth Rs. 2,449 were made to poor villagers in the Bijápur district for repairing or rebuilding their houses damaged by the heavg rains of November 1916, which brought down thousands of tenements and caused much damage in the country. The increase in the number of bamboos is due to grants made to two villages partially destroyed by fire in Kánara Northern division. The decrease in the value of free grazing is due to the reason that this concession was curtailed or stopped in several cases for forest fires. On the whole the grants made were normal.

D 15-12

## Sind Circle.

Free grants are shown below :-

| Producer |  |  | Extent. | Value. |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1915-16. | 1916-17. |
| Grazing <br> Minor produce <br> Timber firewood |  |  |  | $\begin{aligned} & \text { 2,611 animals. } \\ & 460 \text { bundles. } \\ & 4,798 \mathrm{c} . \mathrm{ft} . \end{aligned}$ | Ps. | Rs. |
|  |  |  | 1,960 |  | 1,091 |
|  |  |  | 42 597 |  | 19 |
|  |  |  | 597 |  | 359 |

In addition to the above free grazing was allowed to forest contractors to the value of Rs. 2,051.
(e) Outturn and SQurces of Forest Produce.

Northern Circle.
The outturn from all sources of forest produce for the year 1916-17. compared with that of the previous year was as follows:-

| Agency of exploitation. | Material. |  |  |  |  |  |  | , |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Timber. |  | Fuel. |  | Total wood. |  | $\substack{\text { Bams } \\ \text { boos. }}$ <br> Value in <br> Bupees. | Grass <br> and <br> grazing. <br> Value in <br> Rupeces. | Minor produce. <br> $\overline{\text { Value in }}$ Rupees. |
|  | Cubic feet in solid. | Value in Rupees. | Cubic feet in solid. | Value in Ropees. | Cubic feet in solid. | Value in Bupees. |  |  |  |
| (1916-17 | 1,09,233 | 1,25,538 | 67,969 | 2,293 | 1,77,208 | 1,27831 | 48 | $\cdots$ | 4,949 |
| Government ${ }^{\text {a }}$. ${ }_{1915-16}$ | 89,250 | 1,57,529 | 88,744 | 5,023 | 1,87,994 | 1,62,652 | ... | 68,120 | 8,799 |
| (1916-17 | 23,33,828 | 16,86,782 | 61,79,820 | 12,338 | 85,13,648 | 16,99,120 | 33,348 | 98,502 | 39,216 |
| Purchasers $\quad$.. ${ }_{\text {d }}$ 1915-16 | 26,39,965 | 11,91,533 | 54,41,809 | 11,755 | 80,81,774 | 12,03,288 | 34,427 | 1,02,887 | 35,924 |
| (1916-17 | 8,591 | 3,365 | 6,840 | 55 | 15,431 | 3,420 | 470 | ... | 618 |
| grankes ... ${ }_{\text {1915-16 }}$ | 8,722 | 2,466 | 80 | 2 | 8,802 | 8,468 | - | ... | 6 |
| 91 | 76,220 | 2,28,660 | 86,58,571 | 3,00,635 | 87,34,791 | 6.29,295 | 11,695 | 3,65,197 | 36,240 |
| (1915-16 | 76,220 | 2,28,660 | 76,21,903 | 2,64,641 | 76,98,123 | 4,93,501 | 5,048 | 2,96.780 | 67,000 |
| Total, 1916-17 ... | 25,27,872 | 20,44,345 | 3,49,13,200 | 3,15,321 | 1,74,41,072 | 23,59,666 | 45,561 | 4,63,699 | 81,018 |
| Total, 1915-16 ... | 28,14,157 | 15,80,188 | 1,91,62,536 | 2,81,421 | 1,59.76,693 | 18,61,609 | 39,475 | 4,67,787 | 1,01,729 |

Central Circle.
Comparison for two years is made in the following statement:-

| Agency of exploitation. | Material. |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Timber. |  | Fuel. |  | Total wood. |  | Bamboos. |  | $\begin{array}{c}\text { Grass } \\ \text { gnd } \\ \text { grazing. }\end{array}$ <br> $\begin{array}{c}\text { Value. } \\ \text { Rupees. }\end{array}$ | Minor <br> produce. <br> Value. <br> Rnpees. |
|  | Cubic ft. solid. | Value. Rupees. | Cubic ft. solid. | Value. <br> Rupees. | Cubic ft. bolid. | Value. Rupees. | Number. | Value. Rupees. |  |  |
| Government | 7,14710,808 | $\begin{aligned} & 1,387 \\ & 2,920 \end{aligned}$ | 2,86,283 | 22.504 | 2.93,430 | 23,89130,638 | 1,567155 | 94 | 26 | 19,403 |
|  |  |  | 3,42,920 | 28,31270,934 | $\begin{array}{r} 3,53,728 \\ 37,59,274 \end{array}$ |  |  |  |  | 10,389 |
| Purchasers | 7,50,773 | 3,09,469 | 30,08,501 |  |  | 30,632 $8,80,403$ | 8,43,634 | 8,501 | 2,45,516 | 24,044 |
|  | 3,22,18 | 3,86,849 | 20,47,144 | 55,206 | 37,69,328 | 4,42,055. | 10,80,050 | . 11,086 | 2,79,661 | 37,708 |
| Free grantees $\{$ | 19,80417.719 | 3,266 | 29,091 | 903 | 48,895 | 4,169 | 10,000 | 85 | ... | 668 |
|  |  | 2,732 | 857 | 47 | 18,676 | 2,778 | 2,485 | 38 | ... | 814 |
| vile ${ }^{\text {c }}$ (1915-16 | 1,427 | 165 | 5,02,913 | 10,66611,039 | 5,04, 340$5,07,185$ | 10,831 | ... | "' | 27,688 | 4,659 |
| $\underset{\text { exs. }}{\text { Prine }}$ (1916-17 | 316 | 15 | 5,06,819 |  |  |  | 1.200 | 8 | 28,481 | 2,528 |
| 1 $\quad \int^{1915-16}$ | 7,79,151 | 3,14,287 | 38,26,788 | 1,05,007 | 46,05,939 | 4,19,294 | 8,55,201 | 8,479 | 2,73,230 | 48,775 |
| 1916-17 | 8,51,027 | 3,91,916 | 37,97,840 | 94,604 | 46,48,867 | 4,86,520 | 10,83,890 | 11,128 | 3,08,142 | 51,439 |

Southern Circle.
The total outturn of the jear is summarized in the following table :-

| Agency of exploitation. | Timber. |  | Fuel. |  | Total mood. |  | Bamboos. |  | Sandnl wood Value. | Minor forest nroduce, value | Grasing value. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Cubio feet. | Value. | Gubie feet. | Value. | Cubio feet. | Value. | Number. | Value. |  |  |  |
| overnment |  | Rs. |  | Rs. |  |  |  | Rs. | Re. | R8. | Re. |
| overnment | 10 | 14,30,055 | 41,15,014 | 2,31,120 | 52,08,675 | 16,61,175 | 28,804 | 1,483 | 46,488 | ... | 566 |
| Purchasers ... | 12,17,000 | 2,92,950 | 51,51,000 | 1,06,159 | 63,68,000 | 3,99,102 | 56,88,731 | 65,484 | ... | 81,565 | 75,740 |
| Free grantees ... |  | 10,138 | 22,000 | 218 | 65,000 | 10,350 | 84,220 | 398 | ... | 1,901 | 2,048 |
| Privilege holders | 3,00,000 | 78,000 | 30,41,686 | 6,46,353 | 33,41,686 | 7,18,953 | 30,00,000 | 15,000 | ..* | 1,80,000 | 3,00,387 |
| Total, 1916-17 ... | 26,53,661 | 18,05,143 | 1,23,29,700 | 9,88,837 | 1,49,83,361 | 27,88,980 | 87,35,845 | 82,365 | 46,483 | 2,38,466 | 3,78,898 |
| - Total, 1915-16 ... | 20,54,281 | 14,66,968 | 1,46,59,010 | 9,77,421 | 1,67.18,291 ${ }^{\prime}$ | 24,44,889 | 52,63,841 | 63,128 | 36,761 | 8,51,987 | 8,76,94 |

The number of cattle for which grazing was allowed during the past two years is as under-

|  |  | $1916-18$. | $1915-16$. |
| :--- | ---: | ---: | ---: |
| Free ... | $\cdots$ | 30,569 | 33,085 |
| On fee | $\ldots$ | $4,59,461$ | 4,$42 ; 938$ |
| Total | $\cdots$ | $4,90,030$ | $4,76,023$ |

The total expenditure incurred under "Management of State Forests" was Rs. $8,24,635$ against Rs. $7,28,850$ in the preceding year.

## Sind Circle.

The outturn from all sources of forest produce is compared with that of 1915-1916 in the following statement:-

|  | Material removed. |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Timber. |  | Fuel. |  | Totel wood. |  | Minor. produce. | Grazing | Total. |
|  | C.ft. | Value. | C. ft. | Value. | O. ft. | Value. |  |  |  |
|  |  | Re. |  | Re. |  | Re. | Rs. | Re. | Rs. |
| Government ... . | 11,118 | 1,796 | 289,384 | 13,246 | 3,00,602 | 15,042 | 8,468 | ... | 17,010 |
| Purchasers ... ... | 3,53,557 | 1,04,889 | 1,84,89,686 | 8,99,309 | 1,68,43,343 | 4,04,392 | 40,821 | 97,950 | 4,83,103 ${ }^{*}$ |
| Freegrantees ... | 3,191 | 351 | 67 | - 7 | 3,258 | 358 | 19 | 2,048 | 2,425 |
| Privilege holders ... . | *- | .. | 18,642 | 179 | 18,642 | 179 | ** | 3,859 | 4,038 |
| Total, 1916-17 ... | 3,67,866 | 1,07,029 | 1,87,97,779 | 3,12,741 | 1,91,65,645 | 4,19,971 | 43,308 | 43,857 | 8,07,136 |
| Total, 1915-16 ... | 2,15,029 | 67, 222 | 1,60,16,512 | 2,01,603 | 1,62,30,541 | 2,68,825 | 34,428 | 64,887 | 8,58,140 |

The quantity and value of material removed by the Public Works Department from the areas temporarily alienated to it along bunds and canal banks were as follows :-


## CHAPTER III:

## FINANCIAL RESULTS.

## Northern Circle.

Financial results of the year as compared with those of last year and the average of the past five years are given in the following statement :-

| Head. |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |

N.B.-The above figures include the following on account of royalties on forest produce from lands outside forests:-

| $\quad$ |  |  | Rs. |  |
| :--- | :---: | :---: | :---: | :---: |
| Revenue | $\ldots$. |  | $\ldots$ | $3,65,091$ |
| Expenditure | $\ldots$ |  | $\ldots$ | 2,996 |

Classification of Revenue and Expenditure of the year 1916-1917:-

II.-Expenditure A.

III.-Expenditure B.


Figures of the various divisions compared with those of last year are as follows:-

| Division. | Year, | Receipts. | Expenditura. |  |  | Net rosults. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | A | B | Total. |  |
|  |  | Rs. | Rs. | Ra . | Rs. | Rs. |
| Panch Maháls - .. ... | $\left\{\begin{array}{l}\text { 1915-16 } \\ 1916-17\end{array}\right.$ | 1,14,023 | 10,927 | 48,650 |  |  |
| ... | (1916-17 | 1,58,080 | 7,825 | 43,245 | $\begin{aligned} & 59,57 \\ & 51,071 \end{aligned}$ | $\begin{array}{r} +54,446 \\ +1,06,989 \end{array}$ |
| Surat ... | $\{1915-16$ | 2,32,603 | 1,12,298 | 62,734 | 1,75,032 |  |
|  | \{1916-17 | 2,01,657 | 1,05,786 | 52,385 | 1,58,178 | $\begin{aligned} & +57,571 \\ & +\mathbf{4 9 , 4 7 9} \end{aligned}$ |
| Norlh Tháṅ | \{ 1915-16 | 5,54,088 | 28,281 |  |  |  |
| Norlin lhana | \{ 1916-17 | 8,04,419 | 88,110 | 55,728 | $\begin{aligned} & 82,820 \\ & 98,868 \end{aligned}$ | $\begin{aligned} & +1,71,918 \\ & +7,10,551 \end{aligned}$ |
| West Thána ... | $\{1915-16$ | 2,56,086 | 14,817 | 49,756 |  |  |
|  | (1916-17 | 3,61,174 | 14,195 | 56,819 | $71,014$ | $+2,80,160$ |
| East Thana | \{ 1915-16 | 2,03,488 | 14,924 | 63,525 |  |  |
| East Thara | . 1916-17 | 2,89,209 | 16,183 | 60,983 | 76,516 | $\begin{aligned} & +2,12,693 \end{aligned}$ |
| South Násik | $\{$ 1915-16 | 1,68,442 | 16,123 | 54,646 | 70,169 |  |
| South Nasis | (1916-17 | 1,61,437 | 9,070 | 88,666 | 47,736 | +1,18,701 |
| North Násik | \{ 1915-16 | 59,819 | 2,463 | 91,051 |  |  |
| North Nasik | 1916-17 | 68,428 | 5,885 | 28,775 | 31;460 | $\begin{aligned} & \top \\ & +83,968 \end{aligned}$ |
| Násik sub-division (newly created)... | $\{1915.16$ |  |  |  |  |  |
| Nuik sub-divion (aowh crosted)... | 1916-17 | 4,057 | 761 | 13,183 | 18,944 | -9,987 |
| Total ${ }^{*}$ | \{ 1915-16 | $16,57,0<3$ | 3,55,694 | 4,08,045 | 7,68,739 | +8,99,264 |
| Totar | (1916-17 | $20,43,421$ | 1,99,549 | 3,83,804 | 5,88,858 | +14,57,068 |
| Averago of past five years ... | ...... | 15,75,650 | 3,20,800 | 3,88,093 | 7,17,883 | +8,57,767 |

*This is inclusive of the figures for the Direction office, Working Plans division and Famino fodder.
Panch Mahalls.-An increase of Rs. 55,118 was due to a fairly normal agricultural year and war demands, resulting in seventy coupes being sold for Rs. $1,16,366$ as against 47 coupes for Rs. $71 ; 248$ in the last year. A decrease of Rs. 2,192 in receipts from teak in malki fellings-was due to a smallar number of trees boing sold, though prices were considerably higher. A decrease of Rs. 5,279 occurred under grass, owing to the prices returning to normal on the disappearance of scarcity in neighbouring districts.

Surat.-The growing surplus of this division ou which we have been priding ourselves received a slight setbuck due firstly to the May sale of timber at Fort Songad estimated to realize Rs. 2J,000 being postponed owing to lack of trucks which bad prevented the removal of material sold last February; and secondly to last year's receipts from the saw-mill being unduly inflated by the inclusion of a bill amounting to Rs. 13,771 for sleepers supplied in 1914-15, so that the saw-mill surplus revenue for last year's working was really Rs. 16,246 and not Rs. 30,017 as then shown. Compared with the former figure this year's surplus from the saw-mill working of Rs. 18,916 compares very favourably, especially in view of the fact that working expenses were Rs. 4,958 higher. Against this we have a saving on total expenditure of Rs. 18,200 made up of Rs. 10,600 under "B-Establishment" and Rs. 7,660 under "A-Conservaney and Works". This last figure includes a bill for cartage amounting to Rs. 4,600 which ought to have been paid before tbe end of the forest year and now remains a charge against the coming year. F'rices or timber were higher. The total financial results were very satisfactory.

North Thdina.-The dullness in the timber trade due to war continued, chiefly by rendering the supply of trucks difficult, but selling of standards in the coupes of the year (as elsewhere recorded) produced an extra Rs. 80,000, thus giving a net increase of Rs. 58,777 in cuape prices over last year's figure. An increase of Rs. $2,00,674$ was realized by a greater number of trees being sold from gurcharans and malki lands. Both of these increases must be regarded more in the light of 'windfalls', than anything else. An increase of Rs: 10,000 in the total expenditure was due to providiag accommodation for Rangers and their offices in the newly constituted ranges, and to the part construction of the Saiwan-Udhwa road.

East and West Thanas. -These two divisions are taken together as not separately comparable with last year's returns owing to the reorganization of charges already alluded to, and they must be compared with the joint results of Central and South Thána of last year's report. There was a net increase
of Rs. 96,491 over last year's joint receipts chiefly due to the sale of standards in coupes and, as in North Thána, this must be regarded in the nature of a 'windfall'. A demand for timber stimulated by the war was negatived by a shortage of wagons due to the same cause and resulted in general dullness in trade though abnormally high prices were realized where transport was available.

North and South Násiz and Násik sub-division.-As in the case of East and West Thánas, and for a similar reason, it is impossible to compare each charge with last year's returns. They are, therefore, grouped together. There was an increase of Rs. 27,928 in total net revenue as compared with last year, due entirely to better prioes received for coupes.

General.-Financial results were very satisfactory, and if it had not been for the lack of railway transport due to the war, results would have been far better still.

## Central Circle.

Excluding famine fodder operations, the financial results of the past two years and the average of the five preceding years are as follows :-

and separating the jurisdictions of the two Commissioners the figures are :-
Central Division.

| Yeaz. |  | Revenuer | Expenditure. | Surplus. |
| :--- | ---: | :---: | :---: | :---: |
|  |  | Rs. | Rs. | Rs. |
| $1916-17$ | $\ldots$ | $7,16,800$ | $4,24,601$ | $2,92,199$ |
| $1915-16$ | $\ldots$ | $5,93,59$ | $4,13,687$ | $1,79,682$ |
| Average of $1911-12$ to | $6,31,841$ | $4,26,027$ | $2,05,814$ |  |

1915-16.
Southern Dicision.

| $1916-17$ | $\ldots$ | $1,66,798$ | 97,037 | 69,761 |
| :--- | ---: | :--- | :--- | :--- |
| 1915-16 | $\ldots$ | $1,78,669$ | $91,489$. | 87,180 |
| Average of $1911-12$ to | $1,37,727$ | 99,499 | 38,228 |  |
|  | $1915-16$. |  |  |  |

Thus the net revenue, in spite of an increase in expenditure of Rs. 16,282 has risen by Rs. 95,098 , a satisfactory state of affairs which is mainly due to two divisions, North and West Khàndesh, though East Kbándesh and Sátára also showed better results than in the previous year. The Poona surplus showed a slight decrease and that in Kolába a considerable one. Looking to gross receipts which are a better index of a season's working than is the surplus, for the latter may be affected by establishment and other varying charges, it is found that every division but Kolába showed a rise, North and West Kbándesh a most noticeable one, and Sátára to a substantial degree Which is all the more qualifying in view of the fact that the division bas been worked at a deficit for some years past. Comments on each division follow.

East Ehándesh.-Gross receipts increased by Rs. 9,625 due to good demand for timber coupes and bamboos and to increased royalty on forest material imported into the district from adjacent States. Grass and grazing. receipts also improved. Establishment charges fell with the transfer of an Imperial officer to the Indian Army Reserve and his replacement by a Provincial officer. The surplus accordingly rose from Rs. 73,102 to Rs. 88,815 .

North Khandesh.-The stagnation in the timber and fuel market which so adversely affected revenue in 1915-16 entirely disappeared, and gross
receipts increased by Rs. 46,615 as compared with that year, and by Rs. 18,879 as compared with the average of the five preceding years. Prices paid for coupes were excellent, and grass and grazing and rosha-grass revenue also increased. Expenditure showed a slight rise, and the net surplus was Rs. 51,570 as against Rs. 10,008 .

West Khándesh.-Similar conditions prevailed as in North Khándesh. Gross receipts rose by Rs. 50,829 and the surplus by Rs. 50,710 , the result of great demand for timber and fuel, both from coupe and from revenue lands under clearence by the department; and grazing receipts also showed an increase of Rs. 10,000 , partly due to the transference of largo areas from pasture to forest proper.

Poona.-Though the surplus shewed a small decrease of Rs. 3,460, this was entirely due to eitablishment charges, there having been for balf the year a second sub-divisional officer on high pay attached to the division. The gross receipts were the highest ever recorded, and what is more to the point is that they were obtained entirely from lands in charge of the department, and were not swollen, as was the case in 1915-16, by Rs. 24,000 , the sale proceeds of babul on lands under transfer to the Revenue Department. These highly satisfactory results wiere due to increasing demand for all forest material, to careful supervision of grazing collections and to the high price realized for tarwad bark.

Sitdra.-This division, in spite of increased expenditure, showed a surplus of Rs. 1,407 instead of the deficit of Rs. 9,329 which occurred in 1915-16, and of the continual deficits of many years past. Better pricos for coupes, and the growth of demand for fuel at Mabábleshwar, to which must be added better arrangements, both sylvicultural and financial, for meeting the latter, were the cause of the improvement, and it is an improvement which may be expected to continue looking to the absence of material outside, and the dependence of the district on local resources which can only be met from the forests.

Kolaban-A rise in expenditure of Rs. 5,548, combined with a decrease in receipts of Rs. 11,871, resulted in a surplus decreased by Rs. 17,419 as compared with that of 1915-16, but still well above the average of the five previous jears. The decreased revenue was dae partly to less being received for coupes, not it may be said owing to poor demand but to inferior quality of several of the coupes, to fewer royalty trees in occupied lands being disposed of, and to grazing revenue falling owing to prevalence of cattle disease; the increased expenditure was mainly owing to payment of khoti shares for two years in one, the khots in 1914-15 having in 1915-16 refused to sign their agreements. Thus the setback may confidently be said to be purely temporary.

Further classification of the revenue and expenditure is as follows :-

| Head. | Receipts. | Percentage. |
| :---: | :---: | :---: |
| $\begin{array}{ll}\text { Major produce } & \text {... } \\ \text { Minor produce }\end{array}$ | $\begin{gathered} \text { Rs. } \\ 4,72,541 \\ 4,11,057 \end{gathered}$ | 58.5 46.5 |
| Total ... | 8,83,598 | 100 |
| II.- Eifpenditure. <br> A. |  |  |
| Head. | Charges. | Percentage. |
| Extension and constitu-  <br> tion ... $\ldots$ <br> Improvement $\ldots$ <br> Exploitation $\ldots$ | Rs. $8,625$ $69,049$ $37,222$ | 7.5 60.1 32.4 |
| Total | 1,14,896 | 100 |



Southern Cirele.
The gross revenue and the surplus have beaten all previous records. The following table compares the revenue and expenditure with those of the previous year and with the average of the precediag five years:-

| Year. | Revanwe. - | Expenditures. | \$orpins. | Percentage of sarplus to gross revenue. |
| :---: | :---: | :---: | :---: | :---: |
|  | Rs. - | Rs. ${ }_{\text {Rs. }}$ - Rs. ${ }^{-}$ | Rot |  |
| 1916-17 | - 23,57,731 | $\left\{\begin{array}{l}\text { A } 8,37,221 \\ B 4,08,185\end{array}\right\} 12,45,406$ | 11,12,325 | 47* |
| 1915-16 | $\because 19,95 ; 685$ | $\left\{\begin{array}{l}\text { A 7,35,480 } \\ \text { B 4,04,419 }\end{array}\right\} \begin{aligned} & \text { 11,39,899 }\end{aligned}$ | 8,55,786 | 43- |
| $\begin{aligned} & \text { A verage of 1910-11 } \\ & \text { to } 191 \mathrm{~s}-15 \text {. } \end{aligned}$ | 17,52,274 | $\left\{\begin{array}{l}\text { A 6,59,727 } \\ \text { B 3,60,335 }\end{array}\right\} 10,20,06 \bar{\sim}$ | 7,32,212 | 420 |

The above shows that there was an increase in the receipts and surplus as compared with the corresponding figures of the previous year and the average of the five preceding years. Though the expenditure increased by about a lakh over the last year for reasons stated below, the percentage of net to gross revenue also increased from 43 to 47 mainly on account of curtailment of all sorts of expenditure with a view to economy.

The following statement compares the revenue and expenditare in details of budget heads with those of 1915-16:-


The gross receipts rose by 3.6 lakhs over those of the previous year mainly under the revenue head I. Notwithstanding the general dislocation of trade and business due to war, prices for all classes of timber kept up in a wonderful way, teak realizing record prices at the Tavargatti sales in Kánara Northern division. Larger quantities of timber, brought for sale from the Gund and Sulgeri forests in Kánara Western division, and larger amounts of arrear revenue collected also contributed to the increase. A larger number of coupes sold account for the increase under II.

The increase of Expenditure A by 1.01 lakh occurred as under:-
Under I.--Due to the purchase of saw-mill machinery worth about Rs. 47,000 for the four Kánara divisions and to payments of wages for larger quantities of timber exploited from forests.
Under VII.-Due to increased expenditure on road construction and development of river cominunications in Kánara Western division.
.Under VIII.-Due to the unusual cost of Wild Tribes (Berad) Settlement in the Khánápur taluka of the Belgaum division (Rs. 6,224), to larger amount of cultural operations undertaken during the year and to the cost incurred in protecting burnt areas. in all divisions.
The deputation of a Spacial Engineer, Mr. Pipe, for the improvement of river communications in Kánara Western division contributed to the increase of expenditure under B-I-Salaries.

The following table exhibits the proportion of revenue and expenditure under the different heads :-

| Particulars. | Total. | Percentage. |
| :---: | :---: | :---: |
| Revenue. | Rs. |  |
| Major produce | 21,09,062 | $89 \cdot 5$ |
| Minor produce ... | 1,95,789 | 8.3 |
| Miscellaneous . ..-- | 52,880 | $2 \cdot 2$ |
| Total | 23,57,731 | $100^{\circ}$ |
| Expenditure A. |  |  |
| Fxtension and constitution | 12,586 | 1.5 |
| Improvement ... | 1,21,446 | 14.5 |
| Exploitation ... | 7,03,189 | 84.0 |
| Total | 8,37,221 | 100. |
| Expenditure $B$. |  |  |
| Administration ... | 59,549 |  |
| Executive -.. | 1,71,807 | $42 \cdot 1$ 43.3 |
| Protective ... | 1,76,829. | $43 \cdot 3$ |
| Total ... | 4,08,185 | 100 |

The outstandings of revenue at the opening and close of the year were Rs. 4,92,395-9-8 and Rs. 5,93,907-7-9 respectively. Eleven items amounting to Rs. $1,477-8-3$ were written off as irrecoverable revenue under the orders of the Conservator.

The outstandings due to the department by contractors and disbursers stood at Rs. $2,22,837-15-10$ against Rs: $2,02,267$ at the end of the preceding year.

The estimated value of timber and other produce in depôts rose from Rs. $10,85,650$ to Rs. $11,84,170$ on account of the larger quantities of material on hand at the close of the year.

The value of live and dead-stock shows a net difference of R3. 38,027 in favour of the year, being part value of the three new saw-mills and other
machinery purchased for use in Kánara Northęrn, Eastern, Central and Western divisions at the close of the year.

## Sind Circle.

The financial results of the year as compared with those of the preceding - year and with the average of the past five years are contrasted below:-

| Year. | Revenue. | Expenditure. | Surplus. | Percentage of surplus to gross |
| :---: | :---: | :---: | :---: | :---: |
|  | Rs. | Rs. Rs. | Rs. |  |
| 1916-17 | 5,34,270 | $\left\{\begin{array}{ll}\text { A } & 34,933 \\ \text { B } 1,82,170\end{array}\right\} \quad 2,17,103$ | 3,17,167 | $59 \cdot 3$ |
| Average of five | 4,10,937 | $\left\{\begin{array}{l}\text { A } \\ \text { B 1 }\end{array} \mathbf{4 3 , 5 7 5}\right.$, $6010 \quad 2,09,376$ | 2,01,561 | 49.0 |

The collection of coupe revenue tendered in any particular year in Sind is spread over two years; the revenue as shown for the present year includes therefore half that due for the year 1915-16. The figures show an increase in revenue, expenditure and surplus. This increase in surplus of revenue is shared in by all divisions, the greatest increase being in Hyderabad where it is Rs. 68,084, the total surplus Rs. 1,24,327 being greater than last year's gross revenue of Rs. 96,612.

The percentage of net to gross revenue increased from 43.2 to $59 \cdot 3$ per cent. Even including a normal programme of expenditure under "Conservancy and Works" which has at present been curtailed owing to the war, thè percentage of surplus would be $52^{\prime \prime} 9$ per cent. if average figures are used under head A of expenditure.

The following table compares the receipts and charges of the year in detail according to budget heads with those of 1915-16:-


Revenue.-The total revenue of the year shows an advance of Rs. 1,54,395 over that of the previous year and Rs. 1,18,994 over the average of the preceding five years. The increase was due to the following causes:-
(i) Better prices obtained by the sale of coupes, and wood from thinnings.
(ii) Increase in the Sukkur division due to the clearing of forest on an area temporarily alienated to the Military Department for a farm.
(iii) Better revenue from minor forest produce, especially lac.
(iv) Departmental exploitation of one coupe in the Jerruck division.

Expenditure. -The slight increase in expenditure under "Conservancy and Works", viz., Rs: 2,422, was entirely owing to the money spent on the departmental exploitation of the coupe referred to under the head of revenue. There is a decrease under "B.-Establishments", this is wholly due to economy under head of travelling allowances B-II, the increase under B-I was due to the privilege leave allowance paid to the retiring Deputy Conservator.

The following statement shows the proportion of revenue and expenditure under the different heads:-


The revenue outstanding on 30th June 1917 was Rs: 24,900 against Rs. 77,510 on the same date last year. This represents instalments payable by coupe contractors and others which are not due or recoverable until after the close of the year.

Bhai Jethmal has still to pay Rs. 2,214 on account of the lac contract of the Jerruck division for the year 1908-09. He has filed an appeal in the Court of the Judicial Commissioner of Sind which will shortly be heard.

The financial prospects for the ensuing year are excellent.

## CHAPTER IV.

## Research and Experiments.

Northern Circle.
In Panch Malials and North Nasik experiments in tapping Boswellia serrata were carried out with considerable success. They will be continued in the coming year in the light of much valuable information gained.

## Central Circle.

Mr. Thomson in Poona continued his experiments on germination of hirda and confirmed the results obtained in the previous year, namely, that removal of the dried up fleshy covoring of the seed has a marked effect.

The oultivation of lac was carried out on a small. scale, but with no better results than before; propagation is simple enough, but protection of the insects from ants has completely failed.

Eucalyptus of various species, grevillea and casuarina àre under experiment on the Toranmal plateau in North Khindesh, and offer promise of successful introduction.

A most important work was carried out by Mr. Starte in North Khándesh at the instance of the Indigenous Industries. Committees and on lines suggested by the Forest Economist, with the tapping of salai (Boswellia serrata) which tree exists in great numbers in the Sátpuda hills but is of no present economic value. It is unnecessary here to give details of the work, for all results have been communicated to the Committee and to the Forest Economist, but the latter's reply to Mr. Starte may be partly quoted :-
"The results you bave obtained are by far the most important as yet. available, as the method of carrying out the experiments was all that could be desired. I recently seat small samples of gum, turpentine and resin to the Conservator suggesting that he should forward them to you to see; we have also sent. bull samples to various firms for valuation, and I will send you copies of their reports in due course:. I trust now that as the experiments both as regards tapping and the preparation of bulk samples have reached an advanced state, we shall be able to induce a firm seriously to consider the proposition of starting this industry."

There the matter stands at present, and all that can be said is that in raw material the Khándesh forests offer a practically unlimited field for such an industry. The following remark is taken from the Inspector-General of Forests' Note:-Of the three products obtainable from the Bostellia crude resin, turpentine, gum, and rosin, the first two "have been reported on favourably for commercial purposes, and when the problem of making the gum suitable for commercial mucilage has been solved, there is every hope of the commencement of a vew forest industry which may expand to large dimensions: with its favourable situation and large supplies of salai Khándesh should be able to take an important part in the development of this industry, when it comes."

## Southern Circle.

## (i) Research.

Survey of Tanning Products.-At the beginning of the year, Mr. J. A. Pilgrim, Tannin Expert to the Government of India, paid a visit to the Belgaum division with a view to making enquires into the relative value of the various tan stuffs used by local tanners. He visited the principal tanneries in the district and drew up a short note of his enquiries. He was of opinion that there existed an urgent necessity of testing the various products locally and advocated the establishment of a tannery at Khánápur. Nothing further was done in this direction during the year.

Fruits of kumbia (Careya arborea), avla (Fhyllanthus emblica) and lantana were sent to the Imperial Forest Research Institute, Dehra Dun, from the Belgaum division, with a view to ascertain their commercial uses, if any. The first two were declared useless as tanning materials, as they contained very little tannin. The lantana seeds were found to contain no colouring agent in sufficient quantity to be of any economic value..

Charcoal making and wood distillation.-Further experiments of charcoal manufacture were made in the Khánápur central range, Belgaum division, during the year. It is understood that contractors in the Belgaum and Gokak ranges have now regularly taken to charcoal making and supplying it to the Poona market. The details of charccal making experiments in the Belgaum division up to date are given below :-


The Divisional Forest Officer reports that under the present primitive conditions of manufacture it is almost impossible to produce charcoal at a low enough rate to compete with the supply from other sources, and advocates the introduction of a proper plant for the dry distillation of wood; the bye-products of charcoal, now wasted, would then beoome the main items of value, leaving charcoal as a residue of pure profit.

One hundred cubic feet fuel of the marginally noted species were sent

Teak (Tectona grandis).
Hela (Terminalia belerica).
Jamba (Xylia dolabriformis).
Kharsing (Stereospermum aylocarpum). Biba (Semecarpus anacardium). at the suggestion of the Commissioner, S.D., from the Belgaum division to Mr . Shaligram, Industrial Inspector, Kolbápur, to be tested for charcoal and bye-products. The result of his experiments is awaited.
In Kánara Southern division, a coupe contractor was instructed in the manufacture of charcoal and the Divisional Forest Officer estimates the contractor's net profit at one rupee per maund of 56 lbs.

Rosha-grass.-A sample of grass, suspected to be "rosba" grass and sent to Dehra Dun for identification from the Belgaum division, was pronounced to be a different species (Cymbopogon martini).

Burrs on trees.-A consignment of "burrs" of casuarina, kindal, mattiheddi and savar was sent to Dehra Dun from Kanara Western division, for trial in veneering work and a report thereon is a waited.
(ii) Experiments.

Timber seasoning.-The Forest Economist, Dehra Dun, visited the experimental seasoning shed at Kodibág (Kánara Western division) and the experiments of seasoning different timbers under different methods undertaken by him in the Dándeli range (Kánara Northern division) and at Kodibág were continued, the seasoned logs at Kodibag having been sawn up intoscantlings. . The results of the experiments will be known next year.

Wood blocks for street pavement.-The teak and jamba paving blocks sent to the Bombay Municipality for trial in 1915 from Kánara Northern division were put down on an area of about 7,522 square feet of Frere Roada road most heavily subjected to cart-traffic-and successfully passed through one complete monsoon according to the report received from the Municipal Engineer. Such wooden pavings ought to prove most advantageous in big cities like Bombay both from a financial and sanitary point of view and it is open to the public bodies and corporations to take due notice of the experiment tried with success in Bombay.

Junglewood sleepers for railway line.-The trial lot of matti (Terminalia tomentosa) sleepers supplied from Kánara Westeru division to the NorthWestern Railway and laid on 1st August 1911 was thus reported on :-

- "With bearing plates-Fifty-eight laid down of which 52 are in good order, 4 cracked at one end, not serious, 1 surface cracks, 1 badly cracked.
"Without bearing plates-Fifty-eight laid down. 50 in good order, 4 cracked at one end, not serious, 3 surface cracks; in some cases somewhat serious, 1 seriously cracked but not sufficiently so to cause rejection."
In Kannara Western division, at the Conservator's suggestion, the experiment was made of cutting jamba (Xylia dolabriformis) sleepers from green trees of large size and then seasoning in shade, with a view to ascertaining whether this will overcome the difficulties of (i) heart-shake and (ii). cracking. Twenty sleepers of the usual measurements of teak sleepers that are annually supplied to the M. \& S. M. Railway ( $6^{\prime} \times 8^{\prime \prime} \times 4 \frac{1^{\prime \prime}}{}$ ) were sawn out of one tree and are now seasoning in the forest bungalow at Gund. The Divisional Forest Officer reports that six of them show heart-shake more or less and the remaining 14 appear sound ; none, however, showing any tendency to crack since cutting four months ago. Further observation is necessary before arriving at any definite conclusion.


## Sylviculture Experiments.

Camphor seed.-In Kánara Central division, camphor seed was obtained from Formosa by Mr. Tuggurse, Extra Asistant Conservator, in charge Ankola range, and seedlings were successfully raised. They are to be planted out in selected areas in 1917-18.

In Kánara Western division, 50 camphor plants were put out round the Gudalli forest naka and are doing very well.

Junglewood seed.-The Divisional- Forest Officer, Dhárwár-Bijápur, reports that the old unproductive method of sowing seed in piths several inches deep in vogue in Bijapur forests was ordered to be abandoned and one of sowing in pits refilled with earth and dibbling seed under shelter of bushes was sustitated coupled with tending of seedlings by weeding, soil-mulching and providing artificial shade wherever necessary. This change of method is reported to be productive of good results. Sowing of nim (Melia indica) seed was also tried in small ploughed plots in the Mandibal naka compound and in a last year's coupe in the Badami range, and from the successful results obtained the Divisional Forest Officer is of opinion that a thorough breaking up of soil is essential for raising good seedlings.

In Kádara Eastern division, measurements of teak coppice were continued with a view to finding out whether the thinnings of clumps of shoots had a beneficial effect on the growth of the remaining shoots. The Divisional Forest Officer, Mr. Edie, states that so far as the experiment has gone the indication is that early thinnings of shoots are not beneficial and that thinnings should be made when the shoots are about ten years old.

Lantana, effective method of its destruction. - In connection with the attempts made in all divisions for the destruction and removal of lantana wherever it occurred, Mr. Dodgson, Divisional Forest Officer, Kánara N. D., reports:-
"The lantana which had been burnt and uprooted in a coupe in the Haliyal range in the previous year came up very, very sparsely. The new shoots which did appear were again pulled up and teak and honni plants introduced which promise well. The experiment of burning and uprooting lantana was carried out in other areas during the year under report."

Sind Circle.
The following exotics were tried in the Ráhuja garden :-
(1) Acacia Farnesiana, (2) Butea frondosa, (3) Acer oblongum, (4) Bauthinia alba, (5) Cedrela toona, (6) Celtis australis, (7) Diospyros Embryopteris, (8) Terminalia belerica.

Out of these (3), (6) and (7) failed to germinate. No. 8 germinated but subsequently the seedlings died. The rest are doing well. Dendrocalamus strictus planted last year along the water cbannels is flourishing.

In Lárkána nim (Melia indica) and bamboo seedlings are doing well, but the former plant failed in Hyderabad. In Jerruck tali was transplanted into the $K$ háthár forests and its average height is $8 \frac{1}{2}$ feet at two years from seed. Plants of 1915 and 1916 were still thriving in Kbáthár, Ghárko and Khánáni forests. The experiment has shown that tali needs only care in its initial raising to enable it to take its chance in suitable parts of the forests of Sind with reasonable hope of success. It has been decided not to extend the cultivation of bamboos, as without probibitive expense in watering they are not likely to reach marketable dimensions.

In Budka forest a greenwood coupe of 1916-17, measuring about 22 acres, was exploited semi-departwentally, i.e., a contractor worked for a half share in the proceeds. The material was auctioned for Rs. 6,628. The outturn of the coupe was 258 timber pieces ( 3,913 cubic feet) and 77,229 cubic feet of fuel. The experiment was valuable both as serving as a guide to the normal yield per acre and as demonstrating the finaticial advantage obtainable under departmental working as opposed to the contract system. The Karichi contractors bad offered half the net price obtained for the coupe in question at the annual sales, though it must be conceded that the price of firewood rose between August 1916 and March 1917, the dates of the respec-
tive sales.

An experiment was made in order to test the wood of asri (Tamarin articulata) and bahan (Populus Euphratica) for making bobbins for cotton mills, but has been held up for the present as it is impossible to get these reinforced with metal according to the patterns furnished by the Seoretary, Indigenous Industries Committee.

Tarwad seed has been obtained by the Deputy Conservator from Káthiáwár and Deccan and distributed to all Divisional Forest Oficers to sow up in inland areas.

## .CHAPTER V.

## administration.

Northern Circle.
The circle was in charge of Mr. W. F. D. Fisher throughout the year. Divisional charges were held as follows:-

Panch Mahals.-Till 26th July 1916, Mr. W. ©. Milne; from 27th July 1916 to 30th June 1917, Mr. B. J. Patel. .
Surat.-Till 28th August 1916, Mr. R. W. Inder; from 29th August 1916 to 23rd November 1916, •Mr. R. K. Kanitkar; from 24th November 1916 to 30th June 1917, Mr. A. C. Hiley.
North Thana.-Throughout the year, Mr. W. E. Copleston.
West Thäna.-Throughout the year, Mr. B. H. Dalal.
East Thána.-Throughout the year, Mr. P. E. Aitchison.
South Nasile.-Till 25th July 1916, Mr. D. R. S. Bourke; from 26th July 1916 to 30th October 1916, Mr. W. F. D. Fisher (in addition) ; from 1st November 1916 to 30th June 1917, Mr. J. B. Brooks.
North Násik.-Throughout the year, Mr. H. A. Bhadbhade.
Working Plans.-Throughout the year, Mr. P. E. Aitchison (in addition).
All officers worked well. The changes noted were necessitated by Messrs. Bourke, Inder and Milne being taken for the Indian Army Reserve of Officers.

## Sub-divisional Officers.

Mr. L. S. Koppikar acted as Personal Assistant to the Conservator till 30th October 1916 when he assumed charge of the new independent charge of the Násik sub-division.

Mr. D. N. Damle was on leave till 18th February 1917 when he joined the Northern Circle and from the 2ad March to the 30th June he was Subdivisional Officer, North Thána.

Mr. R. K. Kanitkar was Sub-divisional Forest Officer, Surat, from 24th November 1916 till 5th March 1917 when he was transferred to East Thána.

Mr. K. E. Kotwal served as Sub-divisional Forest Officer, East Thána, till 30th March 1917 when he was transferred to Surat sub-division.

Mr. V. G. Bhalerao was Sub-divisional Forest Officer, West Thàna, throughout the year.

Extra Assistant Conservators on probation :-
Mr. N. C. Ramchandani was in charge of the South Godhra range (Panch Maháls division).
Mr. Y. R. Divekar was in charge of the Galkund range (Surat division).
Messrs. Koppikar, Kotwal, Bhalerao and Ramchandani are mentioned as having worked exceptionally well throughout the year.
All divisonal offices were examined during the year except Surat and South Násik.

The office establishment worked satisfactorily, but there is great need of improviag the standard of ability as it would effect economy in many directions.

The protective staff (with the inevitable exceptions) also did well in trying and hard circumstances. Here again some greater liberality would be true economy.

Casualties.-There were 29 deaths or rather over $2 \frac{1}{4}$ per cent. of the total staff within the year, resignation 25 or just. $2 \frac{1}{4}$ per cent. and retirements 9 -total 5 per cent.

Discipline-Dismissals 12 , services dispensed with 33 , degraded 9 , suspended 2 and fined 181.

These figures showing a dissolution by death, discipline and discontent of 8 per cent. of the total staff within the year indicates some lack of economy and postulates inefficiency.

Recruitment.-Extra Assistant Conservator, Mr. Ramchandani, continued his probation and is now competent to be confirmed in the Provincial Service when vacancy occurs. Mr. Y. R. Divekar reported himself for duty from Debra Dun as an Extra Assistant Conservator on probätion.

Range Officers.-Of two students selected in 1914-15, who completed their course in March last, one has resigned. Of two selected in 1915-16, one resigned while at College. Of four students selected in the :year under report, one resigned after completing the preparatory tour. These resignations have necessitated nine recruits being asked for in 1917-18, but only six can be accommodated at Dehria Dun. Of twelve additional rangerships required by expanding work in the circle, only three have been sanctioned, the other ranges are being held by foresters on wholly inadequate pay. Matters are less satisfactory in the foresters' and guards' grades.

The relations of Forest with Revenue officers have been uniformly satisfactory.

## Central Circle.

Mr. L. Napier held charge of the circle throughout the year, as also did Messrs. D. A. 'Ihomson, C. E. L. Gilbert, H. W. S tarte, C. G. Dalia, V. D.'P. Ribeiro and A. F. Gonsalves of their respective divisions of Poona, Sátára with the superintendentship of Mabábleshwar in addition, North Kbándesh, Kolába, Working Plans and West Khándesh. In East Khándesh alone was there any change in divisional officers, Mr. R. P. Dalley being transferred to the Indian Army Reserve, and being relieved from July 2nd, 1916, by Mr. R. V. Pethe, the sub-divisional officer, who then remained in additional charge until relieved of the sub-division .by Mr. E. O. Sampson from Sátára from January 11th, 1917.

Messrs. R. A. Shirali and G. S. Dangi were the sub-divisional officers in West Khándesh and Kolába respectively throughout the year, and Mr. G. R. Patker in North Khándesh except for one month during which he was ou leave. Mr. A. N. Master held the Poona sub-division for six months and was thentransferred to Sátára, being relieved by Mr. B. J. Joshi who had till then been attached to the former division as instructor of the Foresters' Class and additional sub-divisional officer.

Two Ranger class students from Dehra Dun joined the circle, both with higher standard certificates, and two new students and one who had been selected in 1915-16 but whose ill-health necessitated his leaving the college, were sent up for the 1917-19 course.

Thirteen students out of 16 nominated successfully passed through the Foresters' Class held at Poona, but there is an ever increasing difficulty in obtaining from the existing subordinate protective staff men of sufficient sducational qualifications to profit by the instruction, and the nomination of outside candidates will probably become inevitable; unfortunately such candidates cannot be guaranteed immediate appointments on passing, and without such guarantee they are loath to come forward. And as few educated men are willing to take up forest guards' appointments and to learn their work in those low paid grades, future prospects are not hopeful. Recruitment is everywhere most difficult of the class of man that present-day conditions demand.

Similarly; there is a great dearth of qualified candidates for the post of junior clerks in range offices, more especially in those in backward and unpopular districts like Kbándesh.

All Divisional officers worked with great energy and were well supported by their Assistants; and the good services of many Range officers bave been brought to the Conservator's notice for special zeal in fire protection or sylviculture or general good administration of their obarges. . Promotion, however, is slow and prospects poor, and opportunity for rewarding good work is unfortunately seldom possible. Office establishments are generally favourably reported upon. The Conservator's head clerk, Mr. N. H. Damle, retired after 33 years' faithful and efficient service to Government.

Casualties were 22 deaths, 21 resignations, 32 dismissals and 24 retirements. One temporary depôt officer in East Khándesh was prosecuted for defrauding Government ; his case is pending.

The civil suit, referred to in last year's report, in which a contractor had instituted a suit against Government on account of cancellation of his contraot, was decided in Government's favour, the contractor bearing his own costs.

The Abrani pargana in North Khandesh was administered by the Divisional Forest Officer with, as the Collector records, sympathy and discrétion ; extracts from Mr. Starte's report are given below :-
"The Alkráni pargana which comprises $1,94,683$ acres of reserved forest and about 50,000 acres of revenue lind continued to be administered by the Forest Department.
"In all Akrani revenue land comprises some 148 villages of which 118 are occupied. Sixty-seven of these are surveyed and the boundary marks were kept in repair by the various patels who received Rs. 150 in rewards for this work. There are also eight in-forest-settlements and two jahagir villages in the pargana.
"The assessment received from cultivated lands amounted to Rs. 3,586. There is a steady rise in the area brought und er cultivation as shown by the assessment figures given below:-

|  |  |  | Rs. |  |
| :---: | :---: | :---: | :---: | :---: |
| $1912-13$ | $\ldots$. | $\ldots$ | 2,507 |  |
| $1913-14$ | $\ldots$. | $\ldots$ | 2,828 |  |
| $1914-1.5$ |  | $\ldots$ | $\ldots$ | 3,219 |
| $1915-16$ | $\ldots$ | $\ldots$ | 3,356 |  |
| $1916-17$ |  | $\ldots$ | $\ldots$ | 3,586 |

"The rate of assessment which is annas 4 per acre, except at Toranmal where it is annas 2 , is too low in many villages, and at the request of the Collector of the district a report was submitted in 1915-16 on this question and also as to the advisability or otherwise of introducing the permanent survey settlement. The matter is in abeyance.
"The contribution to the local fund amounted to Rs. 228-7-3.
"The collection of tagai outstandings made good progress and no money was written off during the year. Rs. 6,483 capital plus Rs. 1,024-11-0 interest were repaid as against Rs. 8,147 and Rs. 1,134 respectively last year. During the year fresh tagai advances amounting to Rs. 1,000 were made as compared with Rs. 4,000 last year.
"The rainfall was satisfactory and general crops good. The mhowra crop was gain poor.
" On the whole the health of the people was good, but a mild outbreak of small-pox occurred in the villages of Bhusia, Mall and Bilgaon in the middle of April, and at Toranmal in the middle of June. Only one case was fatal-at Bhusia.
"Early in May foot and mouth disease (locally known as . Kurmund') broke out among the cattle and several succumbed to the disease.
"Seven years ago two Government stud-bulls, one Sonkhairi and one Thilári, were brought up to Akráni. Privately owned cows were then collected together to graze with the bulls. This was not popular with the people for they do not like to let their cattle leave their homes. Accordingly, the Sonkhairi bull was temporarily handed over into the charge of the patel of Bhogwada to graze with the cattle of his village, and the Thilári was given into the charge of the Revd. A. P. Franklin of Mundalwad. Accurate figures have not been obtained but the Mahalkari reports that in all 42 cows were covered and 13 healthy calves produced. During the year the Sonkhairi bull lost one eye in a fight but otherwise both bulls are healthy. They are probably now past their prime for breeding, and if new bulls are supplied it would be better to provide somewhat smaller bulls of the short-horned variety, as the Akráni cows are rather small. During the year Government paid Rs. 30 towards the maintenance of the two bulls.
"The Government primary school at Dhadgaon and the Mission school at Mundalwad continued to do well, but the Government school at Kámod is still not popular.
"Owing to the war, less money was spent on repairs and improvements of bridle paths, but 95 miles of bridle paths were repaired, and the cart-track from Dhadgaon to Mundalwad improved at a cost of Rs. 380-8-0. During the year a district bungalow has been completed at Dhadgaon. It should be fully furnished.
"Owing to lack of funds no new chawdis have been built although they are required at Mundalwad, Mándvi, Bhusia and Domkhedi. It is very uncomfortable for the Mahálkari and taláties to move about in the rains owing to lack of suitable accommodation. At present there is only one chawdi out of Dhadgaon, viz., at Chanseli.
"The provision of a Government dispensary at Dhadgaon for which plans and estimates have already been prepared is still urgently required. Its construction should not be delayed longer than is absolutely necessary.
"Out of the grant for improvement of village water supply a well was supk at Telkhadi at a cost of Rs. 300, one-third of the cost being borne by Government and two-thirds by the people (Rs. 100 in cash and the equivalent of Rs. 100 in labour). Blasting was required and the upper portion has been properly lined with stone and cement.
"No cases were tried by the Divisional Forest Officer as second class Magistrate although he was instrumental in settling various complaints by arrangement between the parties. Eight cases were tried by the Mahálkari (the Range Forest Officer) in his capacity as third class Magistrate for abkári cases only. In all 11 persons were tried by him and all convicted, one being sentenced to imprisonment, and fines amounting to Rs. 160 being recovered from the rest.
" Akráni revenue lands contain many well wooded areas indistinguishable from forest proper; hence in June 1913 the more thickly populated portion was put under a simple working plan to regulate the cutting of firewood and supply of hutting material. The former is given free, and the latter on low fees. Owing to the supply being greater than the demand the demarcation of coupes is in arrears but it will be necessary to lay out new coupes next season. During the year 7,806 acres of revenue forest were burnt as compared with 99 acres last year.
"In general the year was one of steady progress accompanied by contentment of the people."

In North Khándesh in-forest-settlements, to provide for labour for fire protection and other forest works, were maintained and extended with good results both to Government and to the settlers, and the general contentment and well-being of the latter was very marked. Under the easy terms given by the department land is in great demand, cultivation is good and careful, and little trouble experienced in recovering tagai advances. Proof of the wellbeing and contentment was afforded in one case by an application from three adjacent settlements, and which has been forwarded to the Educational authorities, to be provided with a joint primary school. In East Khándesh
in the uninhabited hills the necessity for such settlements is a matter of great urgency, but so far attempts at forming them have met with little success, partly owing to the land being less suitable for cultivation, partly to the settler. available not being by nature and habit of a good cultivator stamp. But all forest progress in the East Khandesh Sátpudas depends on the introduction of settlers, and efforts will be continued.

## Southern Circle.

The charge of the circle was held by Mr. T. R. Bell throughout the year.
Messrs. Dodgson, Edie, Marjoribanks, Butterworth, Limaye and Koppikar continued in their charges of Kánara Northern, Kánara Eastern, Kánara Western, Kánara Central, Kánara Southern and Dhárwár-Bijépur divisions, respectively, throughout the year.

Mr. Hodgson continued in charge of the Belgaum division for the first $8 \frac{1}{2}$ months of the year up to 15 th March 1917 when he left to undertase special military work as Timber Supply Officer in Bombay. For the remainder of the year Mr. Miller, Divisional Forest Officer, Working Plans, held charge of the division.

The Ratnágiri division continued to be in charge of the Collector, Mr. J. P, Brander, I.C.S., throughout the year.

There was no change among the Sub-divisional Officers. Mr. Bendigeri was transferred from Kánara S. D. as an additional Sub-divisional Forest Officer in the Belgaum division in May 1917 to assist in timber supplies required by the Military Department.

Kánara W. D. badly needs an energetic Sub-divisional Forest Officer; Mr. Shrigley, who was posted there by Government during the year, has not arrived.

The Sirsi range of the Kánara Central Division was divided into twothe Sirsi East and the Sirsi West ranges during the year.

The candidate, Mr. Jagan Nath Duitt, nominated by Government for the Provincial Service Course of 1917-19, satisfactorily underwent his three months' practical training in this circle and joined the Imperial Forest College, Dehra Dun, in April 1917.

The three candidates deputed for the Rangers' course of 1915-17 passed the final examination and were posted as Rangers in Belgaum, Kánara E. D. and Kánara C. D. More Rangers are wanted.

For the Ranger's course of 1916-18 three candidates were nominated and sent up to Dehra Dun during the year.

The Belgaum Forestry Class was as usual conducted by Mr. Hattiangadi, Sub-divisional Forest Officer, Belgaum, in addition to his own duties. Of the nine students sent up from the different divisions, eight passed and one failed at the final examination.

- The Conservator visited all the divisions of the circle except Ratnágiri and all the divisional offices were inspected. Range offices situated at the head-quarters of each division were also examined with a view to see whether the several instructions and standing orders issued at the detailed inspection last year have all been properly followed. No serious irregularities were noticed.


## Land Revenue Administration.

Kánara N. D.-The three forest maháls, viz., Dandeli, Virnoli and Kulgi comprising 23,12 and 11 villages, respectively, in the Haliyal taluka of the Kanara district were started from the lst August 1916, the respective Rangers being ex-officio Mahálkaris and the Divisional Forest Officer, ex-officio Assistant Collector. The Divisional Forest Officer states that one village which had been depopulated for many gears was partially occupied and that every endeavour is being made to induce people to settle in these forest tracts.

Kanara E. D.-The two mahals, viz., Bilki and Kirwatti, the latter newly started during the year from 1st August 1916, were successfully administered
by the respective Range Officers under the supervision of the Divisional Forest Officer, the ex-officio Assistant Collector.

The Devikop mahál of four villages in the Kalghátgi taluka of the Dhárwár district, administered by the Divisional Forest Officer, Dhárwár, from 1st August 1913, was split into two, viz., Devikop and Kargod, comprising three and one villages, respectively, for administration by the Divisional Forést Officers, Kánara N. and E. divisions, from 1st May!1917.

Kánara W. D.-The revenue charge of the Supa mahal consisting of 120 villages was handed over to the Divisional Forest Offcer, Western division, from 1st August 1916. He states:-"It is somewhat too early to judge of the effects of this change from the point of view of general administration; when the Divisional Forest Officer can find time for only a limited amount of ordinary village inspection-a fact which postulates the retaining of a good and trustworthy Mabilkari in the Petha-it is already clear that bolding the revenue charge simplifies forest work in certain directions. What the people do in their fields matters very much to forest protection and in particular to the annual fire record; and it is of the first importance that the giving out of waste lands on easy terms should be supervised by one directly interested in maintaining a population for forest works. It would be difficult to speat too highly of the help given by the Mahallkari, Mr. M. S. Hegde, in trying to induce the people to greater care in the use of fire, more economy in the use of tree growth and more diligence in undertaking forest labour in the off-seasons."

No new kumri assignments were given during the year.
Belgaum division.-The Belgaum range mahál and the Khánápur West range mahal were successfully administered. It is reported that, though the kumri villagers avoided forest works, efforts made to induce them to patronise such works were successful, particularly in the latter mahál.

The policy of giving out forest land suitable for cultivation was continued.

Betta assignments.-The Divisional Forest Officer, Kánara S. D., states that all the work in connection with the betta assignments in the Sirsi and Siddápur talukas has been finished.

Hunting and shooting. -

|  | 1916 | 1915 |
| :---: | :---: | :---: |
| Game licenses issued | No. 43 | No. 48 |
| Breaches of game rules brought to light. | 2 | 4 |
| Fines recovered for breach of rules | Rs. 100 | Rs. 155 |
| Rewards paid for reporting illicit shikár. | 30 | 50 |

Casualties and punishments.-The health of the subordinate forest staff was satisfactory everywhere except in Gund and other malarial parts of Kánara W. D. A liberal supply of quinine treatments was made to all the establishment as usual. The casualties were:-

Seventeen men- 1 forester, 12 guards, 2 clerks and 2 peons-died as against 16 in 1915-16.

Twenty-three men-1 ranger, 6 foresters, 13 guards and 3 head clerksretired as against 22 last year.

Thirty-nine men- 37 guards and 2 peons-resigned as against 38 in the previous year.
Punishments -


Criminal offences.-T he particulars of the three prosecations instituted during the year are:-


The appeal of the forester and two guards of Kanara E. D. in the torture case, mentioned in the last report, was rejected by the High Court.

The relations between the Revenue and the Forest officials as usual have been satisfactory.

Services.-The Divisional Officers have all worked well, buthave had little rest owing. to extra duties imposed upon them for timber supply for military purposes in Kánara W: D., N. D. and Bèlgaum. The Sub-divisional Officers have also done well. In the Ranger grades the Conservator would like to mention Messrs. Mudchatkar, Hasabnis, Nerlekar and Rego in Kánara and Mr. Rege in Belgáum for hard work and attention to duty. The Conservator's Personal Assistant, Mr. Chandavarkar, has been as indefatigable as ever and Mr. Bellare, the Conservator's Head Clerk, again deserves mention. Also Mr. Nagarkatti and the Conservator's camp clerk, Mr. Mavinkurre, have worked very hard. Taken as a whole the office members have acquitted themselves creditably.

The Divisional Forest Officers report that the work of guards and most of the foresters is far from satisfactory and that it is most difficult to obtain good recruits, the hard, strenuous, lonely life on low pay not being attractive to able-bodied men, who can earn better wages in other departments of the public service or in private firms, factories, mills, railway works, etc. It often occurs that the uneducated, irresponsible cooly, who is supervised by the guard, receives higher wages than the guard, who is generally literate and has a fair amount of responsibility attached to his post. This is not as it ought to be. If guard's minimum pay be fixed at Rs. 10 per month and his service made superior as in the Police Department, it might attract men of the right stamp, render recruitment less difficult and improve the tone of the establishment considerably. On a full discussion of the subject in the Forest Conference of 1913 , certain proposals were submitted to Government, who hare in their Resolution No. 2683 of 5th March 1915, Revenue Department, postponed the issue of final, orders in the matter. In view of the fact that the pay and prospects of the policemen have been further improved recently, an early. consideration of the case of forest subordinates would improve matters.

Preliminary proposals for increasing the staff of Rangers were submitted to Goverument at the close of the year ; orders thereon are awaited.

## Sind Circle.

The Sind circle was in charge of Mr. G. R. Duxbury throughout the year.

Mr. V. R. Mirchandani held charge of the Sukkur division during the absence of Mr. A. C. Robinson on three months' privilege leave, in addition to his own duties as Sub-divisional Forest Officer. Proposals sent up during the year regarding the partition of the Sukkur and Lárkána divisions into three charges with Mr. Mirohandani as the new.-Divisional Forest Officer,
-Shikárpur, have been recently sanctioned by Government. The new arrangement will enable each officer to thoroughly inspect his charge, especially the erosion fellings and kachas; this was formerly a physical impossibility for the Divisional Forest Officer, Sukkur, who has not been provided with a steam launch.

Under the sanction of Government the officers in charge of the Lárkánai and Hyderabad divisions changed stations. The Jerruck division remained throughout the year ably administered by Mr. Newman who completed his sisth consecutive year of cbarge during the year under report.

- In accordance with Government orders proposals asking for extra Rangers required for the Sind circle were forwarded. The. Sind forest staff were less favourably treated than those of any other circle in the Bombay Presidency at the last reorganization and only 55 per cent. of the ranges received Rangers. These proposals were returned for incorporation into a consolidated scheme for all forest subordinates in the Bombay Presidency and fresh proposals dealing with the need for more foresters and the increasing of the pay of the Sind forest guards were forwarded before the close of the year.

It was found necessary for a time owing to the paucity of suitable officers, to work the Rohri and Rádhan ranges as sub-ranges under the Sadbuja and Lárkána ranges respectively. The position was again restored after the close of the year under report.

The four surveyors in the Working Plans office formerly on the temporary establishment were made permanent from the 1st April 1917 under Government Resolution No. 3452 dated 28th November 1916. These men are now on graded pay instead of receiving biennial increments, and will be attached to divisional offices in the places of the present temporary men when working plans have been completely revised.

On the whole, the standard of work improved throughout the circle. Among the Rangers Mr. Rodrigues now in Hyderabad division, Messrs. Nenumal and Mewaram in Jerruck division and Messrs. Kotumal and Dalpatrai in the Lárkána division deserve special mention. The first-named is easily the best Ranger in Sind.

The office establishment worked well. Unfortunately the moral stability of many of the members of this, as well as of the protective establishment, is hot equal to their industry. There is moreover still a good deal of careless work. The Deputy Conservator can recommend the Head Clerk of the circle office, Mr. Imdadali Mahomed Ashraf Kazi, for his integrity and devotion to duty.

Efforts to recruit candidates from youths who have passed the School Final Examination have been fairly successful during the year.

Forest students, Dehra Dun.-Mr. Gianchand Madhols, Ranger, reported for duty early in April, and was posted under Mr. Rodrigues but owing to the paucity of officers had very shortly to take up an independent charge in the Sukkur district.

The reports on the two candidates of 1916-18 class, on the whole, are not encouraging. Mr. Deputy Lal Kishori Lal Sharma, probationary student for the year 1917-19, received practical training under the Deputy Conservator, and the Divisional Forest Officer, Jerruck, and left for Dehra Dun in March 1917. This student who is a son of a native officer of the 10th Lancers now serving in Mesopotamia has started well.

All the divisional forest offices and that of the Working Plans Assistant, were inspected by the Deputy Conservator during the year, who also personally inspected 11 range offices in the circle. The rules laid down by the Forest Conference of 1916 have been adopted and many new registers opened in consequence.

All Divisional Forest Officers with one excaption worked well throughout . the year as did the Sub-divisional Forest Officer, Sukkur.

Good progress has been made in the classification of records in all offices, arrears are chiefly in the Direction office, where it was found possible this year to carry out 20 years' classification of records during the touring season. Conservator's circulars for the past 40 years were personally classified and indexed by the Deputy Conservator, and indices distributed to all Divisional Officers, who were ordered to withdraw obsolete circulars from their files and classify those left in accordance with instructions.

The following casualties occurred during the year. These are arranged under the head of superior service Rs. 12 and over, and inferior service upto Rs. 10, as requested by the Commissioner in Sind in his review of 14th October 1916:-


As usual the heaviest punishments were inflicted in the Sukkur division where the old staff was thoroughly demoralised some years ago. The fines and degradations inflicted on officers of the superior service refer to Sub-rangers on Rs. 12, who are almost entirely illiterate, and are merely promoted beat guards. The large number of resignations shown in Jerruck refers chiefly to the men in the ranges where the forests are flooded by the inundation. These men were drafted on to the inland forests of Katiar where artificial regeneration is in progress, and showed their discontent by resigning. The proximity of Karáchi where ordinary coolies receive as much as 12 aninas per diem also very much affects the recruitment of Jerruck, causing the beat guards to refuse to serve on Rs. 9 and Rs. 10 per month.

Relations between the Revenue and Forest Departments continued to be cordial during the year.

A theft of Rs. 373-5-11 occurred in the Sadhuja range forest office when in the charge of the Range Forest Officer, Ghotki, in adition to his own duties. After a careful enquiry by the Divisional Forest Officer, Sukkur, and personal inspection of the premises by the Deputy Conservator, Sind Circle, a report was made to the Commissioner pointing out that both Ranger and clerk were guilty of carelessness, and the money was ordered to be made good from these officers by 12 monthly instalments from their pay.

## CHAPTER VI.

## GENERAL

- Northern Circle.

The most notable event of the year was the visit of the Inspector-General of Forests with the object of discussing, in the forests, the revision of all the existing working plans of the Thána divisions-this revision to be under one plan which was then being drafted. It is satisfactory to see from paragraphs 10 and 11 of Mr. Hart's Inspection Note, dated 16th April 1917, which is on record, that the treatment proposed met with his approval.

Not less valuable is the Inspector-General's reference to the gurcharans of the Thana district. A revised working plan on the lines suggested by him in paragraph 15 of his Inspection Note had been drawn up in the previous season (1915-16) for the Central Thána division by the orders of the Conservator,: but reference to Government in the matter was postponed for several reasons which were mainly, (i) that it was advisable to first complete the revision of the forest plans then in hand, (ii) that Government should have an opportunity of considering the representations of the Collector regarding the management of the gurcharans, (iii) that the Inspector-General might record his opinion during his forthcoming visit, (iv) that proposals for the much needed reorganization of the protective staff then being prepared" might be considered by Government and (v) that officers migh acquire a knowledge of their new charges under the Thana divisions reorganization scheme. These matters having now sufficiently matured, the permission of Government to the complete preparation of the proposed revision is being asked. The importance of this matter lies in the fact that the gurcharans in question are equal in area to, and of greater commercial value than, a Thána forest division. If the proposals to be made are sanctioned, the revenue from gurcharans should rise from two to seven labhs of rupees and benefit every inghabitant of the country-side.

During the year the Committee appointed to consider the development of indigenous industries commenced its enquiries. A written statement on the subject, asked for by them, was duly submitted and from time to time during the year the specific requirements of many individual industries, e. g., bamboos for pulp, timber for matches, picture-frames, bobbins; firewood for glass making; gum for resin, etc.; grass for oil ; barks, etc., for tan ; and others, have come up for consideration, all pointing to the conclusion that the industrial welfare of the country is directly dependent, like forest revenue, on the development of forest management along the most scientific lines.

It is impossible to refrain from mentioning here the ceaseless and increasing difficulty which has been experienced throughout the year in endeavouring to carry out urgent works and even in arranging for routine duties owing to (i) the shortage and inefficiency of the present protective staff and (ii) the lack of the ordinary amenities of life of that staff in the more unhealthy and out-of-the-way localities in this circle. Reorganization proposals have been submitted. The money required to give effect to those proposals is but a fraction of the immediate additional revenue anticipated by proposed improvements in working. It is, therefore, earnestly hoped that the much-needed relief will be accorded.

## Central Circle.

Rainfall was good throughout the circle and the year was a prosperous - one for trade and forest revenues. And that the prosperity will continue, looking to the increasing world demand for forest material and the scope that exists for development of industries now untouched, is a matter beyond question of doubt.

From the nature of its forests, the circle could make few direct contributions to war requirements, for the Deccan divisions are not even self-supporting in forest material but depend largely on imports from elsewhere. Butt war demands for small timber, fuel and grass had a marked effect in Khándesh, as was evidenced not only by the demand for coupe material but by the fact that
accumulated stocks in contractors' hands were completely oleared off by the end of the season, a happy state of affairs to which the timely, though unexpected provision, of wagons by the railways largely contributed. A demand for grass was indeed made by the Military authorities in January, and was met by the department putting all its resources at the disposal of Mr. Bhiladwalla, its famine fodder contractor in West Khándesh, and enabling him to meet and fulfil a contract that he had entered into with the Military department.

For the current year revenue prospects are even more favourable than in the one under report.

## Southern Circle.

The importance of forest resources of the Southern Cirole was duly recognized by Government during the year, and some preliminary measures for the development of forests were undertaken. The urgent necessity for good roads to open up valuable areas was realized and one of the most important and difficult roads-the Kadra-Gund Road-in Kánara W. D., undertaken, is nearing completion. A special Engineer was deputed for the improvement of the most useful waterway for floating timber in Kánara W. D.

Mr. Haines, Executive Engineer, Dhárwár district, deputed to the Forest Department last year on the worls of improving transport facilities, after making a preliminary examination of the bed of the Kalinadi river, reverted to his appointment in Dhárwár and in accordance with the recommendation of the special conference of the Commissioner, S. D., the Conservator of Forests, S. C., and the two Secretaries to Governuent, Public Works Department, Mr. Pipe, Executive Engineer, Ahmednagar district, was deputed to proceed with the work for seven months from 15th November 1916 to 15th June 1917. During this period he surveyed the whole of the Kálinádi from below Jogáli slide to the tidal limit above Kádra, with a view to preparing a project for improving the floating channel. He also prepared a rough survey of the Káneri river from a point called "Durga Seri" to its junction with the Kálinadi. About balf the blasting work preliminary to the possible evolution of a floating channel for logs along this most difficult nala was carried out by him and two trial dams of wood and masonry were constructed to head up the water in one main channel. It is to be seen how they will have stood the year's floods. Mr. Pipe's work was carried out with energy and determination under the most adverse circumstances as regards labour and supplies. His fiual report on the double project is awaited.

Government having sanctioned the survey of the line ( 16 miles) for the light forest railway from Dandeli to the Alnávar Station of the M. and S. M. Railway, the survey was made by an officer of the Railway company. Details regarding construction and management are under consideration. This forest railway is calculated to help the exploitation in Kánara N. D. to a considerable extent.

In addition to the two steam saw-mills working in Kánara N.D. three new steam saw-mills were procured for the other three important divisions of Kảnara, which are being erected and will commence work in this fair season.

Fire protection and sylvicultural operations were conducted on an extensive scale, special parties being appointed for the purpose. The only retrograde step of the year was the curtailment of expenditure on buildings and wells so as to utilize the money on operations of a more urgent and remunerative character. Data for the preparation of a working plan for the Bijapur forests was collected and that for the forests of Kanara S. D. is to be collected shortly; endeavours are being made to bring the whole area of the circle under regular working plans as soon as possible and to revise such of them as have become due for revision. Large areas of pasture forests in the Dhárwár and Bijápur districts in charge of the Revenue Department baving been neglected, proposals were made for their re-transfer to the management of the Forest Department and these have recently been submitted to Government. It is hoped that these areas will soon return to this department to the mutual advantage of the fyot and the State. The

Ratnágiri forests unfortunately are worked at a net annual loss of about Rs. 3,000. The forests are small, scattered scrub jungle and produce no valuable material; the Collecter in charge states that a reorganization of the forests and establishment is necessary and that proposals for the same have been submitted by him to the Commissioner, S. D.

The financial results of the year, bringing in nearly a quarter of a crore of revenue, are most encouraging; with more intensive management combined with good roads and other facilities for the systematic exploitation of the produce, it would not be too much to hope for a sustained annual revenue of half a crore and over in the next quinquennium.

The Inspector-General of Forests visited the circle and made a detailed tour for about a month in February 1917 through the important forests, of Kánara N., E., C. and W. divisions and Belgaum with a view to advise on working plans.

The Tanning Expert to the Government of India visited Belgaum and neighbouring towns to make a survey of tanning products of the country and of local private tanneries.

The Forest Economist paid a visit to Kánara W. D. and N. D. in connection with the experiments of seasoning different kinds of timber under different methods:

The Timber Supply Officer of the Military Department, Bombay, visited Ankola in Kánara C. D. about the timber supplies required for war purposes. ${ }^{-}$ Arrangements have been made for the regular despatch of tiuber and bamboos in large quiantities from Kánara N., E., C. and W. divisions and Belgaum.

Labour supply was again deficient in the Khánápur ranges (Belgaum) as also in the Gund range of Kánara W. D. and, generally, in Kánara N. D. Notwithstanding the exertions of the revenue authorities in securing labour and carts in Kbánápur the annual delivery of fuel to the Railway Company fell short by 8 lakhs of cubic feet. In Kánara W. D., the labour supply was sufficient for all work on the coast, even the extra contracts for supply of war material being carried out without any difficulty. It is only above ghats in Gund and in Kánara N. D. that scarcity of labour is severely felt. In these parts, the villages are practically uninhabited and labour has to be imported from the coast. As people on the coast find work near their homes, they naturally often refuse to go above ghats. The only solution of the difficulty appears to be to get the deserted villages inhabited again by giving out suitable cultivable land on easy terms. Messrs. Dodgson and Marjoribanks, who are ex-officio Assistant Collectors for forest maháls in Kánara N. and W. divisions, are taking a keen interest in their land revenue administration and try to improve matters.

The Berad (Criminal Tribes) Settlement, established by Goverument at Shiroli in the Khánápur taluka of the Belga um district for the supply of forest labur, was started in March 1917 and the number of Berads gradually rose to about 100 including some Lamanis from the Bijapur district. Their services were utilized for various forest operations.

During the working season plague and cholera were prevalent in Kánara N. D. with the result that the work of carting contractors was much hindered.

At the Tavargatti depôt and Alnávar station in Kánara N. D. great difficulty was experienced by contractors and purchasers in removing their material owing to the shortage of wagons on the railway, caused by war requirements. The Divisional Forest Officer apprehends that this may affect prices adversely in the coming sales if this state of things continues.

The new timber depôt, establizhed on the coast at Tádri in Kánara C. D. last year, was removed to a more satisfactory site further up the river at Divg.

The enumeration of sandalwood trees in malki lands of the Dharwar district, undertaken in 1913-11, was continued during the year, and the Forester, specially put on the work, counted $3 \cdot<, 060$ trees in 42 villages of the Dhárwár taluka. According to the figures furnished by the Mamlatdárs the total number of sandalwood trees standing in malki lands of the Bijápur
district, excluding the Badámi taluka, for whioh figures have not been received, are 3,043 in 188 villages. Steps are being taken to have. a correct - enumeration of the trees made in both the districfs as soon as possible.

The Collectors of different districts make the following remarks in forwarding the several reports:Kánara(By Mr. J. H. 由. Tupper) :-
Kanara N. D.-"Fifty per cent. of the total area is closed to grazing and it is observed that the number of impoundings shows a marked increase.
"Mr. Dodgson administered three small forest maháls as ex-officio Assistant Collector in addition to his work as Divisional Forest Officer. 'He has been very successful in his dual capacity. He is the only Divisional Forest Officer who reports a serious attempt at repopulation of the deserted villages. One village has partially been reoccupied. It is interesting to note that Mr. Dodgson has been conviuced by the acuteness of the labour question that the only solution is to get the depopulated villages inhabited again. We are now trying to work out a scheme of in-forest cultivation which will effect this purpose:"

Kánara E. D.-" Mr. Edie administers two small forest maháls as $e x$ officio Assistant Collector in addition to his work as Divisional Forest Officer. His administration in both capacities has been most successful."

Kánara S. D.-" The.large increase of fires in the Siddápur range in a year in which fires generally have greatly decreased is said to be partly apparent only and partly due to scarcity of fuel, driving people to the manufacture of dead-wood by firing the forests. It is hoped that the establishment of the fuel depot at Siddapur will eliminate the second cause."

Kánara W. D.-" Mr. Marjoribanks administers à very large area, larger than the biggest taluka of the district, as ex-officio Assistant Colleetor. His administration, both as Divisional Forest Officer and as Assistant Collector, is worthy of the highest praise, and a most promising start has been made in the experiment of forest maháls.
"It is a matter of extreme difficulty to get the subordinate magistracy to realize their duties in dealing with small forest cases. The District Magistrate has issued clear orders on the subject for their guidance and hopes for improvement. These cases are carefully watched.
"Undersigned has inspected a fair amount of kumiri in company with the Divisional Forest Officer and investigated the economic condition of some of the kumri villages personally. In view of tha knowledge thus accquired the Collector entirely agrees with the views expressëd by the Divisional Forest Officer.
"Arrangements have been made for the final disposal of cases in which bettas have not been accepted in order that the gardeners may have no legitimate cause of complaint and no pretext for protracting proceedings.

The greatest obstacle to the developent of all forest operations is the scarcity of labour, and every possible means must be availed of to increase the supply to meet the inevitably and rapidly increasing demand. The best means of increasing the local supply is in-forest cultivation to which Mr. Marjoribanks alludes in his paragraph 102. A scheme is under consideration to attract agricultural labour, which can be atilized for forest purposes, by the offer of land on exceptionally favourable terms. As Mr. Marjoribanks. observes labour has a natural tendency to gravitate below gháts, and below gháts the Revenue Department can do but little to attract additional population by giving out land on favourable terms because the entire area of assessed waste land available for expansion of cultivation below gháts is limited to about 10,000 acres, much of which is not very attractive quality."

Belgaum (By Mr. E. L. Sale) :-
"The early construction of the road from Gunji to Shiroli is most advisable. The cost of construction would very soon be recouped by the larger supplies of wood that would result from the provision of a proper cart-road. The experience gained over the Kanbargi-Muchandi road shows how the absence of cart-roads deters contractors from bidding freely for coupes.
"The system of allowing reduced rates of grazing to all who have assisted in putting out fires is a good system but as worked it presents possibilities to the forest officer who draws up the statement showing those present who helped to extinguish any particular fire. It is suggested that the village patel should also sign such statements.
"The area of forest in the Murgod mabál north of the Kaladgi road which had been relinquished by the Forest Department was again handed back to that Department for management during the year. Government have also now sanctioned the return of all the forest lands remaining in this mahál and Parasgad taluka to the Forest Department.
"Mr. Hodgson's time was much taken up in the past year in providing wood for military requirements. He consequently was not able to devote much time to the revenue work of the forest mahals. Little progress was made in the giving out of suitable cultivable land in kumri villages in exchange for the temporary kumri rights.
"Mr. Hodgson has done excellent work during his tenure of the office of Divisional Forest Officer, Belgaum, in the development of communication roads to the forests and has shown the greatest enthusiasm in all branches of his work. It is to be boped that the progress in improving the existing roads in the forest villages of Khánápur will continue and that new roads will be provided where the exploitation of the forests is hindered by the lack of proper communications."

Dhárwár and Bijapur $\rightarrow$ Remarks of the Collector of Dhárwár (Mr. E. G. Turner) :-
"The report appears satisfactory though it is impossible to compare the financial results for this district owing to this being the first completed year since the cbanges in the Dhárwar forest division were made. The undersigned can endorse Mr. Koppikar's remarks as to the need for placing many of the pasture lands under the Forest authorities' control, and an agreement with Mr. Koppikar as to which landes should be so transferred has at last been settled and the final recommendation will shortly be made. Mr. Koppikar is very keen on a straight demarcation line so as to make conservancy easier and give less grounds to villagers for trespassing. From the several proposals put forward by him it does not appear that great importance was attached to this theory at the time of the forest settlement. However what progress can be made in this direction by exchange of lands is being considered."

Remarks of the Collector of Bijaipur (Mr. V. K. Namjoshi):-
"It is satisfactory that the forest revenue of the district rose to Ris. 41,750 during the year from Rs. 33,726 during the preceding year, the revenue from minor produce alone being Rs. 31,060 . The advantage of having a forest in their neighbourhood must have been specially brought home to the many people whose houses were destroyed by the floods of November last and who got free grants of timber from the forest for rebuilding them.


#### Abstract

"It is satisfactory to note the decline in the number of forest fires during the year ; but this was due of course to the special seasonal conditions of the year. " The total number of impoundings in Badámi and Bágalkot were 3,275, sheep and goats being the principal offenders. Out of the total number of 1,10,069 animals admitted to grazing in forests during the year, the number of sheep and goats was only 1,117 . This seems to indicate that facilities for grazing in the case of these animals require inprovement. As this matter is the subject of a separate correspondence, it is unnecessary to say more about it here.


"It was unfortunate that a large number of seedlings grown with some trouble should have died from neglect on the part of the subordinate staff. A large number of houses is being built and factories are multiplying. The demand for timber and fuel is on the increase. The development of treegrowth to meet this increasing demand is absolutely necessary.
"The Acting Collector endorses Mr. Turner's remarks about straight demarcation. The various proposals submitted by Mr. Koppikar in this respect were judicious and his treatment of the ryot has been sympathetio."

## Sind Circle.

When referring to a question asked by Government as to whether rails from light railways now laid down in France and Mesopotamia aud likely to be available after the war would be wanted for the exploitation of forest produce in the Sind Circle, it was pointed out that what are needed so badly by the Sind Forest Department are tugs and barges to hire to contractors who have no boats of their own for the water carriage of their forest produce. At present country boats are very expensive to hire, and the boatmen most unreliable. This gives a great advantage to the bigger contractors who possess boats, and tends to keep contracts in the hands of a few, which is bad both for the State and the public. This want of facility of transport is one of the chief reasons why there are so few contractors in the Hyderabad and Jerruck divisions.

Another urgent need is a steamer for the Sind Forest Cirole Officer. It is imperative that a large percentage of erosion fellings and kachas must be inspected, a fact brought home only too clearly this year by the bad administration found in the Hyderabad division, where the rules regarding erosion fellings have not been stringently observed. As the forests of Sind lie on the river bank and are about four miles broad, inspèetion by steamer, as in the early days of the administration when under Sir William Schlich, Divisional Forest Officers held free passes to travel on the steamers of the Indus River Flotilla Company, is a common sense procedure.

Reference must be made to high prices prevailing for wood all over the province. The principal cause was of course the large export, of fuel to Mesopotamia from Lower Sind and to Quetta and the neighbourhood from Upper Sind. In Karáchi the situation was further aggravated by the combination of the three principal contractors (who at present practically control the market) owing to one firm being unable to put six lakhs maunds of dry fuel on the market at one time. The shortage of waggons on the railway, resulting in none being available for the local fuel supply, and the disinclination of the aforesaid contractors to put any of their dry stocks wholesale on the market when a few waggons were available owing to the appearance of a well-to-do new comer in the fuel market, led to a great depletion of dry stocks in Karáchi itself, and a general inflation of prices.

Personal appeal to the loyalty of contractors, and refusal to accept tenders from combinations combined with the putting of all available deadwood on the market, has brought down the price of the military contract from $15 \frac{1}{2}$ annas to 9 annas per 100 lbs . and the local supply from Rs. 1-4-0 to 14 annas per maund and will, it is hoped, decrease the latter much more appreciably in the near future. In the meantime it is necessary to encourage the smaller contractor in every possible way as indicated above.

The position in Upper Sind must be ameliorated by the acquisition of more forest land which is in great deficit due to a mistaken policy in the past, and the Commissioner has been addressed on the subject during the year under report.

It was held by the Judicial Commissioner of Sind in a case during the previous year that rule 4 of the old Sind rules under section 41, Indian Forest Act, was illegal. This necessitated new rules being drawn up, and these were prepared, submitted to and sanctioned by Government and introduced during the year under report.

Felling rules were standardized and introduced into the agreements as is done in the Presidency proper. Leaving these to the discretion of the Divisional Forest Officers had proved most disastrous in the Hyderabad division.

At the request of the Timber Supply Officer, Bombay, statistics as to the timber available in the markets of Sind were obtained and forwarded early in 1917.

Arrangements were made to give instruction in arboriculture to subordinates of the Pablic Works Department, District Local Boards and Municipalities at Ráhuja in Sukkur and in Hyderabad. At Ráhuja all these candidates passed, while at Miani the six candidates who sat for the final examination were successful, one of the students being absent through illness. The Commissioner bas sanctioned one class being held for the province to be opened yearly at Hyderabad. The Forest Departmeut was represented by a stall at the Arts and Crafts Exhibition opened by the Commissioner in Hyderabad in November 1916, where amongst other exhibits specimens of bobbins turned from the wood of baban (Populus euplratica) were shown.

Chil and deodar lugs and sleepers and logs of tali (Dalbergia sisoo) were as usual imported into Sukkur, Rohri and Shikarpur from the various parts of the Punjáb, and large quantities of timber and fuel to the large towns of Upper Sind from the territories of His Highness the Mir of Khairpur.

There were no civil suits during the year.
Mr. Rieu in forwarding the Hyderabad report remarks: "It is satisfactory to note that in the Unerpur range of the Karachi district there was only one case of accidental fire in which the area damaged was insignificant."

In paragraph 101 of the Jerruck report the Divisional Forest Officer, Jerruck, writes: "The price of fuel remains at a very high level in Karáchi at the close of the year owing mainly to the greed of certain leading contractors, though ostensibly to shortage of railway transport and requirements of army in Mesopotamia:"

The Collector of Karachi in forwarding the Jerruck report comments as follows: "The Collector notices with satisfaction the result of the year's good inundation and rainfall reflected in the reduction of forest offences and cattle impoundings, and the success attained by the departmental measures in keeping the forests safe from fires.

The Collector does not accept as accurate the statement made in paragraph 101 of the report as to the principal cause of the high price of fuel in Karachi. The price would never have risen as it did but for what are there represented as the merely ostensible reasons for the rise. The later were therefore the main and direct causes. The dealers, as it subsequently turned out, had somewhat overestimated the extent of the shortage in the supply, not having anticipated that the restriction on the use of railway wagons for private consignments would be relaxed. As soon as this was realized, prices eased off somewhat, and the present rates probably fairly represent the existing relation between supply and demand."

The Deputy Commissioner, Upper Sind Frontier, in forwarding the Sukkur report remarks as follows: "Only one pending case belongs to this district.

There were only two forest cases before the courts, and in neither was there any complaint about the attendance of the subordinate officers of the department. There does not appear to be anything else in the report that invites comment. The creation of the new division should be an advantage to both the Forest and Revenue Departments."

REMARES OF THE COMMISSIONER, NORTHERN DIVISION, ON THE FOREST ADMINISTRATION REPORT OF THE NORTHERN CIRCLE FOR THE YEAR 1916-17.
No. F.O.R.-47.

Submitted to Government.

> Revenue. Department. Camp, Poona, 18th Uctober 1917.
2. The Commissioner has no special comment to make on the report.
H. SMITH,

For Commissioner, N. D.

REMARKS OF THE COMMISSIONER, CENTRAL DIVISION, ON THE - FOREST ADMINISTRATION REPORTS OF THE NORTHERN AND CENTRAL CIRCLES FOR THE YEAR 1916-17 SO FAR AS THE AREAS IN THE CENTRAL DIVISION ARE CONCERNED.

$$
\text { No. A. }-1436 \text { of } 1917 .
$$

Poona, 27th October 1917.
The following review of the administration reports of the Northern and Central forest circles for the year 1916-17, as far as the areas in the Central Division are concerned, is submitted to Government in the Revenue Department.
2. The forest ranges in the Násik district were rearranged in order to secure more efficient administration, the Igatpuri range being transferred to the Thána division and the remaining ranges in the Násik district being formed into new three sub-divisions. There was a net decrease of 36 square miles, 192 acres in the forest area in the Central Circle, mainly as a result of the disforestment of certain pasture areas which are now to be given out for cultivation in the Poona and Ahmednagar districts.
3. The length of new boundary demarcated during the year was only 97 miles- 68 miles in the Akola range, 26 miles in Wést Khándesh and 3 miles in the Dindori and Peint ranges. The remaining work- 124 miles in the Rajur range (Ahmednagar) and 63 miles in south Násik divisionis expected to be finished shortly.
4. Preparation of new working plans and revision of existing ones were delayed owing to certain suggestions of the Inspector-General of Forests, who specially visited the Satpuda forests and the teak and babul forests in Poona: the Inspector-General's recommendations are receiving the careful attention of the officers concerned.
5. Road works in North Khándesh-Hisala-Bhoiti road and WasurdiKodil road-were pushed on; and proposals regarding the freeh alignment of the Akráni road which were discussed by the forest officers have already been submitted to Government.

The Commissioner sympathizes with Mr. Napier's remarks as to the need for inspection bungalows in North Khandesh where tents are uncomfortably warm in the hot weather.
6. As regards the proposed Dhadgaon dispensary, when the distribution - of dispensary grants for the current year was discussed in a recent conference of the Divisional Commissioners and the Surgeon-General the Commissioner did not press for this dispensary because :-
(1) No Sub-Assistant Surgeon is available.
(2) If one were sent he would always try to getaway. He would have nothing to do and would himself get ill.
(3) The natives do not want a dispensary and would not use one, and Government servants could only be given quinine and cough mixture, and they can have that without a dispensary.
For these reasons the Commissioner does not think that the Dhadgaon claim is very strong. Indeed it appears doubtful if it would ever be advisable to have a dispensary at this place-at all events there are other places where dispensaries are more wanted and would be much more useful.
7. The accompanying statement shows the nature and number of the forest offene-s comnitted. Their number rose from 6,998 to 7,274 , of which 229 werd taken into Court, 6,174 were compounded and warnings were given, and 871 remaiued undetected. The largest increase in any single district was 248 in the Poona division, and the Commissioner ascribes it to pilfering of forest waterial for the erection of temporary huts by villagers of plagueinfected arens. Communal punishment was inflicted by the Collectors of Poona and Kolába on 21 villages for persistent damage by illicit cutting and grazing.

Mr. Napier's suggestions for the better protection of State foreste from loss by fire were submitted to Government with this office No. A.-1339, dated 8th September 1917.

|  | 1915-16. | 1916-17. |
| :---: | :---: | :---: |
| East Khándesh | 11,560 | 11,289 |
| West Khándesh | 10,045 | 10,602 |
| North Khándesh | 8,082 | 6,027 |
| Poons | 11,562 | 10,186 |
| Sátára | 5,571 | 5,033 |
| North Násik | 16,537 | 11,419 |
| South Násik ... | 11,484 | 4,971 |
| $\begin{gathered} \text { Násik Sub-division } \\ \text { (newly formed) } \end{gathered}$ | .... | 8,539 |
|  | 74.841 ${ }^{\text {. }}$ | 68,016 |

8. Statistics of impoundings in the several forest divisions are given. in the margin. General improvement is noticeable in all divisions except West Khándesh. Mr. Napier remarks that the decrease in the impoundings of horned cattle from closed areas was due to there being abundance of grass and to .efficient supervision.
9. Minor produce.-Proceeds from hirda fell from Rs. 22,863 to Rs. 16,160 ; the decrease is an example of ordinary fluctuation.
10. The financial results of the year's administration are very satis, factory. The revenue of the forest divisions in the Central Circle within the jurisdiction of the Central Division amounted to Rs. 7,16,800 against Rs. $5,93,549$, and the expenditure to Rs. 4,24,601 against Rs. 4,13,867, leaving a net surplus of Rs. 2,92,199 against Rs. 1,79,682. North and West Kbándesh divisions mainly contributed to the increase which is due to brisk timber and fuel markets.

There was an increase of Rs. 27,928 in the total revenue in the Násik ranges. As Mr. Fisher remarks, owing to the reorganization of these charges it is not possible to compare each charge with the previous year's returns.
11. The demand for forest material tends to increase. Mr. Napier observes that the war demand for timber, fuel and grass has cleared off the accumulation of stocks in Khándesh. The Commissioner is glad to add that the year's working has as usual been very satisfactory, reflecting oredit on all members of the department. Relations between Forest and Revenue Officers continued to be excellent.

Number of forest offences committed in the Central Division.


# REMARKS OF THE COMMISSIONER, SOUTHERN DIVISION ON THE FOREST ADMINISTRATION REPORT OF THE SOUTHERN CIRCLE FOR TAE YEAR 1916-17. 

No. 6111.

Revente Department.<br>Belgaum, 24th'October 1917.

Alteration in area.-Parasgad forests ( 7 square miles) have been transferred to the Forest Department for management. Proposal for the transfer of pasture forests in Dhárwár ( 56 square miles) are under consideration.

Proposals for transfer of the Ratnágiri forests ( 18 square miles) to the Revenue Department have been submitted to Government under this office No. 429 of 6th August 1917.
2. Forest settlement.-As the forest settlement in all districts of the division is complete although in some cases effected some 30 years ago I was struck with the large number of proposals for afforestation of new surver numbers submitted from time to time by district officers and have issued orders that except where cogent reasons exist or where the forest settlement is out of date or where lands are required for in-forest cultivation, proposals for afforestation of numbers not included in the demarcation sanctioned at the time of forest settlement should not be submitted. Many cases in which lands have been provisionally notified under section 4 of the Forest Act are held up either for examination in the light of these tests or owing to the time of Prant Officers being taken up by more urgent work which prevents a careful examination of each proposal. This is especially necessary in Kánara where 82 per cent. of the district is already under forest and population has steadily decreased.
3. Demarcation.-The Conservator reports that the Collector of Dhárrár has issued orders requiring Inámdars to clear the common boundaries between their lands and Government forests. Such an order does not appear to be legal (vide Government Order No. 10632 of 1st September 1917). I am pointing this out to the Conservator and the Collector.
4. Control of regular working plans.-Arrears in the exploitation of forests according to working plans are due to the difficulty in procuring labour and transport and these arrears will continue to accumulate until these difficulties are removed. To counteract the deficiency of labour in malarious and inaccessible parts where forest growth is good in-forest cultivation must be started and encouraged. This important question has engaged my attention and I have been considering on what lines the scheme should be worked and have lately held a conference of forest officers and whicb the Collector of Kánara attended. Roads are as necessary as labour. A detailed scheme for the improvement of communications of forest estate estimated to cost three lakhs of rupees has been submitted to Government under this office No. 5115 of 11th November 1916 and orders are awaited.
5. Fire.-The number of offences by fire has increased, being 35 per cent. above the average of the past three years and 16 per cent. above last year's figures, but the area burnt decreased from 2,13,959 acres to 52,794 acres, i.e., by 75 per cent. which is satisfactory. Sixty-four villages were reported for bad fires in which I issued necessary orders inflicting penal rate of fees on the villagers by whose negligence or carelessness fires were caused and remitting altogether or ordering the levy of ordinary fees in the case of those who helped to put them out. It is essential that rewards and punishments should be closely associated if forest fires are to be checked.
6. Grazing.-Grazing rules are capable of improvement on the lines of the Central Provinces rules as stated elsewhere, and the question is already engaging my attention and I am in correspondence with the Conservator on the subject. The lack of grazing in Kánara is accentuated by the fact that a very large proportion of the cattle is unfit for labour. Unfit cattle are grazed at 2 annas which is the rate that useful cattle pay. In the Central Provinces
the ryot is allowed a certain number of plough and domestio cattle at the usual rates; any in excess of that number pay Re. 1.
7. Financial.-Forest revenue increased from 20 lakbs to 23.5 lakhs or 17.5 per cent. This is due to the increased area in the coupes sold.
8. General.-I attended the Conference of forest officers on 11th and 12th September 1916 and another Conference on 22nd Ootober 1916. The Chief Secretary to Government and the Honourable Member in oharge of the Revenue Department. accompanied me in a brief tour over the forests of Kánara.

A rough estimate of the resources of the forest estate has been submitted to Government under this office No. 1546 of 11 th April 1917. The estimated increase in revenue (gross or nett) will be 300 per oent. It would be an advantage if a special officer could be deputed for a scientific investigation of the latent resources of the forest estate.

My report on sandalwood is pending the receipt of certain information which I called for in July 1916 and which I now learn is to be yet put up before me.

Proposals for the establishment of a Forest College in Dhárwár are under consideration of Government.

The Gunji-Shiroli road referred to by the Conservator is useful not only for the exploitation of forest produce but also for the inhabitants of several villages. I have granted Rs. 2,000 for the construction of this road out of my discretionary grant for works of public utility.

I consider considerable profit can be obtained if charooal is manufactured by drywood distillation instead of by the wasteful method of burning. This matter is under investigation, but it is difficult for the forest officers who have large charges to consider the commercial side of the forest estate, in addition to their duties of conservancy and exploitation of the forest coupes. A Forest Engineer is shortly to be appointed who will relieve the Divisional Forest Officers of the duty of constructing roads and buildings and other works which belong to the engineering side of forest work.

L. J. MOUNTFORD, Commissioner, S. D.

# REMARKS OF THE COMMISSIONER IN SIND ON THE FOREST ADMINISTRATION REPORT OF THE SIND CIRCLE FOR THE YEAR 1916-17. 

No. 3238 of 1917.

> Revenue Department. Office of the Commissioner in Sind. Government House, Karaichi, 5th November 191\%.

Submitted to Government.
2. The revenue of the year amounted to Rs. $5 \cdot 3$ lakhs against an average of Rs. $4 \cdot 1$ lakhs in the last five years; and the expenditure to Rs. $2 \cdot 1$ lukhs against an average of Rs. $2 \cdot 1$ lakhs. The surplus revenue as compared with the previous year rose from Rs. $1 \cdot 6$ lakhs to Rs. 3.2 lakhs.
3. Of the increase of a lakh and a half over the revenue of the year 1915-16, Rs. 50,000 is apparently due to the earlier recovery of outstanding instalments; for it is reported that the revenue outstanding was Rs. 24,900 only against Rs. 77,510 on the same date last year. This fact is not put forward in the causes given by the Deputy Conservator for the improvement of revenue.
4. The grazing revenue fell from Rs. 55,000 to Rs. 44,000 ; while minor produce rose from Rs. 31,000 to Rs. 43,000 ; the chief feature under the head of minor produce being the revival of the demand for lac, with an increase of revenue from Rs. 600 to Rs. 17,000.
5. The timber exploited rose by 76 per cent. from $2 \cdot 1$ lakhs of cubio feet to 3.7 lakhs; while the revenue thereof increased by 60 per cent. from Rs. 67,000 to Rs. $1,07,000$. No explanation of this decrease in the price of timber is offered in the report.
6. The fuel exploited increased from 160 lakhs of cubic feet to 188 lakhs, or 17 per cent. ; while the revenue increased from Rs. 2 lakhs to Rs. $3 \cdot 1$ lakhs, or 50 per cent.

There is reason to doubt whether these figures of outturn are accurate; and since they are most important to demonstrate the efficient working of the Department, every care should be taken to render them as accurate as possible.
7. The statement of disciplinary measures taken towards the establishment shows an improvement over last year, when the Commissioner had occasion to comment on the inadvisability of wholesale punishments by degradation or fine of superior officers. These punishments are still too numerous in the Sukkur division, where of officers classed as 'superior' 7 were degraded and 19 fined; but in other divisions it was found necessary to punish threpe men only by fine. The Deputy Conservator will no doubt take steps to see that the receñt unsatisfactory system does not continue to be followed in the Sukkur division.
8. Favourable rains and a higher inundation protected the forests equally from fres and illicit grazings, but the number of unauthorised fellings. rose slightly; this result being, in the opinion of the Depaty Conservator, a sign of more vigilant inspection. The number of cattle impounded fell from 18,000 to 15,000 .
9. An improvement in supervision and control is expected from the re-distribution of the Sukkur and Larkana divisions into three charges, which was sanctioned by Government with effect from the 1st of August 1917. Proposals for the improvement of the administrative staff are beforeGovernment.
10. The chief feature of the year was the very heavy demand of the Military Department for the supply of fuel to Mesopotamia, the export during the year baving amounted to 88 lakhs of cutic feet. The accumulated stocks of dry fuel were largely depleted, and in consequence the price rose very high. In Karáchi the situation was rendered more acute by the shortage of railway wagons for the conveyance of fuel, and prices, which ordinarily ruled at 10 annas per maund, for a time exceeded a rupee. So also in Hyderabad prices rose from 8 annas to 12 annas. The public were considerably inconvenienced by the shortage and high prices. Attempts have been made to bring more fuel into the market by throwing open additional coupes for exploitation, but the continuance of the heavy demand for Mesopotamia maintains the stringency of the market.
11. The Deputy Conservator suggests that the area of forests in Sind is insufficient. It amounts to $7,00,000$ acres as compared with an annually cultivated area of $43,00,000$ acres and a population of 35 lakhs. The Commissioner agrees that the reservation of additional forest area is desirable, but the difficulty is to find land available for irrigation. If the Deputy Conservator can secure the means of irrigation for waste lands, his proposals for reservation of forests will receive very careful consideration.
12. The need of steamers and barges for the conveyance of fuel suggested by the Deputy Conservator will be considered in consultation with the Inspector-General of Forests at the time of his approaching visit to Sind.

H. S. LAWRENCE, Commissioner in Sind.

## APPENDICES.

Form No. 7.-Area of Reserved Forest, 1916-1917.


Form No. 7.-Area of Reserved Forest, 1916-1917-connauueu.


Form No. 7.-Area of Reserved Forest, 1916-1917-coneluded.


Form No. 7-A.-Area of Protected Forest, 1916-191\%.


Form No. 7-B.-Area of Forest Proper, Reserved or Mixed Fuel and Fodder Reserves under the management of the Forest Department for 1916-1917.


Fory No. 7-C.-Area of Fodder Reserves and Pasture Lands under the management of the
Fievenue Department for 1916-1917.


ABSTRACT OF FORMS Nos. 7, 7-A, 7-B and 7-C.


Abstract of Forms Nos. 7; 7-A,

| Division. | In charge of the Forest Department. |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Reserred Forest. |  |  | Protected Forest. |  |
|  | Forest proper. | Pasture reserves. | Fuel and Fodder reserves | Forest proper. | Pasture reserves, |
| NORTHERN CIRCLE. | Sq.m. a. | Sq.m. a. | Sq.m. a. | Sq.m. a. | Sq.m. a. |
| Panch Maháls - ... | $\begin{array}{ll}331 & 312 \\ 399 & 134\end{array}$ | ... | $\cdots$ | $325^{\cdots \cdots} 13$ | ....... |
| Surat - .... | 399 <br> 323 <br> 156 | ....... | $2^{\bullet \bullet} 50$ | ${ }^{325} . .1{ }^{18}$ | ....... |
| $\begin{array}{ll}\text { Nortly Thana } \\ \text { West Tháa } & \text {... } \\ \end{array}$ | $\begin{array}{rrr}309 & 156 \\ 309\end{array}$ | ........ |  | $12 \times 512$ | ........ |
| East Thána - ... | 4.59497 | ...... | - $\cdot$ | ... | ..... |
| South Násik . ... | $339 \quad 270$ | ...... | $0 \quad 630$ | $\cdots$ | ..... |
| North Násik . ... | 473. 54 | ...... | $\cdots$ | . ... | ...... |
| Násil Sub-Division . ${ }^{\text {a }}$ | 25813 | ...... | ... | ... | ... |
| Ahmedabad $\quad$... | ...... | ...... | ... | ... | ...... |
| Total | 2,914,188 | ...... | 3.40 | $337 \quad 525$ | $\ldots$ |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| West Khándesh . ... | $465 \quad 144$ | ...... | $131 \quad 27$ | ... | ...... |
| North Khándesh -... | $869 \quad 36$ | ...... | ... |  | ...... |
| Poona | $\begin{array}{lll}554 & 105 \\ 515 & 23.2\end{array}$ | ...... |  | 11.99 | ...... |
| Sátára | $\begin{array}{rr}515 & 232 \\ 417 & 78\end{array}$ | ...... | 3 ${ }^{-3} 44$ | 118 | ...... |
| Kolába | 417.78 | ... | $3 \cdot 449$ | ... | . $\cdot$... |
| Ahmednagar and Sholapur ... | ...... | . $\cdot$... | ... | ... | ...... |
| Total ... | 3,584 264 | ...... | $334 \quad 476$ | . $12 \quad 117$ | -..... |
| SOUTHERN CIRCLE. |  |  |  |  |  |
| Kanara, Northern ... | 424186 | $1 \quad 576$ | $0 \quad 23$ | ... | 0 58 |
| Kánara, Eastern ... | 478431 | 106603 | ... | ... | 2429 |
| Kánara, Central ... | 682491 | 99601 | - ... | 50564 |  |
| Kánara, Southern ... | 385.490 | 256290 | ... | 65435 |  |
| Kanara, Western - .. | $753 \cdot 215$ | 61195 | ... |  | 14.68 |
| Pelgaum ... ... | 62986 | 70 |  | $0 \quad 12$ |  |
| Dhárwár-Bijápur ... | 2 L 5452 | 12326 | 11614 | $\cdots$ | ...... |
| Ratnágiri | $13 \quad 534$ | ..... | 50 | :. | ....... |
| Total ... | 3,631325 | $546 \quad 31$ | $16 \quad 637$ | $116 \quad 371$ | $16 \quad 555$ |
| SIND CITRCLE. |  |  |  |  |  |
| Sukkur . ... | 458313 | .... | - | 0 586 |  |
| Lárkána ... | 23198 | .... | ... |  | ....... |
| Hyderabad | $257 \quad 555$ | ...... | ... | :... | ...... |
| Jerruck | 225518 | ...... | ... |  | ....... |
| Total ... | 1,173 204 | "...... | ." | 0. 585 | ...... |
| Grand Total ... | 11,303 341 | 54631 | $154 \quad 513$ | $467 \quad 318$ | 16.555 |

7-B and 7-C for 1916-17.

| In charge of the Revenue Department. |  |  |  | Total Forest | Remarks. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Reserved Forest. |  |  | Protected Forest. |  |  |
| Forest proper. | Pasture reserves. | Fuel and Foddér reserves. | Pasture reserves. |  |  |
| Sq.m. a. | Sq.m. ${ }^{\text {a }}$. | Sq,m. a. | Sq.m. a. | Sq.m. a. |  |
| ... | $\cdots 3$ |  | $\ldots$ | $\begin{array}{ll}331 & 312 \\ 736 & 559\end{array}$ |  |
| - | 353 | $9 \quad 359$ | 14.0 | 736559 |  |
| ... | ..... | ... | 145105 | 470311 |  |
| $\dddot{0}$ | ..... | ... | 9313 | 414.557 |  |
| 0273 | ...... | - $\cdot \cdots$ | 141546 | 60236 |  |
| ... | - 42212 | 1289 | $95 \quad 384$ | 441505 |  |
| ... | 24.431 | ... | ... | 518.485 |  |
| ... | $38 \quad 129$ | $\cdots$ | *- | $296 \quad 142$ |  |
| ..- | ...... | $18 \quad 512$ | ... | $18 \quad 512$ |  |
| 0273 | $70 \quad 185$ | $29 \quad 520$ | 475403 | $3,831 \quad 219$ |  |
| ... | $36 \quad 215$ |  | ... | 799 524 |  |
| ... | 176627 | - ... | ... | 773158 |  |
| ... | ...... | - . $\cdot$. | ... | $869 \quad 36$ |  |
| ... | 456122 | ¢... | ... | 1,1921 326 |  |
| ... | $\begin{array}{rr}189 & 385 \\ 29 . & 10\end{array}$ | $5 \quad 295$ ... | $73^{\dddot{3}} 521$ | $\begin{array}{ll}711 & 290 \\ 523 & 424\end{array}$ |  |
| ... |  |  |  |  |  |
| ... | 701 401 | -... | - | 701401 |  |
| $\cdots$ | 1,589 486 | $5 \quad 295$ | $73 \quad 521$ | 5,400 239 |  |
| ... |  | ... | ... | 426203 |  |
| ... | 3409 | ... | ... | 589592 |  |
| ... | ...... | ... | ... | 833376 |  |
| ... | .... | ... | ... | 707 575 |  |
| $\cdots 0$ | …… 549 | $2 \because 0$ | $\ldots$ | $\begin{array}{rr}828 & 478 \\ 682 & 7 .\end{array}$ |  |
| 1..: | 205422 |  | .... | $495 \quad 5.54$ |  |
| ... | ... | ... | - | $18 \quad 534$ |  |
| 10 | $252 \quad 120$ | 20 | $\cdots$ | 4,583 1119 |  |
|  |  |  | ..' | 459258 |  |
| $\ldots$ | ....... | ... | ... | $231 \quad 98$ |  |
| ... |  | ... | ... | 257 <br> 2555 |  |
| $0 \quad 24$ | .... | ... | $\cdots$ |  |  |
| $0 \quad 24$ | ...... | ... |  | 1,174 173 |  |
| 1297 | 1,912 151 | $37 \quad 175$ | $550 \quad 289$ | 14,989. 110 |  |

Form No. 8.-Progress made in Forest


Setllements during the year 1916-191\%.

| Cost duning tie yrar, |  | Entire cost <br> per square mile of areas Enally settled. | Government Notipication of settlibment. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| In Forest Accounts. | In other Accounts. |  | No. | Date. |  |
| 7 | 8 | 9 | 10 | 11 | 12 |
| R3. ${ }_{\text {。 }}$ | Rs. | Rs. |  |  |  |
| .....0 | *..." | "** | ...... | -0100 |  |
| .....• | ...... | .....0 | ...... | .....0 |  |
| $\cdots$ | ..... | ...... | 4878 | 9 May 1916. |  |
| $\cdots$ | ...... | *...0* | ....0. | **.* |  |
| $\ldots$ | $\cdots$ | $\cdots$ | ...ose | ...... |  |
| ... .. | * ...... | -** | 7949 1467 | 17 August 1916. <br> 6 February 1917. |  |
| ......' | ...." | $\cdots$ | . 20804 | 10 November 1916. |  |
| ..... | .....'' | .....* | *en* | *0000 |  |
| $\ldots$ | -...er | ...... | *-1.0. | **** |  |
| .....* | ...... | ...is | *.... | ...." |  |
| ...... | $\ldots$ | .....* | ...... | ...... ${ }^{\text {- }}$ |  |
| ..... | $\cdots$ | $\cdots$ | ..... | - $0 \cdot \times$ |  |
| ..... | ..... | .....0 | $\cdots$ | *0.ce |  |
| ...... | .a.... | ..... | **... | ...... |  |
| ....4. | ...... | ... $\cdot$ | - ${ }^{-0}$ | $\cdots$ |  |
| ..... | ..... | ...... | .an*. | ...... |  |
| ..... | ..... | $\ldots$ | .. ${ }^{\text {.. }}$ | ...... |  |
| 1....... | ..... | ....0* | ... .. |  |  |

Form No. 8-Progress madle in Fortst


Selthements during the year 1916-1917-continued.


Form No. 8-Progress made in Forest Seftlements

during the gear 1916-1917-continued.


D $10-25$

Fodm No. 8.--Progress made in Forest


Settiements'during the year 1916-1917—conclud 2 d.


Form No. 9 -Recorld of Demarcation and MFaintenance of Boundaries, 1916-191\%.


Form Nor 0.—Record of Demarcation and Maintenance of Boundaries, 1916-1917—conoluded.


Form No. 10.-Statement of Forest Areas Surveyed and

under Survey during the year 1916-191\%.


Repreaents cost of arrear mapping and cannot convevic.tly be distributed amonst the sereral Divisions, inoluding South and Nerth Nisik.

Fовм No. 11:-Progress made in Working Plans, 1916-191\%.


Form No. 11-Progress malle in Working Plans, 1)16-1017-concluded.

| Division. | abba undeb eanctioned Workina $\mathrm{P}_{\mathrm{fan}} \mathrm{at}$. |  |  |  |  | Area not under Woreing Plang. |  |  |  | $\checkmark$ |  |  |  | Remarks. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $\stackrel{5}{\ddagger}$ <br> 宏 <br> 苞 | $\begin{aligned} & \Delta t \text { close of } \\ & \text { ycar. } \end{aligned}$ |  |  | Plans not under preparation. |  |  |  |  |  |  |  |
|  |  |  |  |  | 5¢ |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 2 | . 3 | 4 | 5 | ${ }^{6}$ | . 7 | 8 | $\theta$ | 10 | 11 | 12 | 13 | 14 | ${ }^{15}$ |
| Central Circle | Sq. m. | eq.m | sq.m. | Sq. m. | Sq m. | Sq. m. | Sq. m | Sq. m. | Eq.m. | Eq m. | Eq. m. | Sq. m. | Rs. |  |
| Fast Khindesh .. | 749 | $\cdots$ | $\cdots$ | 740 | 88.2 | *' | $\cdots$ | 15 | $7 \mathrm{C4}$ | $\cdots$ | * 420 | ... | *.... | *Chopda, Raver and Yamal forests, |
| West Khandesh . ... | 180 | ... | ... | 180 | 33.3 | ... | 1514 | 265 | 690 | 60 | $\cdots$ | "• | .1.'* |  |
| N(rth Khóndeşh ... | 564 | $\cdots$ | $\cdots$ | 664 | ${ }^{61} \cdot 0$ | $325 \pm$ | $\ldots$ | ... | 8687 | -. | - 504 | ... | ..... | $\dagger$ Dermogra Resorves. <br> Akrani $\qquad$ |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | Shirpur (newly afforested arca) |
| Koista | 418 | ..' | ... | 416 | 98.8 | .." | $\cdots$ | 5 | 421 | .. | .. | $\ldots$ | .....: | Shirpor, Shalada and Taloda. |
| Poona . . | 328 | ..- | $8 \S$ | 320 | 66.6 |  | $\cdots$ | 173 | 605 | .. | - 1 | ... | ..... | §R anded over to Revenue Dc. partment. |
| Gátára . ... | 64 | ... | ... | 64 | $12 \cdot 3$ | 97 | $\cdots$ | ¢56 | 516 | ... | $\cdots$. | .. | ...." |  |
| ${ }^{\text {'Sotal, Certral Cirele. }}$ | 2,301 | ... | 8 | 2,263 | 61.5 | 17.4. | 151 | 813 | 3.7314 | 60 | 1,284 | $\cdots$ | ..." | This is exclusivo of the aren in charge of the. Hevenus |
| SOCTHERN CIRELE. |  |  |  |  |  |  |  |  |  |  |  |  |  | . |
| Kapara, Northera .. | 350 | $\because$ |  |  | 822 | 42 |  | 34 | 428 | 107 | 107 | (a) 81 | 3,881 | (a) The Bhagwati Plan special a)lowance of Re. 386-10-9 wns paid to the Working Plate Oflicer. |
| Kanara, Eastern ... | 331 | ... | (0)51 | 277 | 47.0 | 78 | .' | 235 | 500 | 157 | 157 | $\text { (b) } 80$ | ....." | (b) The Kirmattl Pian special allowance of Rs, 100 was paid to the Workiug Plana Oticor. |
| Kálara, Cortral -... | 224 | ${ }_{\text {(c) }} 51$ | .. | 278 | 33•3 | 1 | 104 | 450 | 833 | .. | 26 | ... | .".". | (e) Area transforred from Kanara, Enstern Dlvisiou, to Kanara, Central Division. |
| Kotara, Soothera. .. | 7 | .. | $\cdots$ | 71 | 10.0 | ${ }^{67}$ | ... | -540 | 708 | .." | ... | . | : ...... |  |
| Kárara, Westera . ... | 263 | $\cdots$ | ... | 258 | 31.1 | $\cdots$ | $\cdots$ | 571 | $8: 8$ | ... | $\cdots$ | $\cdots$ | ..... | - |
| Be!gaum .. | 182 | (d) 149 | ** | 331 | 48.5 | 3 C 5 | ". | 40 | e82 | 168 | 188 | "• | 23 | (d) The Gnkak Range Fuul Re. 500 was granted to the gaam, for compiling this Plan- |
| Dhärwar - Bijapur | ... | ..- | ... | .." | $\cdots$ | 253 | 59 | 204 | 498 | $\therefore$ | $\cdots$ | $\cdots$ | 4,920 |  |
| Ratuigiri $\quad .$. | "* | $\cdots$ | ... | ... | $\cdots$ | $\cdots$ | $\cdots$ | 19 | 19 | ... | ... | ... | .... |  |
| Total, Sonthern Circle. | i 1,416 | 149 | ... | 1,565 | 31.1 | 756 | 103. | 2,608 | 4,589 | 433 | 458 | 01 | 8,124 | . |
| D CIBCL | Sq. ${ }_{\text {m. ac. }}^{\text {m. }}$ |  | $\begin{aligned} & \mathrm{sq.} \\ & \mathrm{~m} . \\ & \mathrm{m} . \\ & \text { ac. } \end{aligned}$ | $\begin{aligned} & \text { sq. } \\ & \text { ni. ac. } \end{aligned}$ |  |  | Sq. ${ }_{\text {s. }}^{\text {ma }}$. | $\begin{aligned} & \mathrm{sq} . \\ & \mathrm{m} ; \mathrm{ac} . \end{aligned}$ | 8q. m, ac. | Sq. m. ac. | $\begin{aligned} & \text { sq. } \\ & \text { mo. } \end{aligned}$ | Sq. in. ac. |  |  |
| Sukkur | 419547 | .. | $\cdots$ | 419517 | 91-59 | :13277 | ... | 2674 | 558258 | 450258 | $\cdots$ | , "' | ".4.00 |  |
| Larliárs ... | 203176 | . $\cdot$. | ... | 202176 | 87.0 | $\cdots$ | 444 | 24518 | 23188 | ..' | 222400 | *' | 6,801 |  |
| Hyderabad ... | 325142 | $\cdots$ | .' | 225142 | 87.34 | ... | 8283 | 24150 | 257555 | $\cdots$ | $\cdots$ | *' | .0. | . |
| Jorruek . ... | 225281 | $\cdots$ | ... | 225281 | 02.8 | $\cdots$ | $\cdots$ | 0261 | 225542 | .. | $\cdots$ | $\cdots$ | ...'. |  |
| Total, Sind Circio ... | 1,072 506 | ... | ... | 1,072 606 | 01.4 | 19.277 | 12307 | 76.363 | 1,174 178 | 450263 | 228400 | ... | 0,801 |  |
| Grand Total.. | 7,585 608 | 143. | 8 | 7,706 506 | $60 \cdot 5$ | 1,24s'277 | $307307$ | $3,1859831$ | $12,743178$ | $2,208258$ | $9,089400$ | 91 | 14,025 |  |


$\left.\begin{array}{c}\text { Belgaum, } \\ \text { 29th September 1917. }\end{array}\right\}$

T. R. D. BELI,

Conservator of Fores!s, S. C.

Form No. 12.-Statement showing communications

and buildings during the year 1916-191\%.

p 15-28

breaches of Forest Rules during the year 1916-17. .


Fory No. 14.-Area of Forest Tracts protected from fire during 1016-191\%.


Form No. 14.-Area of Forest Tracts protected from fire during 1916-1917-continued.


Fory No. 14.-Area of Forest Tracts protected from fire during 1916-1917-continued.


Form No. 14. \& Area of Forest Tracts protected from fire during 1910-1917-concluded.



## Forest Fires during 1916-17.



Form No. 16.—Area closed and open to grazing during 1916-191\%.


## FORM No. 17.

- 


in the State Forests during 1916:1917.


D $15-31$

Form No. 18.-Statement showing Area of Plantations in the Bombay Presidency, including Sind, for the year 1916-1917.


FORM No. 19.

Fonm No. 19.-.Outturvi (in cubic feet, solid) of Timber and Fuel


Uuring the year 1916-1:17, and Agency of Exploitation.


Form No. 19:-Oxtturn (of cubio feet, solid) of Timber and Fuel

during the year 1916-1917, and Agency of Exploitation-continued.

: Form No. 19.-Outturn (in cubic feet, solid) of Timber and Fuel


## APPENDICES.

during the year 1916-1917 and Agency of Exploitation-continued.


(a) This includes 3 thousand cobit feet of laat year tranaferrea from Dhárwar-Bijápur to Kanara N, and E. Divisions during the year.
during the year 1916-1917 and Agency of Exploitation-continued.


[^0]Foma No. 19.-Outlum (in cubic feet, solid) of Timbèr ant Fuel:

diining the year 1916-1917 ahd Agency of Exploitation-concluded.


dining the gear 1916－1917 and Agency of Exploitation－concluded．

| Total Timber－continued． |  | Fobl． |  |  |  |  | Toisi． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 宫 | 莬 |  |  | 产 |  | 第 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| 4en 0 | c．ft． | C．ft． | o．ft． | C．ft． | C．ft． | c．ft． | C．ft． |
|  | 1 | 35 |  | ．．． | ．．． | 3，847 | 3，848 |
|  | 84 | 1，247 |  | ．．． | ．－＇ | 1，252 | 1，336 |
| $\cdots$ | 85 | 40 | 5，059 | $\cdots$ | ．．． | －5，099 | 5，184 |
| ．．．．． | 1 | 33 | $\begin{array}{r} 1,8 \subset 8 \\ 272 \end{array}$ | ．．． | ．${ }^{+} 19$ | $\begin{array}{r} 1,841 \\ 292 \end{array}$ | $\begin{array}{r} 1,842 \\ 383 \end{array}$ |
| ．．．．．． | 91 |  |  | ．．＂ |  |  |  |
| ．．．．．． | 92 | 34 | 2，080 | ．．． | $\bullet 19$ | 2，133 | 2，225 |
| ．．．．．． | 1 | 41 | 3，593 | ．．． | ．．＇ | 3，434 | 3，435 |
| ．．．．．．． | ． 139 | 3 | 3，398 | ．＂• | ．．． | 3，401 | 3，510 |
| ．．．．． | 140 | 44 | 6，791 | ．．． | ．．． | 6，835 | 6；975 |
| $\cdots$ | 9 | 163 | 2，309 | $\cdots$ | ．．． | 2，472 | 2，481 |
|  | 42 | 8 | 2，251 | ．．． | ．．0 | 2，259 | 2，301 |
| $\bigcirc \cdot$ ．．．．． | 51. | 171 | 4，560 | －．＂ | ．．． | 4；731 | 4，782 |
| ．．．．＂ | 368 | 289 | 18，490 | ＊＊ | 19 | 18，798 | 10，166 |
| 76 | $6,104$ | 4，815 | 32，768 | 30 | 9，184 | 46，797 | 52，901 Kh．mds．lbs． 1181 13 Rejected pieces 2，342 1，530 trees Chips bags 108 |
|  |  |  |  |  |  |  |  |
| － |  |  |  |  |  |  |  |

Form No. 20.—Outturn of Minor Forest Produce during the year 1916-191\%.


(b) Estimated value of 7 kpandis $8 \frac{1}{2}$ maunds harda depaiṭmentally collected in K\&nara, $\mathbf{E}, \mathbf{D}$

Form No. 20.-Outturn of Mino Forest Produce during the year 1916-1917-continued.


[^1]Form No. 20.-Outturn of Minor. Forest Produce during the yeur 1916-1917—concluded.


Form No. 21.-Account of Timber and other Produce cut or collected by Govornment Agency and brought to Depôts, sold locally, or otherwise disposed of during the year 1916-1917.

 tho6e Divisions.

Form No. 21.-Account of Timber and ether Produce cut or collected by Government Agency and brought to Depôts, sold locally, or otherwise disposed of during the year 1916-1917-concluded.

(b) Inoludes Rs. 206, value of grass written orr.
(c) Rs. 22 stands ino:nded in Ry. 6,719.

Form No. 22.-Abstract showing the value of Timber and other Produce at Sale Depôts for the year 1916-1917.


Form No. 22.-Abstract showing the value of Timber and other Produce at Sale Depôto
for the year 1916-1917—concluded,


Form No. 23.-Abstract showing the value of Live and Dead Stock for the year 1916-17.


Fom No. 23.-Abst:ract showing the value of the Live and Dead Stock for the year 1916-17-concluded.


FORM No. 24.

Form No. 24.-Summary of Revenue and Expenditure of the



Forar No. 24.-Summary of Revente and Expenditare of the

different Divisions for the forest year 1916-1917-contd.


FORM No. 24.-Summary of Revenue and Expenditure of the

different Divisions for the forest year 1916-1917-contd.


Form No. 24.-Summary of Revenue and Expenditure of the

different Divisions for the forest year 1916-1917-continued.


Form No. 24.-Summary of Revenue and Expenditure of the

different Divisions for the forest year 1916-1917—contd.


Fors No. 24.-Summary of Revenue and Expenditure of the

different Divisions for the forest year 1916-1017-contd.


Foru No. 24.-Summary of Revenue and Expenditure of the difforent divisions for the forest year 1916-1917-contd.


Fonm No. 24.-summary of Revenue and Expenditare of the different divisions for the forest year 1916-1917 - concld.


Form No. 25.-Anriucl Account Current for the forest year 1916-1917.


Fons No. 25.-Annual Account Current for the forest year 1316-1317-continued.


[^2]Fonm No. 25.-Annual decount Current for the forest. year: 1916-1917-continued.'


Form No. 25.-Annual Account Current for the forest year 1316-1917-concluded.


Form No. 26.-Revenue reseived and outstandings on account of revenue during 1916-1917.


## APPENDICES.

Foin No: 27.—Outstandings and Liatilities on account of Contractors and Disbursers for the forest year 1916-1.1


овм No. 27.—Outstandings and Lictilitics on account of Contractors and Disbursers for the forest year 1910-1917—concld.


[^3]
[^0]:    *'This is exclusive of $\mathbf{3 0 0}$ thoasand c . ft. of Timber and 3,042 thousand c . ft . of Fuel shown andor privilege holder in Cbapter II, Section $V(c)$-Oatturn and sources of forest produce.
    (7) 15—33

[^1]:    "This is exclusive of Rs. 46,482 on account of Ssndalwood shown ander Government Agency and Rs. 15,000, Rs, 1,80,000 and Rav 3,00,387 on account of Bamboos, Mino soarces of forest prodace.

    D 15-34

[^2]:    D $15-40$

[^3]:    BOMBAY : YRUATAD AT THE GOVLUNGENT CENARAL PLLESG,

