

Report on the working of Agricultural Banks.

No. 5320-31—E. C. 50-18-3, DATED 13TH DECEMBER 1918.

**PROCEEDINGS OF THE GOVERNMENT OF HIS HIGHNESS
THE MAHARAJA OF MYSORE.**

GENERAL AND REVENUE DEPARTMENTS.

READ—

Report on the working of the Agricultural Banks in the State during the year 1917-18, received with letter No. 3443, dated 6th November 1918, from the Officiating Registrar of Co-operative Societies and Inspector of Agricultural Banks.

Order No. 5320-31—E. C. 50-18-3, dated 13th December 1918.

Recorded.

2. The report which was due with Government on the 1st October was received only on the 7th November 1918. The delay should have been avoided.
3. The two working banks at Palahalli and Hongenhalli paid up in full their dues to Government during the year and carried on transactions on a small scale with their accumulated surplus.
4. During the year the two banks at Churchugundi and Mallapura were wound up and their surpluses were utilised for objects of local public utility with the approval of Government.
5. The work of collection of the arrears due to Government by the defunct banks continues to be unsatisfactory. The arrears are still heavy in the Bangalore and Mysore Districts. The Registrar of Co-operative Societies is requested to arrange through the Revenue Commissioner for the issue of instructions to the local Revenue Officers to take more prompt and effective steps to ensure that the arrears are finally adjusted during the course of the current year.
6. A scheme for establishing a land bank in the State has been received from the Agricultural Committee and the details are being examined. The Registrar's proposals on the subject of the revival of Agricultural Banks, which he thinks may serve as a useful means of organising agricultural finance under certain conditions, will be awaited.

P. G. D'SOUZA,

Secy. to Govt., Depts. of Edn. & Agriculture.

To—The Registrar of Co-operative Societies in Mysore and Inspector of Agricultural Banks.

The Registrar of Joint Stock Companies in Mysore.

The Revenue Commissioner in Mysore.

The Deputy Commissioners of Districts.

The Comptroller to the Government of Mysore.

PRESS TABLE.

Exd.—C.R.

OFFICE OF THE REGISTRAR OF
CO-OPERATIVE SOCIETIES IN MYSORE,
Dated Bangalore, 5th November 1918.

FROM

R. RANGA RAO, Esq., B.A., B.L.,
*Offg. Registrar of Co-operative Societies in Mysore,
and Inspector of Agricultural Banks.*

TO

P. G. D'SOUZA, Esq., B.A., B.L.,
*Secretary to the Government of His Highness
the Maharaja of Mysore,
Departments of Education and Agriculture, Bangalore.*

SIR,

I have the honor to submit the Report on the working of the Agricultural Banks in the State for the year ending 30th June 1918.

2. The office of the Inspector of Agricultural Banks was held by Mr. M. A. Narayan Ayyangar from 1st to 3rd July, by me from the 3rd July to the 9th July, by Mr. K. Chandy from the 9th July to the 22nd December 1917 and by me again during the rest of the year under report.

3. The Report is, as usual, based upon data supplied to me by the Agents of the working Banks and by the District Treasury Officers of the several districts.

4. The five statements which I send herewith show the volume of business done by the working institutions and the total recoveries effected from all Agricultural Banks in the State during the year.

5. *Working Banks.*—There were only two Banks working during the year, viz., those at Palahalli and Hongenahalli. They have paid up their dues to Government in full and transacted business with their accumulated surplus amounting to Rs. 6,020-2-8, and Rs. 3,910-13-6 respectively.

6. *Receipts and Disbursements.*—Statement No. 3 shows the volume of business done by the two Banks during the year under report. The figures show a decided fall in the transactions as compared with those of last year. The total receipts and disbursements amounted to Rs. 4,290-5-6 and Rs. 3,831-13-3 as against Rs. 7,486-11-10 and Rs. 7,319-8-7, respectively. The closing balance of the Banks was Rs. 458-8-3.

7. *Loans to Members.*—A small sum of Rs. 2,654 was issued as loans during the year; but most of them were really renewals.

8. *Assets and Liabilities.*—Statement No. 4 shows the financial position of the Banks as it stood on the 30th June 1918. The excess of assets over liabilities or the surplus amounts at the credit of the institutions amounted to Rs. 9,931-0-2.

9. *Repayment of Instalments.*—The table given hereunder shows the total amounts of loans that were due by the defunct Banks, the total repayments made by them during the year and the balance of instalments remaining unadjusted.—

| Instalments up to the end of | Amounts due | Repayments | Balance |
|---------------------------------|------------------|------------------|------------------|
| 1916-17 | Rs. 7,52,104-0-0 | Rs. 7,12,633-3-2 | Rs. 39,470-12-10 |
| 1917-18 | Rs. 7,52,104-0-0 | Rs. 7,16,785-2-6 | Rs. 35,318-13-6 |

10. The amount of principal and interest paid into the treasuries by the wound-up Banks are noted hereunder.—

| | Principal | Interest |
|---------|----------------|----------------|
| 1916-17 | Rs. 6,398-11-0 | Rs. 1,016-0-11 |
| 1917-18 | Rs. 4,345-15-4 | Rs. 362-12-7 |

11. From the above, it will be seen that the collection work was, as in previous years, unsatisfactory. A brief review of the work done in each District in this behalf is given below :—

In the Bangalore District the sum due towards principal and interest from the Clospet Bank was completely recovered during the year. The Banks at Ardesahalli in the Devanhalli Taluk have not paid anything either towards principal or interest. The balances outstanding against these Banks are Rs. 6,902-0-0 and 6,433-4-3, respectively and it is a matter for regret that the local Revenue Authorities have shown little interest in the collection of the amounts due from these Banks.

In the Kolar District, the balance due from the Bank at Muduvatti was reported to have been adjusted in full. The Bank at Sabbenahalli paid nothing during the year and it is hoped that stringent steps will be taken to close its accounts finally during the current year.

Small sums amounting to Rs. 958-7-0 were recovered from the defaulting Banks in the Mysore District. The collection work was poor, especially in the cases of the Banks at Chamrajnagar and Sathanur and early coercive measures should be taken against the defaulting members.

All the Banks in the Tumkur District except Rampur have completely discharged their obligations to Government. A small sum of Rs. 1-0-7 is yet due from the Bank at Ramapur and it is hoped that this amount will be recovered in the current year.

All the Banks in the Shimoga and Chitaldrug Districts have paid their debts in full.

As regards the Kadur District, the Bank at Aradikuppe paid Rs. 1,422 towards principal and Rs. 130-0-11 towards interest. It was reported in the Report for 1916-17 that the Sakrepatna Bank paid its dues to Government in full. But it is now learnt from the Comptroller's accounts that a small sum of Rs. 191 was still outstanding against it towards principal. This Bank paid Rs. 54 towards the amount due and the remaining amount will, it is hoped, be recovered during the current year.

12. It will be seen that, out of 59 Banks, 49 have paid the Government loan in full. Coercive steps have to be adopted with regard to the rest and their accounts with the Government closed. The names of the Banks which have paid up their dues in full are noted hereunder :—

| | | | |
|-----------------------------|------------------|--------------------------|------------------|
| <i>Bangalore District.</i> | | <i>Mysore District.</i> | |
| 1 | Talagavara | 1 | Palhalli |
| 2 | Hulikunte | 2 | Kyathanahalli |
| 3 | Tyamagondlu | 3 | Seringapatam |
| 4 | Sulikunte | 4 | Kaggala |
| 5 | Billankote | 5 | Nanjangud |
| 6 | Bidarguppe | 6 | Sargur |
| 7 | Attibele | <i>Shimoga District.</i> | |
| 8 | Tavarekere | 1 | Vattagondankoppa |
| 9 | Clospet | 2 | Nallur |
| <i>Kolar District.</i> | | 3 | Somalapura |
| 1 | Hongenahalli | 4 | Santebennur |
| 2 | Thippenahalli | 5 | Joga |
| 3 | Mudavatti | 6 | Nyamti |
| <i>Tumkur District.</i> | | 7 | Issur |
| 1 | Manchakalkuppe | 8 | Churohugundi |
| 2 | Kyatasandra | 9 | Gogga |
| 3 | Gulur | 10 | Hitla |
| 4 | Ariyur | 11 | Thadagani |
| 5 | Kadagathur | 12 | Kolagunsi |
| 6 | Chiknayakanhalli | 13 | Arehada |
| 7 | Haldodderi | 14 | Genisinkuni |
| 8 | Turuvekere | 15 | Honnali |
| 9 | Mavinkere | 16 | Siralkoppa |
| 10 | Nonavinkere | 17 | Suloor |
| | | 18 | Haromuchadi |
| <i>Chitaldrug District.</i> | | | |
| | | 1 | Mallapura |
| | | 2 | Talya |
| | | 3 | Malebennur |

13. As mentioned in the reports of previous years there are some surplus amounts available for being utilized for purposes of general public utility. During the year under report, two Banks namely Churchugundi and Mallapura held

general meetings and passed resolutions for their formal winding up and for utilization of their surpluses for purposes of local public utility which have been approved by Government.

14. A suggestion that was first made by Mr. M. A. Narayan Ayangar when he held the post of Registrar and subsequently by Mr. K. Chandy that as there was nothing for the Inspector of Agricultural Banks to do, the office may be abolished did not meet with the approval of the Government. In their Order No. 8920-70 A. and I. 53-15-12, dated 8th March 1918 the Government have decided to continue the appointment and have defined the Inspector's functions as follows:—

(1) Supervision of the collection of arrears from Banks that are indebted to Government.

(2) Winding up of Banks which have stopped work and cannot be revived with any further advantage.

(3) Preparation of a scheme defining the respective functions of Agricultural Banks, Co-operative Societies and Land Banks, and

(4) Co-operating with the Central Committees of the Economic Conference in developing Land Banks.

15. As regards the first, the collection of arrears due to Government from Agricultural Banks is left to the Revenue authorities and beyond reminding them of their duties in this respect and submitting to Government quarterly statements of recoveries based on figures supplied by Deputy Commissioners of Districts the Inspector can do nothing. Such figures are being obtained and the required statement submitted to Government.

16. As regards the winding up of Agricultural Banks which have stopped work and which cannot be revived without any great advantage, the powers of the Inspector are again strictly limited. As the rules stand at present, the winding up of a bank has to be decided upon by the members of the Bank at a general meeting assembled and the Inspector can merely remind them of the duty. If, however, they are indifferent and do not act upon his suggestion, he cannot enforce his views. To avoid this trouble Mr. M. A. Narayan Ayangar made certain proposals to Government which, however, were not approved by Government. (*Vide* Government Proceedings No. 4740 A. and I. 52-14-2, dated 8th May 1915.) I would once again suggest to Government the desirability of accepting those proposals.

17. As regards the revival of Agricultural Banks, I think the tendency has rather been to take it for granted that an Agricultural Bank serves no useful purpose, and that its revival is therefore waste of time. Whenever the Inspector had to choose between reviving an Agricultural Bank or starting a Co-operative Society, the latter course has always been adopted. This tendency was perhaps the result of Government Order No. Fl. 2999-3011 B. 17-08-7, dated 6th December 1910 which was apparently understood as recommending such a procedure. Forty Co-operative Societies were started in places where Agricultural Banks had been in existence. I am bound to say that they worked far better than the institutions which they superseded. They had 4,205 members and transacted business to the extent of Rs. 7,21,344. I think, however, that some at least of the Agricultural Banks may be usefully revived and that its uselessness as a means of organizing agricultural finance should not be taken for granted. The matter will be further investigated during the current year.

18. The remarks made above apply also to the third function of the Inspector of Agricultural Banks, *viz.*, the preparation of a scheme defining the respective functions of Agricultural Banks, Co-operative Societies and Land Banks.

19. As regards co-operating with the Central Committees of the Economic Conference in working up a scheme of Land Banks, the Registrar was a member of the Sub-Committee which sat to consider the question and which submitted definite proposals to the Conference recommending the formation of Land Banks. The question is now under the consideration of Government.

I have the honor to be,
 Sir,
 Your most obedient Servant,
 R. RANGA RAO,
 Offg. Registrar and Inspector
 of Agricultural Banks.

STATEMENT No. I.

Showing the number of members in the working of Agricultural Banks for the year 1917-18, classified according to caste or creed, etc.

| Serial No. | District | Taluk | Name of the Agricultural Bank and of the village in which it is situated | Number of members at formation | Number at the end of last year | Number admitted during the year | Total columns 6 and 7 | Number withdrawn during the year 1917-18 | Membership at the end of 1917-18 | Brahmins | Vaisyas | Vakkaligars | Lingayets | Tailors | Naidus | Thigalars | Mohamadans | Kurubars | Kumbars | Washermen | Goldsmiths | Kshatrias | Dasabanaigas | Devangas | Oil-mongers | Jains | Jettis |
|-----------------|------------|--------------|--|--------------------------------|--------------------------------|---------------------------------|-----------------------|--|----------------------------------|----------|---------|-------------|-----------|---------|--------|-----------|------------|----------|---------|-----------|------------|-----------|--------------|----------|-------------|-------|--------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Kolar ... | Malur ... | The Hongenahalli Agricultural Bank, Hongenahalli | 27 | 58 | .. | 58 | 2 | 56 | 30 | .. | 19 | 1 | .. | .. | .. | 3 | .. | .. | .. | 2 | .. | .. | .. | .. | .. | 1 |
| | | | Total ... | 27 | 58 | ... | 58 | 2 | 56 | 30 | .. | 19 | 1 | .. | .. | .. | .. | 3 | .. | .. | .. | 2 | .. | .. | .. | .. | .. |
| 2 | Mysore ... | Seringapatam | The Palahalli Agricultural Bank, Palhalli. | 16 | 17 | .. | 17 | .. | 17 | 4 | .. | 11 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. |
| | | | Total ... | 16 | 17 | ... | 17 | .. | 17 | 4 | .. | 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 |
| Grand Total ... | | | | 43 | 75 | ... | 75 | 2 | 73 | 34 | .. | 30 | 1 | .. | .. | .. | 3 | .. | .. | .. | 3 | .. | .. | .. | .. | 1 | 1 |

STATEMENT No. II.

Showing the names of the working Agricultural Banks during the year 1917-18 with the particulars of funds for each Bank.

| Serial No. | District | Taluk | Name of the Agricultural Bank and of the village in which it is situated | Date of incorporation | Number of villages sought to be benefited | Number of members on 30th June 1918 | Registered limit of Banks' funds | Amount of loan sanctioned by Government | Amount repaid till the end of 1916-17 | Amount outstanding against the Bank on 1st July 1917 | Amount of deposit in the Bank |
|-----------------|------------|------------------|--|-----------------------|---|-------------------------------------|----------------------------------|---|---------------------------------------|--|-------------------------------|
| 1 | Kolar ... | Malur ... | The Hongenahalli Agricultural Bank, Hongenahalli | 28th January 1897 | 15 | 56 | Rs. 25,000 | Rs. 15,000 | Rs. 15,000 | Rs. ... | Rs. 1,595 6 11 |
| | | | Total ... | | 15 | 56 | 25,000 | 15,000 | 15,000 | ... | 1,595 5 11 |
| 2 | Mysore ... | Seringapatam ... | The Palahalli Agricultural Bank, Palhalli | 6th December 1894 | 5 | 17 | 75,000 | 80,000 | 80,000 | ... | 6,050 12 0 |
| | | | Total ... | | 5 | 17 | 75,000 | 80,000 | 80,000 | ... | 5,050 12 0 |
| Grand Total ... | | | | | 20 | 73 | 1,00,000 | 45,000 | 45,000 | ... | 7,646 1 11 |

STATEMENT No. III.

Giving a general view of the cash transactions of the working Agricultural Banks in the State for the year 1917-18.

| District | Taluk | Name of the Agricultural Bank and of the village in which it is situated | Receipts | | | | | | | Disbursements | | | | | | | | | | |
|-----------|--------------|--|-----------------|---------------------|-------------------|-------------------------|-------------------|----------------------|----------------|--------------------|---------------------------------|--------------------------------|-----------------|-------------------|-------------------------|---------------------------|---------------------------------|-----------------|---|--|
| | | | Opening balance | Drawn from Treasury | Deposits received | Loans repaid by members | Interest received | Miscellaneous income | Total Receipts | Paid to Treasury | | | Paid to reserve | Deposits returned | Loans issued to members | Interest paid on deposits | Establishment and other charges | Closing balance | Total expenditure including closing balance | |
| | | | | | | | | | | To current account | To reduction of Government loan | To interest on Government loan | | | | | | | | |
| Rs. a. p. | Rs. | Rs. a. p. | Rs. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. | Rs. | Rs. | Rs. | Rs. a. p. | Rs. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | | | |
| Kolar ... | Malur ... | The Hongenahalli Agricultural Bank, Hongenahalli. | 18 13 5 | 125 | 612 4 5 | 2,648 | 290 6 5 | 88 3 5 | 3,777 11 8 | 300 | .. | ... | ... | 301 7 5 | 2,654 | 57 6 6 | 205 9 0 | 259 4 9 | 3,777 11 8 | |
| | | Total ... | 18 13 5 | 125 | 612 4 5 | 2,648 | 290 6 5 | 88 3 5 | 3,777 11 8 | 300 | ... | ... | ... | 301 7 5 | 2,654 | 57 6 6 | 205 9 0 | 259 4 9 | 3,777 11 8 | |
| Mysore... | Seringapatam | The Palahalli Agricultural Bank, Palahalli. | 153 5 10 | ... | 231 8 0 | ..... | 39 0 0 | 88 12 0 | 512 9 10 | ... | ... | ... | ... | 12 11 9 | ... | 231 8 0 | 69 2 7 | 199 3 6 | 512 9 10 | |
| | | Total ... | 153 5 10 | ... | 231 8 0 | ..... | 39 0 0 | 88 12 0 | 512 9 10 | ... | ... | ... | ... | 12 11 9 | ... | 231 8 0 | 69 2 7 | 199 3 6 | 512 9 10 | |
| | | Grand Total ... | 167 3 3 | 125 | 843 12 5 | 2,648 | 329 6 5 | 176 15 5 | 4,290 5 6 | 300 | ... | ... | ... | 314 3 2 | 2,654 | 288 14 6 | 274 11 7 | 458 8 3 | 4,290 5 6 | |

STATEMENT No. IV.

Balance Sheet of the working Agricultural Banks as it stood on 30th June 1918.

| District | Taluk | Name of the Agricultural Bank and of the village in which it is situated | Assets | | | | | | | Liabilities | | | | | | | |
|-----------|---------------|--|------------------------|-------------------------------|--------------------|--------------------------------------|---|--|---|--------------|---------------------------|----------------------------|--|---------------------------|---------------|-------------|-------------------|
| | | | Loans due from members | Interest due from non-members | Penalty, etc., due | Deposit in Treasury or Savings Banks | Cash in the hands of the President or the Agent | Present value of the furniture or any other property owned by the Bank | Any other items not included in the above | Total Assets | Government loan repayable | Interest due to Government | Loans and deposits repayable to members and others | Interest due on the above | Reserve Fund. | Other items | Total Liabilities |
| Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. | Rs. a. p. | Rs. a. p. | Rs. | Rs. a. p. | Rs. | Rs. a. p. | Rs. | Rs. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. | Rs. a. p. | |
| Kolar ... | Malur ... | The Hongenahalli Agricultural Bank, Hongenahalli. | 4,890 0 0 | 129 8 8 | ..... | 175 | 259 4 9 | 52 6 0 | ... | 5,506 3 5 | ... | ... | 1,595 5 11 | ..... | 3,910 13 6 | ... | 5,506 3 5 |
| | | Total ... | 4,890 6 0 | 129 8 8 | ..... | 175 | 259 4 9 | 52 6 0 | .. | 5,506 3 5 | ... | ... | 1,595 5 11 | ..... | 3,910 13 6 | ... | 5,506 3 5 |
| Mysore... | Seringapatam. | The Palahalli Agricultural Bank, Palahalli. | 8,330 10 11 | 1,976 6 5 | ..... | 550 | 199 3 6 | 135 0 0 | 1,120 | 12,311 4 10 | ... | ... | 6,050 12 0 | 240 6 2 | 6,020 2 8 | ... | 12,311 4 10 |
| | | Total ... | 8,330 10 11 | 1,976 6 5 | ..... | 550 | 199 3 6 | 135 0 0 | 1,120 | 12,311 4 10 | ... | ... | 6,050 12 0 | 240 6 2 | 6,020 2 8 | ... | 12,311 4 10 |
| | | Grand Total ... | 13,220 10 11 | 2,105 15 1 | ..... | 725 | 458 8 3 | 187 6 0 | 1,120 | 17,817 8 3 | ... | ... | 7,646 1 11 | 240 6 2 | 9,931 0 2 | ... | 17,817 8 3 |

STATEMENT No. V.—Showing the repayment of loans advanced by the Government to the Several Agricultural Banks in the Statement up to the end of 1917-18 both working and wound-up.

| No. | Name of the Agricultural Bank | Amount of loan sanctioned by Government and placed at the disposal of the Bank | Number of instalments allotted by Government | Year from which instalments fell due | Number of instalments due at the end of 1917-18 | Amount of each instalment | Total amount of instalments due at the end of 1917-18 | Total amount paid up at the end of 1917-18 | Balance of instalments due on 1st July 1918 | Interest paid in 1917-18 | Remarks |
|-----------------------------|-------------------------------|--|--|--------------------------------------|---|---|---|--|---|--------------------------|---|
| BANGALORE DISTRICT.— | | | | | | | | | | | |
| 1 | Thalagavara ... | Rs. 10,000 | 10 | 1900-01 | 10 | Rs. 1,000 0 0 | 10,000 | 10,000 0 0 | | | A surplus of Rs. 840-6-6 has also been received. Do Rs. 1,095-8-6 do Do Rs. 8,190-7-2 do Do Rs. 217-3-0 do Rs. Rs. 411-8-5 do |
| 2 | Hulikunte ... | 12,000 | 10 | 1898-99 | 10 | 12,000 0 0 | 12,000 | 12,000 0 0 | ..... | ..... |  |
| 3 | Thyamagondlu ... | 31,504 | 10 | 1890-900 | 10 | 3,150 6 5 | 31,504 | 31,504 0 0 | ..... | ..... |  |
| 4 | Sulikunte ... | 6,000 | 10 | do | 10 | 600 0 0 | 6,000 | 6,000 0 0 | ..... | ..... |  |
| 5 | Billanakote ... | 12,000 | 10 | 1909-01 | 10 | 1,200 0 0 | 12,000 | 12,000 0 0 | ..... | ..... |  |
| 6 | Thavarekere ... | 13,000 | 10 | do | 10 | 1,300 0 0 | 13,000 | 13,000 0 0 | ..... | ..... |  |
| 7 | Clospot ... | 15,000 | 10 | do | 10 | 1,500 0 0 | 15,000 | 15,000 0 0 | ..... | 89 12 0 | |
| 8 | Bidraguppa ... | 43,000 | 10 | do | 10 | 4,300 0 0 | 43,000 | 43,000 0 0 | ..... | ..... |  |
| 9 | Attibele ... | 85,000 | 10 | do | 10 | 8,500 0 0 | 85,000 | 85,000 0 0 | ..... | ..... |  |
| 10 | Aradesahalli ... | 10,000 | 10 | do | 10 | 1,000 0 0 | 10,000 | 3,098 0 0 | 6,902 0 0 | ..... |  |
| 11 | Vadigenahalli ... | 10,000 | 10 | do | 10 | 1,000 0 0 | 10,000 | 3,566 11 9 | 6,433 4 8 | ..... |  |
| | Total ... | 1,97,504 | .. | .. | ... | | 1,97,504 | 1,84,168 11 9 | 13,835 4 8 | 89 12 0 | |
| KOLAR DISTRICT.— | | | | | | | | | | | |
| 12 | Mudavatti ... | 5,000 | 10 | 1900-01 | 10 | 500 0 0 | 5,000 | 5,000 0 0 | | | A surplus of Rs. 791-7-5 has also been received. Do Rs. 283-0-0 do |
| 13 | Tippenahalli ... | 13,000 | 10 | 1899-900 | 10 | 1,300 0 0 | 13,000 | 13,000 0 0 | ..... | ..... |  |
| 14 | Subbenahalli ... | 20,000 | 10 | do | 10 | 2,000 0 0 | 20,000 | 15,998 0 0 | 4,002 0 0 | ..... |  |
| 15 | Hongenahalli ... | 15,000 | 15 | do | 10 | 1,000 0 0 | 15,000 | 15,000 0 0 | ..... | ..... |  |
| | Total ... | 53,000 | ... | ... | ... | | 53,000 | 48,998 0 0 | 4,002 0 0 | | |
| TUMKUR DISTRICT.— | | | | | | | | | | | |
| 16 | Manchakalkuppe ... | 15,000 | 10 | 1900-01 | 10 | 1,500 0 0 | 15,000 | 15,000 0 0 | | | Do Rs. 59-5-8 do Do Rs. 0-14-8 do Do Rs. 0-5-10 do Do Rs. 0-8-10 do Do Rs. 247-0-4 do |
| 17 | Kyatsandra ... | 15,000 | 10 | do | 10 | 1,500 0 0 | 15,000 | 15,000 0 0 | ..... | ..... |  |
| 18 | Gulur ... | 12,000 | 13 | 1898-99 | 13 | 1st year 800 0 0 from 2nd year 933 5 4 | 12,000 | 12,000 0 0 | ..... | ..... |  |
| 19 | Ariyur ... | 4,000 | 10 | 1900-01 | 10 | 400 0 0 | 4,000 | 5,000 0 0 | ..... | ..... |  |
| 20 | Kadagathur ... | 10,000 | 13 | do | 13 | 1st year 700 0 0 from 2nd year 775 0 0 | 10,000 | 40,000 0 0 | ..... | ..... |  |
| 21 | Rampura ... | 6,500 | 10 | do | 10 | 650 0 0 | 6,500 | 6,498 15 5 | 1 0 7 | ..... |  |
| 22 | Chiknayakanahalli ... | 15,000 | 10 | 1898-99 | 10 | 1,500 0 0 | 15,000 | 15,000 0 0 | ..... | ..... |  |
| 23 | Haldodderi ... | 3,000 | 12 | 1900-01 | 12 | 250 0 0 | 3,000 | 3,000 0 0 | ..... | ..... |  |
| 24 | Turuvekere ... | 8,000 | 10 | 1899-00 | 10 | 800 0 0 | 8,000 | 8,000 0 0 | ..... | ..... |  |
| 25 | Mavinkere ... | 4,000 | 10 | 1900-01 | 10 | 400 0 0 | 4,000 | 4,000 0 0 | ..... | ..... |  |
| 26 | Nonavinkere ... | 7,000 | 14 | 1897-98 | 15 | 1st four years at 450 0 0 from 5th year at 520 0 0 | 7,000 | 7,000 0 0 | ..... | ..... |  |
| | Total ... | 99,500 | ... | ... | ... | | 99,500 | 99,498 15 5 | 1 0 7 | | |
| MYSORE DISTRICT.— | | | | | | | | | | | |
| 27 | Chamrajnagar ... | 35,000 | 12 | 1903-04 | 12 | 2,946 10 8 | 35,000 | 25,433 15 4 | 9,566 0 0 | 182 7 8 | Do Rs. 2,678-0-0 do Do Rs. 2,535-6-1 do |
| 28 | Palhalli ... | 30,000 | 12 | 1902-03 | 12 | 2,500 0 0 | 30,000 | 30,000 0 0 | ..... | ..... |  |
| 29 | Kyatanahalli ... | 19,000 | 13 | 4899-900 | 13 | 1st year 1,000 0 0 from 2nd year 1,500 0 0 | 19,000 | 19,000 0 0 | ..... | ..... |  |

| | | | | | | | | | | | | |
|-----------------------|-----------------|-----|---------------------|-----|----------|-----|--|----------|--------------|-------------|----------|---|
| 30 | French-Rocks | ... | 30,000 | 15 | do | 15 | 2,000 0 0 | 30,000 | 29,014 8 9 | 985 7 8 | ..... |  |
| 31 | Seringapatam | ... | 20,000 | 14 | 1902-03 | 14 | 1st two years at 1,000 0 0 from 3rd year at 1,500 0 0 | 20,000 | 20,000 0 0 | ..... | ..... | Do Rs. 344-2-7 do |
| 32 | Sargur | ... | 16,000 | 15 | 1899-00 | 15 | 1,066 10 8 | 16,000 | 16,000 0 0 | ..... | ..... |  |
| 33 | Kaggala | ... | 10,000 | 10 | do | 10 | 1,000 0 0 | 10,000 | 10,000 0 0 | ..... | ..... | A surplus of Rs. 59-10-11 has also been received. |
| 34 | Nanjangud | ... | 26,000 | 10 | do | 10 | 2,600 0 0 | 26,000 | 26,000 0 0 | ..... | ..... | Do Rs. 0-1-3 do |
| 35 | Mandya | ... | 12,000 | 12 | 1901-02 | 12 | 1,000 0 0 | 12,000 | 10,599 15 3 | 1,400 0 9 | ..... |  |
| 36 | Sathnur | ... | 15,000 | 12 | 1902-03 | 12 | 1,250 0 0 | 15,000 | 11,713 0 0 | 3,287 0 0 | ..... |  |
| | Total | ... | 2,13,000 | ... | ... | ... | ..... | 2,13,000 | 1,97,761 7 4 | 15,238 8 8 | 182 7 8 | |
| SHIMOGA DISTRICT.— | | | | | | | | | | | | |
| 37 | Vitaggodankoppa | ... | 2,500 | 10 | 1898-99 | 10 | 270 0 0 | 2,500 | 2,500 0 0 | ..... | ..... |  |
| 38 | Nallur | ... | 12,000 | 10 | 1900-01 | 10 | 1,200 0 0 | 12,000 | 12,000 0 0 | ..... | ..... |  |
| 39 | Somlapura | ... | 8,000 | 10 | do | 10 | 800 0 0 | 8,000 | 8,000 0 0 | ..... | ..... | A surplus of Rs. 18-6-6 has also been received. |
| 40 | Santebennur | ... | 10,000 | 15 | do | 15 | 666 10 8 | 10,000 | 10,000 0 0 | ..... | ..... | Do Rs. 528-0-2 do |
| 41 | Honnali | ... | 3,500 | 7 | 1901-02 | 7 | 500 0 0 | 3,500 | 3,500 0 0 | ..... | ..... | Do Rs. 118-12-10 do |
| 42 | Joga | ... | 3,500 | 5 | 1900-01 | 5 | 700 0 0 | 3,500 | 3,500 0 0 | ..... | ..... |  |
| 43 | Nyamti | ... | 10,000 | 15 | 1898-99 | 15 | 666 10 8 | 10,000 | 10,000 0 0 | ..... | ..... | Do Rs. 4-11-9 do |
| 44 | Issur | ... | 7,000 | 8 | 1900-01 | 8 | 875 0 0 | 7,000 | 7,000 0 0 | ..... | ..... | Do Rs. 0-13-4 do |
| 45 | Churchugundi | ... | 5,000 | 8 | do | 8 | 625 0 0 | 5,000 | 5,000 0 0 | ..... | ..... |  |
| 46 | Haromuchadi | ... | 5,000 | 10 | 1898-99 | 10 | 500 0 0 | 5,000 | 5,000 0 0 | ..... | ..... |  |
| 47 | Salur | ... | 4,000 | 10 | 1899-900 | 10 | 400 0 0 | 4,000 | 4,000 0 0 | ..... | ..... |  |
| 48 | Gogga | ... | 5,000 | 10 | 1900-01 | 10 | 500 0 0 | 5,000 | 5,000 0 0 | ..... | ..... | Do Rs. 1-10-1 do |
| 49 | Hitla | ... | 5,500 | 10 | do | 10 | 550 0 0 | 5,500 | 5,500 0 0 | ..... | ..... |  |
| 50 | Tadagani | ... | 3,000 | 10 | do | 10 | 300 0 0 | 3,000 | 3,000 0 0 | ..... | ..... |  |
| 51 | Siralokoppa | ... | 6,100 | 15 | 1898-99 | 15 | 1st year at 500 0 0 from 2nd year at 400 0 0 | 6,100 | 6,100 0 0 | ..... | ..... |  |
| 52 | Kolgunsi | ... | 8,000 | 15 | do | 15 | 533 5 4 | 8,000 | 8,000 0 0 | ..... | ..... | Do Rs. 0-14-6 do |
| 53 | Arahada | ... | +1,322 | 15 | do | 15 | 666 10 8 | 10,000 | 10,000 0 0 | ..... | ..... | Do Rs. 200-0-0 do |
| 54 | Genasinakuni | ... | 12,000 | 15 | do | 15 | 800 0 0 | 12,000 | 12,000 0 0 | ..... | ..... | Do Rs. 51-7-6 do |
| | Total | ... | 1,20,100 +1,322* | ... | ... | ... | ..... | 1,02,100 | 1,20,100 0 0 | ..... | ..... | * Drawn in excess and credited back to Treasury. |
| KADUR DISTRICT.— | | | | | | | | | | | | |
| 55 | Ardi-Koppa | ... | 25,000 | 12 | 1900-01 | 12 | 2,088 5 4 | 25,000 | 22,395 0 0 | 2,605 0 0 | 130 0 11 | |
| 56 | Sakrepatna | ... | 20,000 | 14 | 1898-99 | 14 | 1st 3 years at 1,666 10 8 4th year 750 0 0 5th year 1,000 0 0 6th year 1,250 0 0 from 7th to 14th year 1,500 0 0 | 20,000 | 19,863 0 0 | 137 0 0 | 10 8 0 | |
| | Total | ... | 45,000 | ... | ... | ... | ..... | 45,000 | 42,258 0 0 | 2,742 0 0 | 140 8 11 | |
| CHITALDRUG DISTRICT.— | | | | | | | | | | | | |
| 57 | Mallapura | ... | 7,000 | 10 | 1900-01 | 10 | 700 0 0 | 7,000 | 7,000 0 0 | ..... | ..... |  |
| 58 | Talya | ... | 12,000 | 10 | 1898-99 | 10 | 1,200 0 0 | 12,000 | 12,000 0 0 | ..... | ..... | A surplus of Rs. 121-12-5 has also been received. |
| 59 | Malebennur | ... | 5,000 | 10 | do | 10 | 500 0 0 | 5,000 | 5,000 0 0 | ..... | ..... |  |
| | Total | ... | 24,000 | ... | ... | ... | ..... | 24,000 | 24,000 0 0 | ..... | ..... |  |
| | Grand Total | ... | 7,52,104 +1,322* | ... | ... | ... | ..... | 7,52,104 | 7,16,785 2 6 | 35,318 13 6 | 362 12 7 | * Drawn in excess and credited back to Treasury |

REPORT ON THE WORK OF THE DEPARTMENT OF AGRICULTURE
IN MYSORE FOR THE YEAR 1917-18,
WITH THE GOVERNMENT REVIEW THEREON.

Report on the Working of the
Agricultural Department.

No. 5900-50—A. & E. 63-18-4, DATED 28TH DECEMBER 1918.

PROCEEDINGS OF THE GOVERNMENT OF HIS HIGHNESS
THE MAHARAJA OF MYSORE.

GENERAL AND REVENUE DEPARTMENTS.

READ—

Report on the working of the Agricultural Department for the year 1917-18, received with the Officiating Director's letter No. 93-5, dated 16-17th September 1918.

Order No. 5900-50—A. & E. 6318-4, dated 28th December 1918.

During the year, the executive staff of the Department was strengthened by the appointment of an additional Agricultural Inspector and some Fieldmen to every district. Some additional clerical establishment was also sanctioned for the offices of the Director and his subordinates. Government agree that the work of the Department is to a certain extent hampered by shortage of staff as the number of trained men available falls far short of actual requirements. The question of the improvement of Agricultural education and training in all the grades as a whole is engaging the attention of Government. The Director is requested to make a special effort to increase the number of men trained in the various Agricultural Schools and Colleges every year so that there may be no difficulty in expanding the Department gradually as work develops and to provide a sufficient reserve of men who would take to Agriculture as their main occupation.

Tours.—The Director was on tour for 115 days. He attended the meetings of the Board of Agriculture in Poona and presided over the Agricultural Section of the Science Congress at Lahore. He was also specially deputed to visit and study the working of the Farm at Lyallpur and the Sugar Factory at Nellikuppam, the latter with special reference to the scheme of establishing a Sugar Factory under the Krishnarajasagara which is under the active consideration of Government.

The Deputy and Assistant Directors toured 126 and 195 days, respectively, as against 158 and 231 days during the previous year.

Agricultural Section, Experimental Work.—All the experimental work in Agriculture was conducted on the several farms. As usual the bulk of the investigation was carried on in the Agricultural Farm at Hebbal.

The experiments with ragi in the Hebbal Farm have been almost completed and the results will be made available in the form of a bulletin to the public. The Department is engaged in ascertaining the best manure for paddy. Experiments with artificial fertilizers have proved successful, while a mixture of bonemeal and oil cake is becoming popular though slowly. Government trust that the question of supplying manure for paddy will be taken up with the same vigour and earnestness as in the case of sugar-cane, especially in view of the attempts that are now being made to increase the production of food-stuffs in the State. The testing of sugar-cane variety as regards the yield is being continued. The red Mauritius variety has given the heaviest yield and is becoming popular as it can better withstand varying conditions.

The most noticeable feature of work done in the Marthur Farm is the construction of a new type of seed-bin to store paddy and horse gram and a new drier to dry areca-nut which has been designed and built on the model of an imported drier.

Experiments with cotton were not quite successful in the Babbur Farm owing to deficient rainfall during the year. The jaggory boiling experiments were conducted though not very regularly owing to shortage of labour. The cost of recovering jaggory is, however, reported to have worked out at 4 annas and 6 pies per maund.

Work has not yet been started in the Nagenahalli Farm, partly owing to incomplete arrangements about supply of irrigational facilities and mainly owing to dearth of labour.

Government consider that much more concentration of efforts on the Babbur and the Nagenahalli Farms is necessary in the future if the farms are to attain even partially the objects with which they have been started. The Nagenahalli Farm, in

No. 5900-50—A. & E. 63-18-4, DATED 28TH DECEMBER 1918.

particular, requires special attention if it is to be of use in the development of sugar-cane cultivation under the Krishnarajasagara by the demonstration and popularisation of improved methods of sugar-cane cultivation.

Demonstration and Popularisation Work.—Demonstration and popularisation work was continued on a large scale. At the request of owners of estates, the officers of the Department visited as many as 269 estates and gave advice to the owners. The vexed question of extending sugar-cane cultivation under the Mavatoor tank, which offers an unlimited scope for development work, was examined and Government hope that with the co-ordinated efforts of the Revenue and the Agricultural Departments, the progress in the next few years will be substantial. The demand for improved implements has been growing, the Kolar Mission plough in particular being very popular. There were two implements and seed depots in every district except Kolar. The total value of Agricultural machinery sold during the year was Rs. 36,100 as against Rs. 30,076 in the previous year.

The Director estimates that as a result of better method of dry farming with improved implements the increased revenue to raiyats has amounted to nearly Rs. 50,000, while better cultivation of sugar-cane with oil cake manure, of which seven hundred tons were sold during the year, has given an extra revenue of more than a lakh of rupees. The net increase in the value of agricultural production on account of various improvements introduced is put down approximately at nearly Rs. 2,00,000. While Government consider this satisfactory so far as it goes, they by no means think that the increase is commensurate with the amount of energy and expenditure extended, while it is in no way proportionate to the increase of 40 per cent in the total production during the next ten years forecasted by the Director in his note submitted to the Economic Conference last year.

Government notice that the Director has paid special attention during the year to the cultivation of Indigo and is of opinion that its cultivation is worth reviving. As the question particularly affects the dying industry in the State, inasmuch as there will be a considerable deficiency in the supply of dye-stuffs for some years even after the cessation of hostilities. Government trust that the department will vigorously follow up the attempts now made till some practical conclusions are reached and the indigo industry is placed on a profitable working basis.

The distribution of improved strains of ragi seed and sugar-cane sets with the help of the several agricultural associations has been extended. Government have sanctioned the establishment of two gins on the Babbur Farm for distribution of better varieties of cotton seed for sowing purposes.

In view of the difficulty of getting agricultural machinery from abroad, attention is being paid to evolve machinery best suited to local conditions and to manufacture the same locally by bringing into existence a Factory in charge of a competent mechanic.

Agricultural Engineering.—The Agricultural Engineer was in charge of various building works in connection with the several experimental farms and erection of the jaggory boiling and pumping machinery. He is now engaged in carrying out a scheme of drainage from the wet area of the Babbur Farm.

Farming.—The farm at Hebbal was run on the same lines as before. Outfits were popularised and several such, of the value of Rs. 2,394 were sold to private parties. The Director has given no data to show that the farm has been a success from the commercial point of view and he also leaves the question moot whether such farms run on a large scale, on the lines adopted, can hope to produce products at a cost well within the reach of all classes. In view of the large number of private farms proposed to be started, for which Government aid is sought, Government hope that more attention will be given to this subject in the coming year and the financial results published for the information of the general public.

Scientific Sections.—Much research work of a valuable character was carried out in the Scientific sections of the department in respect of the spike on sandal, liming the juice in jaggory boiling, Koleroga of arecanut, black rot on coffee and other crop Pests. Two hoblis were brought under the operation of the Mysore Pest Regulation but it is extremely satisfactory to note that there was no necessity to make use of the penal provision of the Regulation as the raiyats readily co-operated in carrying out

all that is expected of them. In the departmental laboratory, analyses were carried out in as many as 719 cases.

Agricultural Education.—In the final examination in the Hebbal School, out of 16 students that sat for it, 11 passed, of which 6 did so with distinction. At the commencement of the new year there were 17 students in the senior class and 20 in the junior. The reason for only 20 students out of 47 selected, seeking admission into the junior class is not explained, especially with the large inducements in the form of scholarships available. It behoves the District Committees of the Economic Conference to select, with the co-operation of leading gentlemen in the districts, young men with capacity and aptitude, and to encourage them to undergo training in the school. Many improvements have been carried out in connection with the school and the farm during the year, of which mention may be made such as the starting of a school library, the supply of water to the hostel, and a building for the Veterinary Hospital. It is gratifying to note that the students of the school are conducting a Night School for the benefit of the farm labourers.

The Chikkanahalli Agricultural School is reported to be doing good work with 11 students on the roll, all sons of practical farmers and while some are in receipt of stipends provided by the Taluk Progress Committees. The school is serving as an useful demonstration centre, in popularising improved methods and creating a demand for improved implements, etc. Eight students passed the final examination held during the year.

Government in their last year's review referred to the need for an extension of the scheme of rural agricultural instruction but they regret to note that the progress during the year has not been satisfactory. The Inspector-General of Education has since submitted a modified scheme which is under the consideration of the Government and as soon as orders are passed thereon Government trust that both the Education and the Agricultural Departments will co-operate with one another and co-ordinate their efforts in order to make the scheme a success.

The Director reports that for want of accommodation no action has as yet been taken in the matter of instituting the vernacular course of instruction in the Hebbal School. This is to be regretted especially as Government have already authorised the construction of temporary structures of an inexpensive nature for the purpose, pending permanent extension of the present school building and the longer the course is delayed the greater will be the difficulty in meeting the need of the rural agricultural population.

Agricultural Statistics and Dissemination of Information.—Apart from carrying out certain crop cutting experiments, no work of any importance has been done in respect of collecting and publishing useful statistics of agricultural production, etc. It is moreover not clear whether the results of the crop cutting experiments have been published. The Director's attention is again invited to the observations of Government in paragraph 9 of last year's review regarding the preparation of estimates of production and a programme of development for each taluk area. The Department issued 13 publications during the year, the more important of them being notes on sugar-cane and agricultural education and a manual of the Department of Agriculture.

Conclusion.—In concluding this review Government desire to suggest that in preparing future annual reports each section of the report may be prefaced with a brief account of the outstanding results achieved during the year, which may be followed by the details of work done in the divisions and districts. This will enable the lay public to focus its attention on the definite results of the work of the Department and the more important improvements and methods which the Department is in a position to recommend for adoption by the people, as a result of the year's working and experiments.

The report under review gives evidence of an all round progress in the work of the Department and the thanks of Government are due to the Director, Dr. Coleman and his staff for the efficient manner in which the operations of the Department have been carried out during the year.

P. G. D'SOUZA,
Secy. to Govt., Depts. of Edn. & Agr.

To—The Director of Agriculture in Mysore.
The other Heads of Departments.
The Deputy Commissioners of Districts.
The Superintendent. Government Press

REPORT ON THE WORK OF THE DEPARTMENT OF AGRICULTURE
IN MYSORE FOR THE YEAR 1917-18.

I. GENERAL.

1. Dr. Coleman held charge of the Department during the whole of the year under report.

2. *Tours and Inspections.*—He was on tour for 115 days during the year. Of these thirty days were spent outside the State chiefly in attending the meetings of the Board of Agriculture at Poona and in presiding over the Agricultural Section of the Science Congress at Lahore. He also visited the Farm at Lyallpur and the Sugar Factory at Nellikuppam in connection with the proposal to establish a Sugar Factory in the State. He presided over the Agricultural Section of the District Conferences at Tumkur, Chitaldrug, Shimoga and Bangalore. At other District Conferences which he could not attend, addresses prepared by him were read.

The annual inspections of the Farms at Babbur, Marthur and Nagenhalli were made by him during the year. He also inspected the Rural Schools in Hunsmaranahalli, Devarayasamudra and Kyatsandra where agricultural instruction is being given under the direction of the Department.

3. *Changes in the Staff.*—Mr. C. Noronha, Junior Assistant Mycologist having been appointed a Probationer in the Industries Department in Government Order No. 6890-906—G. M. 401-16-22, dated 22nd November 1917, vacated his appointment here on the 1st December 1917. This vacancy has not yet been filled up.

4. *Leave.*—The following members of the Department were on leave of one kind or another during the year.—

- (1) Mr. A. K. Yegna Narayana Iyer, Deputy Director had privilege leave for two months from January 15, 1918.
- (2) Mr. D. G. Ramachandra Rao, Assistant Director, privilege leave for fourteen days from November 2, 1917.
- (3) Mr. N. Sampatiengar, Senior Assistant Chemist, privilege leave for eleven days from 2nd January 1918.
- (4) Mr. K. Kunhi Kannan, Senior Assistant Entomologist, privilege leave for one month and twenty-three days from November 2, 1917.
- (5) Mr. E. S. Ramaswamier, Office Manager, privilege leave for one month from July 16, 1917 and leave on medical certificate for one month from November 3, 1917.
- (6) Mr. V. K. Badami, privilege leave for twelve days in continuation of the Christmas holidays from January 2, 1918.
- (7) Mr. T. V. Subramhanya Iyer, Junior Assistant Entomologist, privilege leave for two months from August 22, 1917.
- (8) Mr. Shankar Rao Badami, Junior Assistant Chemist, privilege leave for seven weeks from November 2, 1917.
- (9) Mr. B. C. Shantappa, Junior Assistant Entomologist, privilege leave for ten days from March 9, 1918.
- (10) Mr. C. Ellappa Chetty, Farm Manager, Hebbal, privilege leave for three months from May 15, 1918.
- (11) Mr. M. Ranganaikalu Naidu, Artist, privilege leave for one month from January 21, 1918.

5. *Office Correspondence.*—There is again an increase to be reported under this head. The number of letters received and of those sent out were 9,535 and 10,099, respectively this year against 9,006 and 8,651 for last year. It may be remarked here that all the outward correspondence does not relate to mere matters of office routine but that a good proportion of it is sent out in compliance with outside requests for professional advice. The expansion of the activities of the Department is also naturally contributing to an increase in office work.

6. *Buildings*.—The following new structures or alterations to old ones have been either completed or have made good progress during the year.

(a) Hebbal Farm—

(1) A series of permanent roofed manure pits is being built to study the question of the conservation of cattle manure under different conditions.

(2) A portion of the barn has been converted into grain and implement stores.

(3) A building for the Veterinary Hospital is under construction and has made considerable progress.

(b) Babbur Farm—

(1) Quarters for the Farm Manager and two assistants have been completed.

(2) An engine house and a jaggery boiling shed have been built.

(3) The Office and stores are under construction.

(c) Nagenhalli Farm—

The permanent office buildings, cattle stall and implement stores for this Farm are under construction. Temporary quarters for the accommodation of the Farm Staff and Stores have however been completed.

7. *The Library*.—The following additions have been made to the Library during the year.—

| | |
|------------------------------|-----|
| Periodicals received | 71 |
| Bulletins received | 480 |
| Reports received | 31 |
| Books purchased | 98 |
| Volumes bound | 38 |

The total number of volumes including bulletins is about 4,000.

A reading room has been opened where the bulletins and technical periodicals both Indian and Foreign received by the Department are placed on the table and may be consulted not only by the Departmental staff but also by others interested in agricultural matters. The accommodation available for this at present is very limited and a suitable and spacious room for the location of the Library and reading room is one of the pressing needs of the Department.

8. *Publications*.—The following publications were issued during the period under report.—

1. Handbook of Exhibits at the Dasara Exhibition for 1917, Circular No. 19.
2. Circular No. 20 on "How to combat the Coffee Borer".
3. Note on Sugar-cane
4. Note on Agricultural Education
5. The cultivation of the Areca Palm in Mysore.
6. Some Scale Insect pests of Coffee in South India.
7. Agricultural Calendar for 1918.
8. Calendar of the Hebbal Agricultural School for 1918.
9. Proceedings of the Spike Conference held in October 1917.
10. Proceedings of the Third Departmental Conference held in May 1917.
11. Circular No. 21 on Kumblihula.
12. Circular No. 22—"Drying of Areca-nuts".
13. Manual of the Department of Agriculture.

The Fourth Annual Departmental Conference was held in Bangalore from May 6, 1918 to May 9, 1918. The Proceedings are in the press and copies will be shortly available for distribution among the members of the Department.

II. AGRICULTURAL SECTION.

A. EXPERIMENTAL WORK IN CONNECTION WITH AGRICULTURE.

(1) Hebbal Farm.

9. The rainfall registered on the Hebbal Farm during the past official year was 40.48 inches. It was thus less than in 1916-17 but somewhat in excess of the average for the past ten years. The distribution was rather unfavourable being very scanty in July which necessitated the postponement of the sowings of ragi to August. Nevertheless it was a good year for ragi which generally did well.

10. *Ragi*.—As full information about all the experiments that have been made up to now with respect to this crop will be incorporated in a bulletin that will shortly

issue, it will be necessary here to refer only briefly to some results that were obtained during the year. The application of green manure, especially cowpea, has given very good results. The rotation of ragi after groundnut and avare has, as before, resulted in much heavier yields than sowings of ragi after ragi. Bulk trials of some of the selected strains have given very high yields running in some cases to nearly twelve pallas an acre.

11. *Paddy*.—Experiments with regard to this crop were conducted much on the same lines as in previous years. They had to do chiefly with the determination of the most favourable seed rate, and suitable manures and the testing of varieties. Sunn-hemp and bonemeal and cowpea with bonemeal have given favourable results. Of the artificial fertilizers tested, a mixture of ammonium sulphate and superphosphate appears to be the best. A mixture of oil cake and bonemeal has also been found beneficial and as will appear elsewhere in the report, a fair quantity of this mixture has already been distributed and there are indications that it will become more popular as time goes on. Some experiments with regard to the duty of water were also made but they have not progressed sufficiently far to admit of any definite inferences being drawn.

12. *Sugar-cane*.—*Variety Tests*.—Seven varieties were tested on the Farm during the year and the results are given in the following table:—

| Name of Variety | Yields per acre in Maunds of jaggory of 28 lbs. |
|----------------------|---|
| 1. Red Mauritius | 331 |
| 2. Cheni | 288 |
| 3. J. 33 A. | 280 |
| 4. Pattapatti | 247 |
| 5. Java | 240 |
| 6. Striped Mauritius | 191 |
| 7. Rastali | 187 |

From this it will be seen that though the yields of all the varieties have dropped below those of last year and the other varieties vary somewhat in relative position, Red Mauritius again heads the list with the largest yield. Calculating jaggory at Rs. 2-4-0 per maund, Red Mauritius has given a return of nearly Rs. 190 per acre more than the local Pattapatti. The market value of jaggory has been somewhat lower, but the Hebbal jaggory on account of its better quality has all been sold at Rs. 2-4-0 per maund and this rate has been taken to make the figures for this year easily comparable with those given last year. Red Mauritius has shown its superiority as a heavy yielder consistently for the past five years. The results obtained in the Departmental Farms and favourable reports received from the districts indicate that it is capable of thriving under very varying conditions. There seems to be no room therefore for hesitation in pushing the introduction of this variety as energetically as possible until a still better variety can be offered. That this has been done will be apparent later on as a much larger quantity of seed of this cane has been distributed this year than in the previous one from the Departmental Farms and private seed farms.

Manurial tests.—The results of the manurial tests are given in the following statement taking the prices of jaggory and oil cakes given in last year's report.

| | Yields in maunds of jaggory per acre | Value per acre at Rs. 2-4-0 per maund | Value of manure | Net value of jaggory | Net increase in value per acre | Net increase due to second ton of cake |
|----------------------|---|--|--------------------|-------------------------|--------------------------------------|---|
| | | Rs. | Rs. | Rs. | Rs. | Rs. |
| No oil cake | 170 | 382 | .... | 382 | .... | .... |
| One ton Honge cake | 244 | 549 | 40 | 500 | 127 | .... |
| Two tons Honge cake | 279 | 627 | 80 | 547 | 165 | 38 |
| One ton castor cake | 276 | 621 | 50 | 571 | 189 | .... |
| Two tons castor cake | 328 | 738 | 100 | 638 | 256 | 67 |

They are in accord with those obtained in the previous year.

Spacing Experiments.—This year too as in the previous year, planting cane in rows three feet apart has given heavier yields than in rows either one foot or two feet apart.

Agri.

1*

From the foregoing it is quite clear that the results obtained during the year under review fully support the three definite recommendations made by Dr. Coleman in last year's report with regard to sugar-cane cultivation. They are repeated here for convenience of reference.

(a) Grow Red Mauritius cane instead of the varieties you are now growing. This will give you an increase of from 10 per cent to 25 per cent per acre in the yield.

(b) Use oil cake at the rate of at least 100 lbs. of nitrogen per acre. Double this amount will greatly increase your profits.

(c) Do not plant your cane in rows closer than two feet apart; if you are using adequate supplies of manure, rows three feet apart would be even better.

A few changes have been introduced in the sugar-cane experiments. Hitherto the experiments were all conducted with reference to the local Pattapatti cane. As Red Mauritius has proved itself a superior yielder for a number of years, this variety has now been substituted in the experiments. As planting cane in rows one foot apart has uniformly given poor results, this has been dropped and planting cane in rows four feet apart has been added on. The results will be available for report next year.

13. *Minor Crops.*—The imported iron cowpea again did better than the local varieties. Only two varieties of groundnut, *viz.*, Mauritius and Virginia were tried. The yields were very low as the season was unfavourable for this crop. Of other crops tested, ginger did very badly but turmeric which was grown on a small plot gave very good results.

14. *Distribution of Seed.*—The following statement gives the quantity of seed of various kinds distributed from the Farm among the cultivators of the State.

| | | | | | | | | |
|-----------------|----|----|----|----|----|----|----|--------------|
| Sugar-cane | .. | .. | .. | .. | .. | .. | .. | 15,761 lbs. |
| Paddy | .. | .. | .. | .. | .. | .. | .. | 2,243½ seers |
| Ragi | .. | .. | .. | .. | .. | .. | .. | 2,474 seers |
| Sunn hemp | .. | .. | .. | .. | .. | .. | .. | 201 seers |
| Groundnut | .. | .. | .. | .. | .. | .. | .. | 92 lbs. |
| Garden Togari | .. | .. | .. | .. | .. | .. | .. | 10 " |
| Tobacco seed | .. | .. | .. | .. | .. | .. | .. | 6 oz. |
| Cajanus indicus | .. | .. | .. | .. | .. | .. | .. | 2 lbs. |
| Turmeric | .. | .. | .. | .. | .. | .. | .. | 750 lbs. |

15. *Hiring out of Implements.*—This is one of the useful ways of popularising the use of improved implements and is being resorted to by the various departmental farms and by the District Agricultural Inspectors.

A sum of Rs. 13-6-6 was realised in the shape of rent during the year by the Farm.

16. *Visitors on the Farm.*—There were as usual a large number of visitors, both literate and illiterate who evinced a good deal of interest in the work of the Farm.

17. The students of the Hebbal Agricultural School started a Night School for the Farm labourers in August 1917 and have been conducting it successfully. The average attendance was 13. There is also a Co-operative Society with a membership of 54 for the benefit of the Farm labourers.

(2) *Marthur Farm.*

18. *Additions to accommodation, etc.*—Separate sheds for storing straw and implements, store room, office, and stables have been constructed. The tank which supplies water to the garden has been rebuilt. Several new wells have been sunk to irrigate the sugar-cane crop which now covers an area of three and three-fourth acres. A silo-pit has been constructed and the cattle shed and the manure pit paved with a view to the better conservation of cattle manure. A new type of seed bin has been constructed to store paddy and horsegram. A new drier to dry arecanut has been designed and built on the model of an imported drier and has proved satisfactory. The area has been surveyed and divided into plots. The sugar-cane, turmeric and rotation paddy plots have been fenced in.

19. *Paddy.*—The local varieties have again done better than the imported ones. It is therefore proposed to replace most of the latter with varieties from Kadur and Hassan. Experiments with *Crotalaria striata* and Dhaincha have been continued in paddy areas but have not yet given any definite results. A selection of pure types of paddy has been made and this will be sown separately to test for purity of seed.

20. *Sugar-cane.*—As a consequence of the results obtained last year, Bangalore Pattapatti, striped Mauritius and B. 208 have been rejected as poor yielders, so that only three varieties, *viz.*, Red Mauritius, Elephant and Java have been tested during

the year. The Elephant cane gave 33 tons of cane per acre. None of this could be milled however as the whole quantity had to be distributed for seed purposes. The yield of Red Mauritius was 24 tons per acre.

Some seedling canes from Hebbal are on trial on this Farm and some of these are distinctly promising.

21. *Other work.*—Groundnut, chillies, ragi and horsegram were the other crops tested during the year. Of these only the first did well. Turmeric however gave an exceptionally good yield and it is proposed to increase the area under this crop. Some varieties of pepper were obtained from the Taliparamba Farm and are being tested. Some varieties of plantain and cardamom are also undergoing trial.

The orchard has been cleared of weeds and the land ploughed and put under horsegram.

A series of manurial experiments has been started with regard to areca-nut.

22. *Distribution of Seed and Implements.*—Fifty thousand sets of sugar-cane have been distributed during the year on the usual condition that double the number of sets supplied are returned at the next planting season. The farm has become a centre for the sale of oil cake for sugar-cane and of agricultural implements in the neighbourhood

(3) *Babbur Farm.*

23. The year under report is the second since this Farm commenced working. Of the 90 acres 15 guntas of dry land, 76 were under cultivation during the year. The rest of the area is occupied by Farm-buildings, cooly-sheds and threshing yard. Out of the 132 acres 23 guntas of wet land, which includes a distinctly saline piece of land 17 acres 16 guntas in extent, 125 acres were under cultivation. A portion of this area is taken up by drainage and irrigation channels, roads, jaggory-boiling shed, engine-shed, etc.

24. *Buildings and improvements on the Farm.*—All the three officers' quarters were completed during the year. A cattle shed to house eleven pairs of working animals was built. Temporary cooly sheds were put up to accommodate the coolies. An oil engine and power mill, to crush sugar-cane were installed and worked during the year. Two series of jaggory-boiling furnaces of three pans each were constructed, as also sheds for these and the engine and mill. A road running in the middle of the wet land was formed. It is a mile long with four culverts across the irrigation and drainage channels. A road in the dry-land was also made and the road connecting the dry land with the wet land was improved by raising the level of the existing cart track in some places and by constructing stone revetments wherever necessary. A scheme of drainage was also worked out.

25. *Cotton.*—The year under report was a bad one for Dodhatti (Dharwar-American). The early rains failed and the crop had to be sown a month late in the season even at the risk of getting a low yield in order to be able to meet the demand for pure seed to some extent. Though the yield was below the average it was better than what was anticipated.

Sannahatti did fairly well.

Cambodia-Cotton was grown under irrigation. The crop was very good when young, but later on was attacked by disease with the result that about 40 per cent of the plants died out. The crop however has given a fair profit.

26. *Sugar-cane.*—This crop did not do as well as was expected. The land was either brought under the plough for the first time or if it was cultivated before acquisition, was badly managed so that it was in bad shape. To this and the fact that the crop suffered rather badly from an attack of borer must be attributed the partial failure of this crop.

Variety tests.—In addition to Rastali which is the chief variety of sugar-cane locally grown, the following varieties of canes were grown on the Farm:—(1) Red Mauritius, (2) Java and (3) J. 33A. Of these, as at Hebbal, Red Mauritius has given the highest yield. Fifty-six varieties of Hebbal seedling canes were also tested, of which twenty-seven varieties being promising, have been re-planted.

Manurial tests.—Half the area in every plot of newly planted sugar-cane has been given cattle manure at twenty cart loads per acre. Otherwise both the halves of the plots are treated alike. This is to find out whether it would pay to apply cattle manure, which costs Re. 1-12-0 per cart load, in addition to green-manuring and an application of oil cake at one ton per acre.

Spacing tests.—Sugar-cane on a plot of four acres is planted four feet apart from row to row to see whether a wider planting than is generally practised, which economises seed, will be profitable.

Jaggory-boiling.—The Power-mill worked for sixty-two days handling two hundred and sixty-three tons of cane. The two series of furnaces were not able to cope with the work. Further, the work could not be done continuously as cane-planting had to be attended to at the same time. The dearth of labour was very keenly felt. The mill was able to extract sixty-eight to seventy per cent of the juice in the cane.

The expenses to prepare jaggory work out to four annas six pies per maund.

27. *Other Crops.*—Jola was grown to provide fodder for cattle but failed on account of excessive rain after sowing. Bengal gram and horsegram were also tried; but the land that was used was of very poor quality and the yields were very low. Sunn-hemp and cowpea also were grown for getting a stock of seed for green manure purposes. These also did badly. The attempt to grow the last two crops will be repeated next season as there is a keen demand for the seed.

28. *Income and expenditure of the Farm for 1917-18.*—The following statement shows the gross income of the Farm and the expenditure.

| Income | Expenditure | | | | | |
|------------------------------------|--------------------------------------|--|-----------|---|-----------|-----------|
| | Non-recurring | | | Recurring | | |
| Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. |
| From sale of produce .. 6,373 10 3 | Buildings 5,418 8 11 | Assessment for 1916-17 and 1917-18 1,353 9 3 | | Labour 8,438 5 8 | | |
| Hire of ploughs .. 58 3 0 | Implement and Machinery .. 5,550 2 0 | Manure 2,896 6 0 | | Seeds 107 0 0 | | |
| Sale of cotton seed .. 117 5 10 | | Feed of cattle 599 6 1 | | Oil for engine, repairs and contingencies .. 1,139 5 11 | | |
| Total .. 6,549 3 1 | 10,968 10 11 | 14,534 0 11 | | | | |

Leaving the non-recurring expenditure out of consideration for the present, there is an excess on the wrong side of the balance sheet. It cannot be otherwise in a new farm where much of the land has to be cleared of scrub and the plough put on it for the first time. It will be noticed that the charges under labour are high, but it must be remembered that some of these are of a non-recurring nature being incurred in the construction of roads and drainage channels. The charges under this head will gradually diminish and the character of the balance sheet will alter for the better with each succeeding season as the land gets into better shape as the result of proper cultivation.

29. *Distribution of seeds and implements.*—Sugar-cane sets worth Rupees four hundred and fifty-four and annas four sufficient to plant twenty-five acres were sold to the raiyats. Ploughs were hired out at a nominal rate of three annas a day for a plough. Fifty-eight rupees three annas were thus realised in eight months. This has been a very important feature of the work in demonstrating the use of improved ploughs. Raiyats who cannot afford to buy the plough are taking advantage of this concession.

Good cotton seed worth Rupees one hundred and seventeen, annas five and pies ten sufficient for three hundred and thirty-eight acres were sold to the raiyats.

30. *Labour.*—The question of procuring an adequate supply of labour has been a difficult problem on this Farm from the outset. Government have recently been pleased to sanction the recruitment of labourers on the payment of advances. As these were not available within the State seventeen labourers have been imported from Malabar on the above terms. It is too early to say whether this arrangement will prove satisfactory.

31. *Miscellaneous.*—A Co-operative Society was started for the benefit of the coolies working on the Farm. It was registered in June 1918, and has at present a paid-up share capital of Rs. 260-15-0 with a membership of forty-six. It has been of immense use to the coolies as they can get loans on the Farm without much difficulty.

A night School also was started in order to give the illiterate coolies on the Farm some elementary education. Seventeen men have joined the School.

(4) *Nagenahalli Farm.*

32. The Deputy Director continued to be in charge of this Farm during the year. The work on the Farm was begun on the 19th June 1917 with clearing subsidiary hedges, etc., which was continued till the end of the month.

33. The area of the Farm at the beginning was forty-five acres twenty-seven guntas. This has been since increased by fourteen acres twenty-eight guntas by the acquisition of a second block which was taken charge of on the 21st June 1918. Block No. 1 comprises twelve acres twenty-three guntas dry which is above the channel, and twenty-nine acres seven guntas wet land (when the branch channel gets water), the remaining three acres seven guntas being occupied by roads and channels. Of twelve acres twenty-three guntas dry, one acre fourteen guntas is under buildings, both temporary and permanent, and the remainder is under dry cultivation.

34. Though the Farm was taken over more than one year ago, arrangements for the supply of irrigation water are still incomplete and the irrigation authorities await the construction of syphons across the railway line which the channel has to cross to be brought into the Farm. It is not known definitely when the work will be taken up and irrigation provided. Meanwhile the work of levelling, terracing, the putting up of buildings, the digging of wells, clearing of the old hedges and forming new plots is being carried on.

35. *Buildings.*—Temporary sheds were erected for housing the Farm bullocks, implements, etc., and for the residence of the Farm staff. Of permanent buildings, one block consisting of office, stores, and cattle stall and implement shed is nearing completion. The Manager's quarters have also been taken on hand. Two wells for supplying drinking water to the Farm were begun in March 1918. Hard rock has been struck and progress since then has been slow.

36. *Labour.*—The difficulty of getting enough of any permanent labour has been almost insurmountable. At one time the farm labour was reduced to *nil*, and labourers had to be brought from the Hebbal Farm to attend to the urgent work of looking after the bullocks and for harvesting the horsegram crop which had already shed partly. It was only after the Government were pleased to sanction the grant of advances to the permanent labour as is the custom in that locality that we have been able to secure satisfactory permanent labourers.

37. *Crops.*—Nothing but a few dry crops could be attempted; the cropping scheme had to be altered more than once on account of the postponement of the provision of irrigation water from one date to another. But the season of 1917-18, was exceedingly unfavourable to dry crops in this tract, the rainfall being ten inches less than the average for the past forty years. The crops were so poor that a record is hardly worth making.

During the current season, a few dry crops were again sown, but these have had the fate of the other Kar crops throughout the District which completely failed owing to the rains holding off after the crops were sown. An area of eight acres of groundnut, thirteen of Hain ragi, five of fodder jola, and one and a half of castor are proposed to be put in as dry crops in the Hain season, if we should have favourable rains.

38. It will be seen that no work in the way of crop raising worth mentioning could be conducted during this one year of the existence of the farm. It is only when proper irrigation facilities are provided that such work could be started.

B. DEMONSTRATION AND POPULARIZING WORK IN CONNECTION WITH AGRICULTURE.

WORK IN THE EASTERN DIVISION OF THE STATE.

39. *Charge.*—During the year under report, the Deputy Director was in charge of the Eastern Division.

40. *Office.*—During the year under report, the staff of the Deputy Director's Office was increased by the appointment of one accountant and one additional clerk; these joined duty on the 14th March 1918 and 18th January 1918 respectively. The appointment of these additional hands has afforded much needed help.

41. *Correspondence.*—Three thousand nine hundred and seventy letters were received and two thousand six hundred twenty-six letters sent out during the year.

42. *Leave, Transfers, etc.*—During the year he was on privilege leave for two months from 15th January 1918 to 15th March 1918. The Agricultural Inspectors in the Division were on leave for periods as shown below.

| Name | Period of leave | From |
|--------------------------|--|--------------|
| Mr. P. Ramaswami Iyengar | .. 4 days privilege leave | .. 1- 7-1917 |
| | 14 days privilege leave | .. 8- 3-1918 |
| Mr. Abdul Basith Sheriff | .. 1 month and 11 days privilege leave | .. 6-12-1917 |
| K. Adinarayana Rao | 1½ months privilege leave and afterwards leave without pay for study at Pusa | .. 4- 5-1918 |
| K. A. Krishnan | 14 days privilege leave | .. 2- 1-1918 |

43. There have been changes in the staff due to transfers and postings of additional Inspectors as shown below :—

Agricultural Inspector, Abdul Basith, was in charge of the Bangalore District up to 25th April 1918. For one month and eleven days during his leave on account of illness there was no Inspector for the District. He was transferred to Tumkur and his place was taken by P. Ramaswami Iyengar transferred from Kolar on the 25th April 1918.

Agricultural Inspector, Krishna Rao V. Byatnal, was transferred to the Hebbal School and Agricultural Inspector Daniell took charge of the Tumkur District on the 19th July 1917 and continued till 22nd March 1918 when he was transferred to the Palace service, his place being taken by Abdul Basith.

An additional Inspector was sanctioned for the District, but during the whole year there has been only one Inspector actually on duty for the District.

The Kolar District was in charge of the Agricultural Inspector, P. Ramaswami Iyengar, till 6th April 1918, when he was transferred to Bangalore, his place being taken by Agricultural Inspector, D. B. Sivarama Rao, from the Implement Depot.

The Mysore Range has been throughout in charge of Agricultural Inspector Narasinga Raju, who joined early in the year 1917 relieving S. Krishna Rao, posted as Manager of the Nagénahalli Farm. The Nanjangud Range was in charge of Agricultural Inspector, K. A. Krishnan till 26th February 1918 when he was transferred as additional Inspector to Bangalore and his place taken by Agricultural Inspector, M. S. Ramachandra Rao.

44. *Fieldmen.*—The number of fieldmen sanctioned for the Division is twenty-four. There has been difficulty in obtaining men of the required stamp for these places. The number actually on duty at the end of the year was only twenty-three. Two of these men were passed students of the Chikkanhalli Agricultural School. During the latter part of the year for the purpose of supervising the ragi seed farms which are being extended in the current season, Government have sanctioned an additional ten hands temporarily for a period of nine months.

45. *Tours.*—The number of days spent in tour by the Deputy Director and his Agricultural Inspectors was as follows :—

| | | |
|-----------------------------------|---------|----------|
| Deputy Director | .. .. . | 126 days |
| Agricultural Inspector, Bangalore | .. .. . | 171 " |
| Do Kolar | .. .. . | 241 " |
| Do Mysore | .. .. . | 197 " |
| Do Tumkur | .. .. . | 280 " |
| Do Nanjangud | .. .. . | 161 " |
| Do Channapatna | .. .. . | 89 " |

DISTRICT WORK.

46. *Inspection of Estates.*—Considerable time has been spent in the inspection of estates at the request of owners. A number of cocoanut, plantain, and areca gardens, sugar-cane and paddy areas and orchards and areas meant for large landed estates, have been visited. Advice has mainly related to the provision of proper drainage, the growing of green manure crops and remedial measures for insect pests. The lands under the large Mayatoor Tank were inspected by the Deputy Director in company with the members of a Committee called together by the Deputy Commissioner of Tumkur for the purpose of examining the question of the extension of sugar-cane cultivation under the tank, and a note furnished on the subject. The number visited in the several Districts are shown below :—

| | | |
|-----------|---------|-----|
| Bangalore | .. .. . | 50 |
| Tumkur | .. .. . | 130 |
| Kolar | .. .. . | 27 |
| Mysore | .. .. . | 82 |

The Popularization of Improved Methods:—

47. *Implements (of tillage).*—As heretofore, the various types of ploughs, and cultivators have been largely demonstrated in the villages, and at large gatherings of raiyats such as conferences, jattras, shandies, and jamabandi meetings. The number of such demonstrations are as shown below:—

| | | | | | | | | |
|-----------|----|----|----|----|----|----|----|-----|
| Bangalore | .. | .. | .. | .. | .. | .. | .. | 118 |
| Kolar | .. | .. | .. | .. | .. | .. | .. | 113 |
| Tumkur | .. | .. | .. | .. | .. | .. | .. | 102 |
| Mysore | .. | .. | .. | .. | .. | .. | .. | 206 |
| | | | | | | | | 539 |

48. The Agricultural Inspectors' Depots in the Division have lately been provided with a set of implements for being hired out to raiyats in their immediate neighbourhood. The sale of these implements is as shown below:—

| | Ploughs | Cultivators | Shares |
|-----------|---------|-------------|--------|
| Bangalore | 103 | 10 | 193 |
| Tumkur | 85 | 15 | 107 |
| Kolar | 151 | 20 | 180 |
| Mysore | 128 | 6 | 144 |
| Total | 467 | 51 | 624 |

With regard to the sale of implements the following points are worthy of mention. The demand for improved implements was very keen in the Division but could not be satisfactorily met for want of adequate supplies.

It may be noted with satisfaction that the local blacksmiths who have been copying the K. M. model and been repairing old shares and manufacturing new ones have been able to do a good business this year.

The Anekal and Bangalore Taluks may be specially mentioned in this respect as there are villages in these in which there are over fifty ploughs each. The shares required for this large number are made only by local blacksmiths.

The K. M. cultivator is also increasing in popularity.

49. *Ploughing dry lands after harvest.*—This somewhat difficult yet very important practice has been largely advised and is slowly coming into practice in all the districts. As in the last year, two disc harrows were sent out for the purpose. The areas ploughed or disked are as below:—

| | | | | | | | |
|-----------|----|----|----|----|----|----|----------|
| Bangalore | .. | .. | .. | .. | .. | .. | 24 acres |
| Tumkur | .. | .. | .. | .. | .. | .. | 14 acres |
| Kolar | .. | .. | .. | .. | .. | .. | 20 acres |

50. *Selection of seed.*—Both paddy and ragi meant for seed purposes have been selected by the salt water method to the extent of four thousand four hundred and forty seers in the Division as shown below:—

| | Paddy | Ragi |
|-------------|-------------|-----------------------|
| Bangalore | 155 seers | 198 seers |
| Mysore | 2,336 seers | 100 seers |
| Kolar | 1,150 seers | .... |
| Tumkur | 150 seers | 350 seers |
| 3,791 seers | | 648 : or 4,440 seers. |

Being comparatively easy, except where large quantities of seeds have to be handled, several literate raiyats select seeds by the method, of which the Inspectors do not always have a report.

51. *Selection of Earheads of Ragi.*—Both Inspectors and Fieldmen have devoted considerable attention to this practice. They have in many cases gathered such earheads themselves to give enough seed for areas of about an acre or so. In Kolar especially many raiyats have shown much interest in this work. The quantities so selected under the supervision of the staff are as shown below:—

| | | | | | | |
|-----------|----|----|----|----|----|-----------|
| Bangalore | .. | .. | .. | .. | .. | 430 seers |
| Kolar | .. | .. | .. | .. | .. | 375 seers |
| Tumkur | .. | .. | .. | .. | .. | 280 seers |
| Mysore | .. | .. | .. | .. | .. | 149 seers |

1,234 seers or enough
for 150 acres.

52. *Transplanting of paddy.*—The practice of transplanting in preference to broad-casting and the substitution of transplanting in singles instead of in bunches have been followed to the extent noted below :—

| | | | | | | | |
|-----------|----|----|----|----|----|----|-----------|
| Bangalore | .. | .. | .. | .. | .. | .. | 20 acres |
| Kolar | .. | .. | .. | .. | .. | .. | 23 acres |
| Tumkur | .. | .. | .. | .. | .. | .. | 36 places |
| Mysore | .. | .. | .. | .. | .. | .. | 51 acres |

The additional labour which transplanting requires though it is more than made up by the saving in weeding and by increased yield, is a matter which operates against considerable extension in the area. Transplanting too is often done by coolies who are paid by the area transplanted, whose interest therefore is to do the work as quickly as possible and cover a large area. They are always averse to a change which means more work. The areas shown above represent therefore such as have been conducted by keenly interested raiyats.

53. *Threshing Methods.*—The stone threshing roller has become so popular and common in Bangalore and Kolar Districts, that before many years are over the older methods such as beating out the grain or trampling it out under the feet of oxen will be forgotten. At a number of quarries in these districts these rollers are made by the dozens and supplied.

As was noted in last year's report it is strange that it has not spread into the Mysore District notwithstanding the fact that the department possesses two rollers in the district for demonstration. It is however becoming quite common in the Tumkur District. The threshing by machine has now become out of the question owing to the high price of petrol and kerosine.

54. *Sugar-cane Milling and Jaggory Boiling.*—The demand for mills in the year under report was very great; but not a single new mill could be supplied. There was a great increase in the area under sugarcane in the year and applicants were willing to pay even twice the usual cost. The departmental outfits were demonstrated in the places as noted below :—

| | | | | | | | | |
|-----------|----|----|----|----|----|----|------------|------|
| Bangalore | .. | .. | .. | .. | .. | .. | 6 villages | |
| Kolar | .. | .. | .. | .. | .. | .. | 6 " | |
| Tumkur | .. | .. | .. | .. | .. | .. | 10 " | |
| Mysore | .. | .. | .. | .. | .. | .. | 10 " | |
| Total | | | | | | | .. | 32 " |

At Sanyasihalli in the Bangalore District, the outfits were demonstrated along with a power crushing mill installed by the Department of Industries.

In Sira Taluk, the Vernacular Agricultural School at Chikkanahalli also conducted a very successful and well attended demonstration in its own land; the outfit was much in demand in that neighbourhood, where by the new method, jaggory very much better than what the people were used to was prepared.

55. *Sugar-making.*—Although it is not a record of the work of the Department, it may be mentioned that the high price of sugar has led to the re-opening of the places where in the old days country sugar, which is much like muscavado sugar, used to be prepared. These have done good business in the year and two, *viz.*, one in Kappal-madagu village, Mulbagal Taluk and Gannerlahalli, Bowringpet Taluk were inspected.

56. *Manures.*—(i) *Cattle Manure.*—The increasing cost of oil cakes and other similar fertilizers is making it imperative upon raiyats to attend to the proper conservation of cattle manure. Mention was made of the distribution of leaflets on the subject last year; a coloured poster, which used to be exhibited by the Department in the Exhibition is being arranged to be printed for distribution. Many raiyats have expressed their willingness to erect suitable stalls and pits. Three improved cattle stalls and four manure pits built during the year have come to notice.

(ii) *Green Manure.*—The recommendations in this matter by the Department are being keenly taken up. Green Manure crops are being grown for paddy and sugarcane fields, areca and cocoanut gardens, and for potatoes. As in last year large areas of over ten acres each were sown by individual raiyats, in Tiptur and Hebbur (Tumkur District), in Varthur and Dodthogur (Bangalore District), Sabbanahalli and Kollodi (Kolar District). Many clients have also grown it for seed both for themselves and for sale to the Department. In one case, the crop has been grown in one place and carted a long distance to be applied to paddy fields like hongē or other leaves.

It is noteworthy that for arecanut and cocoanut gardens the practice is being taken up to an appreciable extent.

The Department was able to supply only a part of the demand for seeds as there was not a sufficient stock.

The quantities sold were as follows :—

| | Sunnhemp | Daincha |
|-------------------|-------------|-----------|
| Bangalore | 700 seers | .... |
| Mysore | 1,074 seers | 114 seers |
| Tumkur | 800 seers | .. |
| Kolar | 1,980 seers | 35 seers |
| Total | 4,554 seers | 149 seers |

(iii) *Oil Cakes*.—The hesitation on the part of raiyats in this Division against the use of groundnut oil cake as mentioned in last year's report has materially worn down and notwithstanding the prohibitively high cost, a fairly large quantity has been issued. Added to the high cost of the cake, there have been heavy transport charges to pay. In this connection attention may be invited to remarks in last year's report on the grant of irrigation water for green manure crops under the Cauvery and Hemavati channels.

The amount of oil cake issued in the division is as shown below :—

| | |
|-------------------|---------------------------|
| Bangalore | 192 tons. |
| Kolar | 6,650 maunds or 85½ tons. |
| Tumkur | 20 tons. |
| Mysore | 29½ tons. |
| Total | 327 tons. |

Attention may be invited to the large quantity sold in the Mysore District which is a matter for gratification as the extension of the use of this manure is very important in that District where there is much sugar-cane cultivation for which little or no oil cake is ever used as manure.

(iv) *Manure for Special Crops*.—(a) *Paddy*.—Mention was made in last year's report of the use of a mixture of bonemeal and oil cake for manuring paddy. During the year under report fourteen tons of the manure was issued against two tons in the past year. There is much scope for this work in the Mysore District particularly, and elsewhere in general. It is proposed to make a beginning in the other Districts also in the current season.

(b) *Cocoanut manure*.—In addition to the green manures referred to which are coming slowly into practice for these gardens, other manures have been tried. Mention was made in last year's report of one garden in Tiptur and one in Bangalore where these trials were conducted. In Tiptur the manures were applied for two years. In spite of requests to the owner to keep a correct record of the produce, owing to various causes he has not been able to do so; however a record of the crop on the trees including nuts and inflorescences at the beginning of the experiment compared with a crop on the trees at about the same season after two years of manuring shows a very marked improvement indeed. The "no manure" tree also it must be mentioned shares in the improvement, a fact not at all uncommon in such experiments. Although the result may be considered satisfactory to the owner, they are not such as we could make use of for drawing any definite conclusions. In view however of the importance of the subject for that region, the wealth of which consists to a large extent of its cocoanut plantations a good garden should be taken up, as a cocoanut experimental farm on which both manurial and other experiments may be conducted under the conditions of control essential for such work.

In the estate in Bangalore however a record is being kept of the produce, and a second dose of the same manures is being applied in the current season. The crop from which any fair inference can be drawn will be picked only next October.

(v) *Manuring grass paddocks*.—The authorities in charge of the Government Stud Farm at Kunigal wished that the paddocks should be manured with phosphatic manures, under the belief that such treatment of the paddocks may improve the bones of the young stock. Although it will require very elaborate experiments carried through some years to establish any such connection, still the request was complied with and five thousand six hundred pounds of a mixture made up of three thousand pounds of bonemeal and two thousand and six hundred pounds of groundnut oil cake was supplied.

57. *Crops*.—Work in this direction has related to the introduction of crops or varieties new to particular areas in the Division—

(a) *Indigo*.—The good beginning made last year has not been followed up. It is a crop which has not been grown in the State for many years; now, as is evidenced by the ruined vats to be seen in more than one village, the method of manufacturing the dye has been practically forgotten. It is worth reviving, during the continuance of the war at any rate, for the cultivation will be very profitable and even when prewar conditions are restored it will be a very good crop, for rotation with paddy as Thadi (semi irrigated) crop, for it will yield a fair profit as a dye and enrich the paddy land as a manure. But it will be quite necessary in that case, that it should be grown on a fairly large scale and the manufacture demonstrated in some Government Farm where people wishing to learn the manufacture may have opportunities for doing so.

(b) *Paddy*.—As in past years a large quantity of short season paddy has been supplied. There is a good demand, and as the various Agricultural Inspectors' Offices develop, more and more of such paddy will be stocked for seed purposes. The Kapile-Sanna variety has been popular for this purpose. Banku paddy has done very well in Goibidnur Taluk, where yields of over twenty-five pallas have been reported. The quantity supplied during the year was as follows:—

| | | | | | | | | |
|-----------|----|----|----|----|----|----|----|-----------------|
| Bangalore | .. | .. | .. | .. | .. | .. | .. | 462 seers. |
| Kolar | .. | .. | .. | .. | .. | .. | .. | 2,025 seers. |
| Tumkur | .. | .. | .. | .. | .. | .. | .. | 993 seers. |
| Mysore | .. | .. | .. | .. | .. | .. | .. | 993 seers. |
| Total | | | | | | | | .. 3,480 seers. |

Arrangements have already been made for the purchase and stocking of a large quantity of about eight thousand seers for the current season.

(c) *Sugar-cane Varieties*.—Work has related to the introduction of the Red Mauritius variety of sugar-cane. The crops raised from canes supplied last year have been used to a considerable extent for seed purposes. If it were not that raiyats naturally showed a desire to mill the canes to find out the yield and quality of jaggery and not sell the whole crop to the Department for seed purposes, a much larger area could have been planted. In some villages where the cane has been newly planted there has been unfortunately a plague of the sugar-cane borer pest, which has been very severe owing apparently to the withholding of the rains. The young crop has suffered very much in consequence.

During the year under report, this variety has been introduced into all principal sugar-cane growing areas, viz., Bannur Haravu, Seringapatam, Chamrajnagar, Nanjangud, T.-Narsipur, Sosale, Gundlupet (in which Taluk there has been a striking increase in the area under sugar-cane), Krishnarajpete, Kikkeri, in the Mysore District, Dodballapur, Anekal, Agram, in Bangalore District; Mavattur, Hebbur, Kunigal, Koratagere, Kadaba in Tumkur District and Goribidnur, Sabbanhalli and Hosur in Kolar District.

The number of sets distributed in the different districts is as shown below:—

| | | | | | | | | |
|-----------|----|----|----|----|----|----|----|-----------------|
| Bangalore | .. | .. | .. | .. | .. | .. | .. | 3,052 sets. |
| Kolar | .. | .. | .. | .. | .. | .. | .. | 20,000 sets. |
| Tumkur | .. | .. | .. | .. | .. | .. | .. | 18,820 sets. |
| Mysore | .. | .. | .. | .. | .. | .. | .. | 18,900 sets. |
| Total | | | | | | | | .. 60,772 sets. |

The Chikkanahalli Agricultural School has taken part in the distribution of this variety from the crop on its Farm.

(d) *Groundnuts*.—Only the early maturing varieties are in demand from the department as the local varieties are bought from the bazaar. The following quantities were supplied.—

| | | | | | | | | |
|-----------|----|----|----|----|----|----|----|------------|
| Bangalore | .. | .. | .. | .. | .. | .. | .. | 377 lbs. |
| Kolar | .. | .. | .. | .. | .. | .. | .. | 852 lbs. |
| Tumkur | .. | .. | .. | .. | .. | .. | .. | 480 seers. |
| Mysore | .. | .. | .. | .. | .. | .. | .. | 480 seers. |

In the current season a good crop of six acres in Nanjangud has been marked down for being purchased for seed to be stocked in the depots of Mysore and Nanjangud.

(e) *Cotton*.—During the year there has been a large demand for Cambodia cotton seed which could not be met as the usual supplier failed to comply.

Mysore is the cotton district in this division if we exclude a small portion of the Tumkur District bordering on the Chitaldrug District. Cambodia Cotton seed for which there is always a large demand from that district cannot be said to have been uniformly successful. The proximity of the Coimbatore District where it is a profitable crop accounts for this large demand, nevertheless.

To find out with some degree of certainty the exact varieties which will suit this tract and the time of sowing them, it has been arranged to plant an experimental area of one acre in the village of Mugur with different varieties, on the land of one of the important raiyats. Dharwar-American, Cambodia, Sannahatti from Chitaldrug and a select variety from Babbur are the ones to be tested.

A certain quantity of cotton has also been distributed in the season as shown below :—

| | | | | | | | | |
|-----------|----|----|----|----|----|----|----|---------------|
| Bangalore | .. | .. | .. | .. | .. | .. | .. | 590 lbs. |
| Kolar | .. | .. | .. | .. | .. | .. | .. | 550 lbs. |
| Tumkur | .. | .. | .. | .. | .. | .. | .. | 1,125 lbs. |
| Mysore | .. | .. | .. | .. | .. | .. | .. | 1,489 lbs. |
| Total | | | | | | | | .. 3,754 lbs. |

(f) *Potatoes*.—This is one of the crops for which seed is always in demand, and yet it seems hopeless to attempt to supply disease-free seed. A firm in Bombay supplied during the year 60 maunds of seed potatoes, apparently as disease-free, but even that was found to be diseased, for the crop raised showed a good percentage of ring disease. As the demand is however insistent, some steps should be taken so that we may meet the wishes of a large number of clients.

58. *Other Seeds*.—During the year, three thousand five hundred seers of jola and sixty maunds of turmeric from the Western Division have been supplied, the former to the Palace Kavals largely and the latter for trial to some clients in Bangalore and Tumkur.

59. *Seed Farms*.—Mention was made in last year's report of the putting down of trial areas in selected raiyats' holdings for the trial and multiplication of certain selected high yielding strains of Ragi. The areas in the villages of Herohalli, Sakalavara, Vasantapura, Chikkanhalli, did best and all this crop was harvested, and threshed separately and purchased at a premium. In the current season all this seed has been distributed again to selected clients on the understanding that the crop is to be looked after according to the directions of the department especially with regard to freedom from mixing, and that it should be sold back in whole or part to the department at a premium to the grower. The quantity issued is as follows :—

| | | | | | | | | |
|-----------|----|----|----|----|----|----|----|---|
| Bangalore | .. | .. | .. | .. | .. | .. | .. | 2,542 seers. |
| Kolar | .. | .. | .. | .. | .. | .. | .. | 680 seers. |
| Tumkur | .. | .. | .. | .. | .. | .. | .. | 592 seers. |
| Mysore | .. | .. | .. | .. | .. | .. | .. | 629 seers. |
| Total | | | | | | | | .. 4,443 seers or for about 550 acres. |

All this is Hain Ragi. In addition, early in the season selected strains of Kar Ragi were also issued and sown in the Nagenahalli Farm and in Nanjangud.

60. *The Mysore Dasara Exhibition Farm*.—Although this is referred to under Exhibition, a separate mention may be made, because of its area and the variety of work done on it, and time which had to be spent on it. It was a four acre plot. It was levelled, terraced, roads and paths made, and crops put down arranged in a manner suitable for an Exhibition. As a full description was given in the Handbook of Exhibits issued at the time of the Exhibition, further reference to the plot is unnecessary.

61. *Demonstration Area of the Electrical Department, Kankanhalli*.—The Chief Electrical Engineer desired that a small area of irrigated crops should be grown under well irrigation, the water being raised by an electrically driven pump installed near the transformer house at Kankanhalli. The object is to demonstrate the possibility of growing profitable crops under this arrangement, to raiyats in that neighbourhood who may wish to instal similar pumps along the banks of the river. The principal crop proposed to be grown is sugar-cane; but as the season had advanced when the land was taken up, a preparatory crop of potatoes, groundnuts and some vegetable crops which may find a ready sale in the local market have been put down. It is a tract where much mulberry is grown; a small area of this crop may also be planted next season.

62. *Implement, Seed and Manure Depots.*—The offices of the different Agricultural Inspectors where these depots are located are becoming very popular. In addition to the stock of implements, manure and seeds of the department, they have been selling vegetable seeds and gardening tools on behalf of the Agricultural Committee. These depots will have to be expanded, so as to have godown accommodation for a good stock of oil cake manure, for seeds to be bought from the respective seed farms, and a large stock of implements. They are also serving as small reading rooms and information offices. The sales at some of these depots amounted to a fair sum during the year.

| | | | | | | Rs. | a. | p. |
|-----------------|----|----|----|----|----|-------|-------|-----|
| Bangalore depot | .. | .. | .. | .. | .. | 2,290 | 0 | 0 |
| Kolar depot | .. | .. | .. | .. | .. | 2,753 | 1 | 0 |
| Tumkur depot | .. | .. | .. | .. | .. | 1,725 | 10 | 6 |
| Mysore depot | .. | .. | .. | .. | .. | 2,435 | 11 | 3 |
| Total | | | | | | .. | 9,204 | 6 9 |

At the end of the year there were two depots in every district except Kolar.

63. *Work in co-operation with District Committees, Taluk Progress Committees, Co-operative Societies and other bodies.*—The Deputy Director served during the year on the Central Education Committee of the Economic Conference, and the District Committees of Bangalore and Tumkur. The meetings of the Committees, as well as of Taluk Progress Committees, etc., were attended by him and by the Agricultural Inspectors under him as noted below :—

| | | | | | | | | |
|---------------------|----|----|----|----|----|----|----|----|
| Deputy Director | .. | .. | .. | .. | .. | .. | .. | 24 |
| Bangalore Inspector | .. | .. | .. | .. | .. | .. | .. | 14 |
| Kolar Inspector | .. | .. | .. | .. | .. | .. | .. | 46 |
| Tumkur Inspector | .. | .. | .. | .. | .. | .. | .. | 68 |
| Mysore Inspector | .. | .. | .. | .. | .. | .. | .. | 50 |

64. *District Agricultural Conference and Taluk Conferences.*—As in the previous year, District Agricultural Conferences were held as part of the District Conference of the Economic Conference.

As heretofore all gatherings and organizations likely to be of value in advancing the work of the department have been amply made use of.

65. *Exhibitions.*—In addition to the Dasara Exhibition in Mysore, small exhibitions were arranged in connection with the several District Conferences, at which demonstrations and lectures were held.

66. Rural Science Work was under the supervision of the Deputy Director up to January 1918.

WORK IN THE WESTERN DIVISION.

67. The Assistant Director was in charge of the work in the Western Division throughout the year. He was on tour for 195 days during the year.

68. *Office.*—To cope with the increasing office and account work, an accountant was added to his staff during the latter part of the year.

69. *Leave, Transfers, etc.*—During the year under report, the Assistant Director was on privilege leave for 14 days during November 1917. The Agricultural Inspectors were on leave for periods as shown below :—

| Name | Period of leave | From |
|-----------------|------------------|---------------------|
| Mr. H. A. Hooli | .. One month | .. 2nd April 1918. |
| S. Rangaswami | .. Fourteen days | .. 17th June 1918. |
| Narasoji Rao | .. Two months | .. 21st March 1918. |

70. The following Inspectors continued to be in charge of the several districts noted against their names during the year 1917-18.—

Mr. H. A. Hooli, Shimoga.
S. H. Bennur, Kadur District.
H. Venkoba Rao, Hassan District.
S. Rangaswami, Chitaldrug District.

During the year there were four additional Inspectors newly appointed to help the senior Inspectors. They were distributed as follows :—One to Chikmagalur (G. Sundararajengar), two to Shimoga (T. J. Narasoji Rao and B. R. Gururaja Rao), one to Chitaldrug (B. Srinivasa Rao).

G. Sundararajengar was on the Babbur Farm till 24th March 1918 and took charge of the Shimoga District on 2nd April 1918.

T. J. Narasoji Rao was a fieldman in the Mycological Section till 17th January 1918. He was then appointed Agricultural Inspector on probation from the 18th January from which date he was under the Agricultural Inspector, Shimoga District.

B. R. Gururaja Rao was transferred from the Hebbal Farm to the Kadur District. From 31st March, he has been in the Shimoga District.

B. Srinivasa Rao, was appointed Probationary Agricultural Inspector, Hassan District, from the 26th February 1918 and was posted to Chitaldrug District for work from the beginning of June 1918.

71. *Implements and their Demonstration.*—Two hundred and eighty-nine demonstrations were held during the year as against 251 during the previous year. Shimoga had 104, Kadur 95, Chitaldrug 61, and Hassan 29.

The number of ploughs sold increased to 719 from 441. The difficulties of transport by rail were so great that the ploughs did not arrive in time at the depots. Thus the implements could not be delivered whenever they were wanted by the parties and this fact has tended to appreciably reduce the number sold during the year. Shimoga sold 325 against 116, Chitaldrug 145 against 51, Kadur 126 against 172 and Hassan 123 against 102. There is a demand for six-shovel cultivators and stone threshing rollers eight of which were sold in the Hassan District.

Sugar-cane Mills.—The demand for Nahan type mills was very great but they were unfortunately not available. With great difficulty a consignment of thirty was secured from the Punjab, which was sold almost as soon as it was received. Shimoga took 17; Chitaldrug 8 and Kadur 5.

72. *Jaggory making.*—Fifty-one Jaggory boiling demonstrations were held during the year under report; 24 in Shimoga, 14 in Chitaldrug, 8 in Kadur and 5 in Hassan.

Owing to the extraordinary rise in the price of pans, people were not willing to go in for them freely. Five sets of pans were however sold in the Kadur District and two sets in the Shimoga District. Forty-four skimming ladles (18 in Shimoga, 13 in Chitaldrug and 13 in Kadur) were also sold.

73. *Sugar-cane.*—The demand for the seed of foreign canes has increased enormously. This year seven lakhs, fifty-eight thousand seven hundred and twenty-five sets of these new varieties have been distributed against one lakh fifty-nine thousand three hundred and sixty-seven in the previous year. As the seed cane had in previous years to be carried long distances in country carts, it did not always reach the destination in good condition. This has been obviated to a considerable extent this year as much of the cane has been distributed from local private seed farms. The distribution of sets by districts is as follows:—

| | | | | | | | | |
|------------|----|----|----|----|----|----|----|---------------|
| Shimoga | .. | .. | .. | .. | .. | .. | .. | 253,500 sets. |
| Hassan | .. | .. | .. | .. | .. | .. | .. | 100,400 sets. |
| Chitaldrug | .. | .. | .. | .. | .. | .. | .. | 40,000 sets. |
| Kadur | .. | .. | .. | .. | .. | .. | .. | 364,825 |

74. *Oil Cake.*—The distribution of oil cake formed a great part of the work during the year. The quantity distributed rose to 392 tons from 131 tons during the previous year. Here again Kadur was at the top having taken 150 tons and next in order came Hassan with 130, Shimoga 58 and Chitaldrug 54. Had it not been for the non-receipt of cake in time on account of transport difficulties and also the failure of rains from April onwards a much larger quantity could have been sold.

The manure has however become popular and even areca growers have begun to use it.

75. *Paddy.*—There is keen enquiry for good varieties of paddy from all quarters. In the Shimoga District the cultivators want an early maturing variety of which a large quantity could have been distributed if seasonal conditions had been favorable. But owing to the failure of rains, only about 400 seers of three months' paddy were supplied to raiyats in the Shikarpur Taluk. Excluding what the raiyats sold among themselves, 740 seers of Chintamani Sanna were distributed in Hassan where it is most popular; 484 seers in Kadur and 75 seers in Chitaldrug. Alur Sanna is very popular in the Kadur District which got 700 seers of it. Altogether 2,400 seers of paddy seeds were distributed by the department as against 1,417 seers during the previous year.

76. *Economic Transplantation.*—As a special temporary establishment was entertained for the purpose last year, 235 acres as against 76 acres during the previous year

were transplanted economically. People of Shimoga did 120 acres; Kadur 75, and Hassan 40 acres.

77. *Green Manure*.—Want of timely rains has also prevented the introduction of green manures. Three thousand seven hundred and ninety-six seers as against 3,244 seers of sunn hemp were sold of which Kadur took 1,737, Hassan 1,500, Chitaldrug 525 and Shimoga 234 seers.

Three hundred and sixty-five seers of cowpea have been taken by Kadur. This crop can be successfully tried between the rows of cane. Last year the seed could not be imported in time for this trial on account of transport difficulties. Next year arrangements will be made to get the seed well ahead of time.

78. *Groundnut*.—This is a crop that is slowly making its way among the raiyats. The varieties with erect habit have become very popular in the Chitaldrug District. About 357 maunds were distributed in the division, of which Shimoga had 242 maunds; Kadur 86 maunds, Chitaldrug 21 maunds and Hassan 8 maunds.

79. *Cotton*.—Good and pure seeds of Doddahatti are not generally available at the sowing time. The cultivators export all their cotton to Davangere where it is ginned and sold. No attempt is ever made at the gins to keep the seed unmixed. Some dealers bag whatever seeds they can get and sell to the cultivators for payment in kind, the stipulation being that one maund of cotton (which now sells at Rs. 6) should be returned for a maund of seed (which is worth Rs. 1-12-0). As the price of cotton has risen, there is a keen demand for the seed which is not easily available at the sowing time. As cotton has been newly gaining ground in the Hassan District, a serious attempt was made by the department to establish a depot at Banavar and distribute the seed in the neighbouring taluks. On the whole 923 maunds of Doddahatti seed were distributed in the division; 728 in Hassan; 92 in Chitaldrug, 66 in Kadur and 37 in Shimoga.

Cambodia.—One hundred and sixty-eight maunds of this cotton have also been sold to the cultivators of the division. This is especially popular in the nala tracts of Hiriyyur. As the plants raised from local seed got disease last year, fresh seeds have again been imported from Tiruppur. Of the above, Chitaldrug had 105 maunds, Hassan 50, Shimoga 9 and Kadur 4 maunds.

80. *Turmeric*.—The Poona variety of turmeric is getting popular day by day. It seems to be doing well especially in the *semi-malnad*. One hundred and ninety-seven maunds were sold during the year, of which Kadur had 76 maunds, Chitaldrug 63, Shimoga 58 maunds, while only 62 maunds had been distributed during the previous year in the whole division.

81. *Ragi*.—One thousand two hundred and fourteen seers of the improved strains of ragi of Hebbal were distributed for trial in the various ragi areas of the division. Kadur had 583 seers, Shimoga 277, Chitaldrug 248 and Hassan 106.

82. *Fodder*.—About 100 seers of Jola were supplied for purposes of raising fodder in the Shimoga District. Five pounds of guinea grass seed were likewise distributed in the whole of the division; Shimoga and Hassan having 1½ lbs. each and Kadur and Chitaldrug one pound each. One of the collaborators of the department at Tirthahalli tried to pit about seventy carts of green grass and make ensilage out of it. He spent Rs. 150 for it and though the grass was not in a fit condition for ensilage the experiment has succeeded fairly well. This year, he has promised to try it again.

83. *Copper sulphate for smut prevention in Jola*.—One thousand two hundred and eighty seven packets have been distributed; 602 in Kadur, 498 in Shimoga, and 187 in Chitaldrug. The incidence of smut has for some reason or other been fast decreasing and the cultivators besides know that copper sulphate is an efficient remedy to prevent it.

84. *Miscellaneous*.—Vegetable seeds, and garden tools are being stocked in the depots and sold to the cultivators. Garden togari and plantain (Rasabale) suckers were supplied in the Chitaldrug District. Indigo was introduced in the Hassan District.

85. *Committee Meetings, etc.*—The Assistant Director was a member of the District Committees of Hassan and Shimoga. He has attended several Taluk Conferences. The Inspectors have invariably been present at all the Taluk Conferences of their respective districts. They have now been attending the District Committee Meetings as well under the recent orders.

86. The Assistant Director helped in starting two Sugar-cane Growers' Associations, one at Sowlanga, Shimoga District and the other at Bheemasamudra, Chitaldrug District.

87. An examination of the detailed account of work carried on in the Eastern and Western Divisions given above will show that considerable progress has been made in both divisions in almost all the lines of work taken up by the department, during the year under report. This has been rendered possible to a certain extent by the appointment of an additional Agricultural Inspector and 3 Fieldmen to each district. This strengthening is by no means sufficient, for the department has a number of definite recommendations which should be introduced as rapidly and among as large a number of people as possible in the interests of the agriculture of the State. There should be one Inspector with fieldmen to assist him in each taluk. But this is not merely a question of funds, for if the additional posts were sanctioned to-day, it would be almost impossible to find trained men to fill them. The variety and volume of the work carried on in the divisions are fast making the work too much for one officer to do justice to, so that the question of strengthening the supervising staff will require early consideration.

88. Though other items of work have neither been neglected nor discontinued, three may be particularly mentioned. These were as in the previous year, (1) the popularization and distribution of improved agricultural implements and (2) the improvement and development of sugar-cane cultivation to which may be added (3) the introduction of improved strains of ragi of which a quantity sufficient to sow 1,000 acres has been distributed.—

(a) With regard to the first item, the popularizing work may be said to have developed normally as a large number of demonstrations have been held and a good many jatras, fairs, shandies and similar gatherings have been made use of. But with regard to the distribution of implements, the position was not satisfactory. It is disadvantageous at the best of times to be unduly dependent on foreign supplies on account of the uncertainty attaching to such supplies; and under present war conditions it has been impossible to get anything in this line from abroad. Some Indian Firms we used to deal with, could not execute orders either for want of raw material or transport facilities. The manufacture of implements in the Public Works Workshop did not unfortunately relieve the situation to any extent for reasons referred to in the previous report. The New Bar share plough did not attain the popularity that was expected on account of its weight and general lack of finish. When this and the imported article were offered together, it was always the latter that was preferred in spite of its being more expensive. Most of the sugar-cane mills manufactured at the workshop and sold by the department had to be taken back as they developed serious defects when put to use. The department having at considerable pains taught the people to appreciate improved implements is now in the undesirable position of not being able to supply the demand it has created. The time has therefore come for the establishment of a factory for the manufacture of agricultural implements by Government, but—this point is important—the factory should be a well-equipped one with the necessary appliances to turn out articles comparing favourably in appearance and performance with imported implements, under the management of one thoroughly conversant with all the details pertaining to this specialized industry. The factory and its equipment will be expensive, so will the man competent to run it as it ought to be, but the expense would be fully worth while in view of the very important interests the factory will benefit. The output of the factory, at any rate, during the first few years will probably all be absorbed by the State and if in course of time, the output should exceed the demand, there seems to be no reason why a small export Indian trade could not be built up.

(b) It will be noticed that the quantity of sugar-cane distributed for seed has nearly trebled during the year. There is one pleasing feature about this to which attention may be invited and that is the increasing help the department has received from the agriculturists of the State, some of whom have grown the sugar-cane and selected strains of ragi under the direction of the department and turned over their produce to the department for distribution. The fact that in spite of the high cost of groundnut cake, 720 tons of it have been distributed, indicates clearly that the sugar-cane cultivators are becoming alive to its usefulness and that the practice of applying oil cake to sugar-cane will spread rapidly especially if its cost could be reduced. Experiments have shown that ragi benefits a good deal by rotation with groundnut, but the latter is a crop that deserves extension on its own merits. It is a paying crop and if a number of mills sufficient to handle the increased output be installed at the same time, the oil will find application in the industries and the cake will serve for feeding and manurial

purposes. The Deputy Director suggests that the transport charges by rail in the State Railways should be reduced by one-half in the case of oil cake or other fertilizers. It is doubtful if such a measure would afford any great relief if the other Indian Railways did not allow a concession rate at the same time but any proposal to cheapen the cost of fertilizers to our agriculturists is worthy of sympathetic consideration.

89. Coming next to the question of green manures, the use of which is generally advantageous in the case of Mysore soils, there are certain obstacles to the rapid spread of this very desirable practice to remove which Dr. Coleman has elsewhere suggested certain measures which may be adopted. These are the provision of water under channels for the two or three irrigations necessary for the growth of a green manure crop; and under tanks, the offer of an inducement to make a large number of raiyats agree to grow a green manure crop at the same time to protect the crop from the risk of grazing, the inducement to take the form of a small bonus or a partial remission of taxes.

90. The Assistant Director reports a keen demand for pure cotton seed for sowing purposes which it has not been possible to supply. The establishment of a ginning factory on the Babbur Farm which Government have recently been pleased to sanction will go a great way in helping the Department to meet the demand.

91. The number of ploughs and other implements suitable for dry land sold during the year under report, by improving cultivation may be estimated to have yielded to the cultivators an increased revenue of Rs. 50,000 and the introduction of the improved strains of ragi another Rs. 3,000, on the assumption that the average yield of ragi is three pallas per acre and that the value of ragi is Rs. 8 per palla. The application to sugar-cane of seven hundred and twenty tons of oil cake which was the quantity sold during the year should result in an increased revenue to the cane growers of 1,05,000 rupees, while the increase due to the introduction of a better yielding variety of cane may be put down at Rs. 6,000. As it may be assumed that on the area on which oil cake was applied and a better variety of cane grown, that better milling and boiling methods as recommended by the Department were also adopted, Rs. 3,500 may be added on this account. These figures are based on the assumption that the average yield is one hundred maunds of jaggory per acre and the market value of jaggory is Rs. 2 per maund. The other items of work such as the spread of the practices of single seedling transplantation and green manuring and the distribution of groundnut, cotton, turmeric, etc., will easily account for Rs. 7,000. The net increase of revenue to the agriculturists of the State due directly to the various activities of the Department may therefore be safely put down at approximately Rs. 1,75,000. It may be noted that in the above estimate, the large number of cases in which the recommendations of the Department are followed but do not come to notice are altogether left out of account.

C. AGRICULTURAL ENGINEERING.

92. The various construction works referred to in detail under the various Farms were all carried out under the supervision of the Agricultural Engineer. He was on tour for 128 days during the year.

93. A small power plant with juice pump for dealing with sugar-cane was put down on the Babbur Farm. A small centrifugal was added to the equipment during the last period of the crushing season. He also prepared a drainage scheme for the wet area of the Babbur Farm.

94. As the result of modifications introduced in the Clipper Seed drill, the seed rate of ragi has been brought down to about eight pounds per acre and has given satisfaction. He has also been engaged in modifying certain other agricultural implements so as to make them suitable for local conditions, but final practical results have not yet been achieved under this head.

95. He has devoted attention to the engines and farm machinery belonging to the Department to keep them in proper repair and working order.

96. He has as usual been in charge of the instruction in theoretical and practical engineering, carpentry, etc., in the Hebbal Agricultural School.

D. THE HEBBAL DAIRY AND DAIRY DEMONSTRATIONS.

97. The Deputy Director was in charge of the Hebbal Dairy during the year.

98. In the beginning of the official year, there were in all eleven cows, a stud

bull, three she-buffaloes, and two buffalo calves (grown up). During the year, two more cows were purchased, thus making the total number thirty-four at the close of the year including the calves as specified below :—

| | | | | | | | | | |
|---------------|----|----|----|----|----|----|----|-------|----|
| Cows | .. | .. | .. | .. | .. | .. | .. | .. | 12 |
| She-buffaloes | .. | .. | .. | .. | .. | .. | .. | .. | 4 |
| Breeding bull | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Bull calves | .. | .. | .. | .. | .. | .. | .. | .. | 5 |
| Heifers | .. | .. | .. | .. | .. | .. | .. | .. | 11 |
| He-buffalo | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| | | | | | | | | Total | 34 |

99. *Sales.*—During the year, cow Indira which was found to be a poor yielder was sold for Rs. 63 with her young calf. Besides this, the Dairy sold one bull calf and one he-buffalo calf of the total value of Rs. 50.

100. *Deaths.*—In all seven calves died during the year out of which four were buffalo-calves and the rest were cow-calves. The buffalo-calves died a few days after they were born, and the cow calves died of Black quarter. All the calves were inoculated against Black quarter to check the contagion this year.

101. *The Breeding Bull.*—The breeding bull on the farm served forty-one cows out of which twelve belong to the Dairy and the rest to raiyats.

102. There were on an average forty-six per cent of the animals in milk during the year, which yielded thirty thousand two hundred and nine pounds, or an average milk yield of 4.8 lbs. per animal per day. This year nine thousand and ninety-four and a half pounds of milk of the total value of Rupees five hundred and ninety-one, annas six and pies seven were purchased from the Hebbal Village. By this transaction, the Dairy made a small profit by purchasing at five and three-fourths seers a rupee and selling the quantity at five seers a rupee. At all times of purchase the milk was tested for butter fat, and care was taken to get pure and unadulterated milk.

103. The total production and sales during the year are given in table I in Appendix B.

104. The performance of the animals during different lactation periods are given in table II in Appendix B.

105. It will be seen that the Dairy so far as the number of animals are concerned is a very small one indeed. This is due to lack of stall accommodation in the Farm and the lack of any pasture land worth mentioning. If, as in the other breeding stations, a large herd is to be kept, capable of satisfying the public demand for good cows by the holding of periodical sales, the Dairy will have to be considerably expanded; a separate farm will have to be opened sufficiently large for a herd of at least one hundred animals.

106. In regard to business, the Dairy has so far practically confined itself to the sale of pure milk. With the present small supply, little else can be attempted; butter selling was also taken up on a small scale, especially towards the end of the year. If more animals could be kept, the financial aspect of a butter making dairy will be demonstrated in the current year.

107. *Sale of Dairy Outfits.*—During the year under report several applications have been received for the supply of cream separators and churns. Four outfits costing Rupees one thousand one hundred and twenty-three and annas fourteen only were supplied during the year and another costing rupees three hundred only has been ordered.

Since we began the popularization of these outfits, seven have been sold of the total value of Rupees two thousand three hundred and ninety-four, annas twelve and pies nine.

108. *Dairy Demonstration.*—During the year practically only one Inspector has been on duty in the Dairy out of the two Inspectors sanctioned. Narasinga Raju was transferred as Agricultural Inspector to Mysore District on the 13th July 1917 and a substitute A. Linga Raj Urs was appointed on the 5th November 1917. After he received training, he was with us only for a short time as he was transferred to the Palace service on the 6th May 1918. As a result, other than the demonstration held at the time of the Dasara Exhibition no district demonstrations could be held.

109. *City Milk Supply.*—With a view to finding out how much milk could be obtained from villages near to the Railway Stations within about thirty miles of Bangalore, for being sent to the City morning and evening, a survey was conducted. The result of the survey was that about one thousand pounds of milk could be easily got per day to the City by rail. As a cold storage plant will have to be a necessary part

of any system of vending such milk in the City, estimates have been called for from a Calcutta Firm. In view however of the largeness of the undertaking and of the contemplated appointment of a live stock expert to the State, the matter has not been pursued further.

E. IMPLEMENT DEPOT.

110. *Implements.*—Implements to the extent of Rupees thirty-six thousand one hundred in value have been issued during the year which shows an increase of Rupees six thousand over the sales of last year in the corresponding period. One thousand six hundred and three ploughs and thirty-six sugar-cane mills were sold. Of these, one hundred and three ploughs were made at the Public Works Department Workshop. Arrangements are made for manufacturing locally on a large scale, sugar-cane mills of the type of Sultan Mills.

111. The sale of ploughs and mills shows an increase of four hundred and seventy-four and one respectively, over last year during the corresponding period. The sales would have been much larger, but for the fact that the stock at the Depot was inadequate and it was found very difficult to replenish it promptly on account of the present war conditions.

112. The sale of implements on the hire-purchase system which was started in January 1916 is becoming popular. The total number of applications up to date is sixty-one, of which twenty-four were from 1st July 1917 and the total value of implements sold under this system was Rupees three thousand two hundred and eighty-two of which Rupees one thousand two hundred and forty-six were from 1st July 1917. A very large number of demonstrations of all kinds of agricultural implements have been held in all the districts.

113. The financial aspect of the operations of the Implement Depot is shown in table I appendix C and the details of the various implements sold in appendix C table II.

III. CHEMICAL SECTION.

114. *Charge.*—The Chemist, Agricultural and Geological Departments was in charge of the Section during the year. His time was, as usual, fully occupied with analytical work for the Department of Mines and Geology, supervision of work in the Laboratory, the training of the Assistant Chemists and Geological Probationers and office work during the absence of the Director from Headquarters.

115. *Staff.*—Mr. B. Shankar Rao Badami was confirmed as Junior Assistant Chemist in Government Order No. 2855-6—A. & E. 36-17-5 of the 13th September 1917.

Messrs. M. R. Anantanarayana Iyer and E. R. Tirumalachar, Chemistry Probationers having completed their period of probation were confirmed as Assistant Chemists in Government Order No. 3438-479—G. 26-17-5, dated 15th August 1918.

Messrs. T. P. Kailasam, V. T. Venugopal and B. Rama Rao, Geological Probationers deputed for training in the Chemical Laboratory completed their training in mineral analysis for a period of six months.

116. *Leave.*—Mr. N. Sampataiengar, Senior Assistant Chemist was on privilege leave for eleven days in January 1918.

Mr. K. Bhima Rao, Acting Senior Assistant Chemist was on privilege leave for 6 days in July 1917.

Mr. B. Shankar Rao Badami, Junior Assistant Chemist was on privilege leave for 1 month and 17 days from 2nd November 1917 to 19th December 1917.

117. *Tours.*—Messrs. Sampataiengar and Bhima Rao were at Mysore for about two weeks on Exhibition duty.

118. *Green Manuring and Liming.*—As the green material available was only what was grown in the compound, the plots did not receive such a heavy application as during the last season. Though for this reason, the increase in soil nitrogen is not so great, the results may be said to be similar in character to those obtained last year.

Looking at results obtained this year, there seems to be a tendency in the plots to which limestone was added for the nitrogen to become available somewhat sooner than in the unlimed plots. No such tendency is visible in the figures for last year. If we take into consideration the fact that these plots received green manure for the

first time in June 1916, it may be suggested as a possible explanation of this tendency that continued application of green manure year after year leads to an accumulation of acidity which limestone corrects and renders conditions favourable for nitrification.

As in last year, the application of ground limestone—whether calcic or dolomitic has not made any difference—has led to better yields of the green manure crop. The ragi could not be harvested as it was unfortunately damaged by stray cattle.

The application of limestone seems to favour nitrification and humus formation. The relatively small increase of nitric nitrogen in the sub-soil seems to show that the chief cause of its loss is not seepage into the lower strata but must be looked for in other directions.

As regards the question of the approximate measure of the loss of nitrogen as nitrogen, only some preliminary work has been done which has served to bring to notice the special difficulties that have to be met in this investigation and indicate roughly the lines on which further work should be planned.

119. A series of small plots was laid out to test the effect on the germination of ragi, of green manure buried for varying lengths of time from two to six weeks. The crop is still on the ground but it may be observed that though after two weeks the green material had not completely decomposed, it did not affect the germination seriously. Green material rotted separately in a pit was also applied to one plot and in this the germination was not good.

120. Investigations regarding the change in the composition of the green manure crop cut and analysed at the same stage of growth have been continued.

121. *Carbon assimilation by leaves.*—This question came up in connection with the investigation of spike on sandal and as sandal leaves are very small, it was suggested that the experiment may be tried with a larger leaf. Accordingly a few determinations have been made of the absorption in the case of the leaf of the sun-flower plant. It was found to range between .004 and .005 gm. per sq. dm. per hour. This result is slightly lower than what was found for the same leaf in England. This is not to be wondered at as under the temperature conditions prevailing here, it requires unremitting care to prevent evolution of abnormally large amounts of carbon dioxide from the leaves, which would effectually mask all traces of absorption.

Samples of spiked leaf, young healthy leaf and mature healthy leaf of sandal have been analysed. The results show that there is a considerable similarity in ash constituents in the case of the spiked leaf and the healthy young leaf. The amount of nitrogen in the latter is however about two and a half times that in the former which seems to indicate that one of the symptoms of spike is a greatly diminished capacity for nitrogen assimilation which may affect adversely the ability to assimilate other constituents as well.

Qualitative examinations have indicated that the oxidase content of the spiked leaf is greater than that of the healthy leaf and that the haustoria of healthy sandal trees possess a good deal of diastatic activity. It would be interesting to test for comparison the diastatic activity of the haustoria of a spiked tree in the earlier stages.

122. *Liming in Jaggery boiling.*—As proposed in last year's report, tests regarding the effect of the addition of different quantities of lime to sugar-cane juice before boiling, on the colour, composition and keeping qualities of jaggery were conducted with all the varieties of cane grown on the Hebbal Farm. The results are in general similar to those obtained last year. The addition of enough lime to the juice, to render it just neutral to litmus paper, and one-fourth in excess of this quantity seem to give the best results.

The keeping quality of the jaggery could not be studied last year, as the samples were unfortunately attacked with mould after some time. This year the samples have been preserved in earthen pots rendered air-tight with earthen covers luted on with clay.

123. A great deal of analytical work was done in connection with the varietal, manurial, and spacing tests which are being conducted on the Hebbal Farm with regard to sugar-cane.

124. *Farm Soils.*—A number of representative samples from the Marthur and Babbur Farms have been brought in and analysed. Attention may be drawn to the extreme poverty of some of these soils, especially in lime and phosphoric acid, so that it may receive consideration when drawing up cropping schemes for these areas.

125. *Fungicides and Insecticides.*—There was an enquiry for a cheap method of emulsifying fish oil, which could be adopted by the ordinary raiyat. The emulsion was intended for application to farm animals to protect them from the infestation of

gad flies to which they are very liable in the malnad. Carbonate of soda was found to be the best emulsifier. A water-extract of bratty ashes was tried and it was not found satisfactory, as the extract does not contain sufficient potassium carbonate. Lantana ash which is rich in potash will probably give better results.

126. *Exhibition.*—As in previous years, considerable time was devoted to the preparation of Exhibits for the Dasara Exhibition.

127. *Miscellaneous.*—A considerable amount of miscellaneous work has been done which need not be referred to here. Mention may however be made of an analysis of ragi grown by itself and with avare. Contrary to what has been found elsewhere, the former is richer in nitrogen. A qualitative examination of Mukkadakana Soppu of which a small quantity was received, gave a faint indication of the presence of some alkaloid. But in view of the very large amount of work which the preparation of this alkaloid will involve, it may be worth while to ascertain if possible if the use of this "Soppu" does prevent "Kokreroğa."

128. Summary of work done.—

| | | | | | | | | |
|--|----|----|----|----|----|----|----|-----|
| Analyses for the Department of Mines and Geology | .. | .. | .. | .. | .. | .. | .. | 50 |
| Soils | .. | .. | .. | .. | .. | .. | .. | 29 |
| Soil nitrogen determinations | .. | .. | .. | .. | .. | .. | .. | 138 |
| Nitric nitrogen | .. | .. | .. | .. | .. | .. | .. | 56 |
| Humus estimation | .. | .. | .. | .. | .. | .. | .. | 22 |
| Green Manures | .. | .. | .. | .. | .. | .. | .. | 2 |
| Sandal leaves | .. | .. | .. | .. | .. | .. | .. | 3 |
| Sugar-cane analysis | .. | .. | .. | .. | .. | .. | .. | 75 |
| Colour estimation in jaggory | .. | .. | .. | .. | .. | .. | .. | 42 |
| Limestones | .. | .. | .. | .. | .. | .. | .. | 10 |
| Coal | .. | .. | .. | .. | .. | .. | .. | 3 |
| Moisture in mulberry leaves | .. | .. | .. | .. | .. | .. | .. | 28 |

IV. BIOLOGICAL SECTION.

MYCOLOGY.

129. The Senior Assistant Mycologist was on tour for 255 days during the year. His time was chiefly taken up by work in connection with the supervision of Koleroga spraying operations and of the Marthur Farm. The Junior Assistant Mycologist Mr. Narasimhan has, in addition to work in the Laboratory, had the charge of the instruction in Mycology in the Hebbal Agricultural School. He has practically been the only assistant available for laboratory work since the other post of Junior Assistant Mycologist fell vacant in December 1917. He toured for 64 days.

130. *Koleroga Spraying Operations.*—(a) The work in the Experimental garden consisted of testing the effects of different proportions of resin and Bordeaux mixture on the spread of the disease. The results of work of this year and a summary of results obtained till now are being consolidated and a bulletin on the subject will be issued at an early date.

(b) The work of absolutely stamping out the disease from the other experimental gardens has given very encouraging results. The Agumbe experimental garden was free from disease although no spraying was done. In another garden at Karodi a large block was left untreated and there was no outbreak of disease. The other two gardens were thoroughly sprayed and there was no outbreak in either of these gardens. The whole of the area in Karodi has been left without any treatment this season and will be kept under observation. A portion of the garden at Hirethota has been left without treatment and will be kept under observation. The rest of the area will be treated with Bordeaux mixture.

(c) The general spraying work in the gardens of private garden owners was considerably handicapped for want of good sprayers. Only twelve gardens were sprayed last year. There was no outbreak of disease anywhere in these gardens.

(d) As the price of chemicals had gone up, very few people were willing to buy the chemicals at the enhanced price. Moreover, the monsoon was light and there was no violent outbreak of disease anywhere.

(e) The Public Works Department Workshop has made several sprayers but these have not been a success till now. Recently a number of spare parts were received from the workshop and these were tested and sold to private garden owners.

One village in the Sagar Taluk was brought under the Pest Act this season and the gardens treated against Koleroga. The disease has not broken out in this area. No coercive measures had to be resorted to as the raiyats were willing to get the work done and willingly co-operated with the Department.

131. *Coffee Work*.—Owing to the difficulty in obtaining supplies to plant in the area treated the previous year, the further investigations of root rot had to be postponed. Arrangements have been made for getting the supplies this year and investigation work will be taken up during the coming monsoon.

132. *Black rot on Coffee*.—The results of work on this disease will be summarised and published at an early date. The best spraying mixture tested till now is the Bourdeaux resin mixture which is used against the Koleroga of Arecanuts.

133. *Exhibitions and lectures*.—Mycological exhibits were sent to the Mysore Dasara Exhibition. The Senior Assistant Mycologist also attended the District Exhibition at Shimoga.

134. *Sandalwood Work*.—Work with regard to the infectious nature of the Spike disease was continued. To see if the disease on *Zizyphus* and *Vinca* could be communicated to sandal, pot cultures of sandal were made with the abovementioned plants as hosts which were grafted with 'Spike.' It was expected that the sandal would take the disease through the haustoria. No definite results have been arrived at as yet.

Inoculation of healthy sandal plants with an extract of spiked leaves has hitherto failed to produce the symptoms of the disease. An attempt has been made to study the haustoria of Sandal physiologically. Work has been started with regard to the various food substances occurring in the haustoria, and its enzymatic activity.

Sandal seeds, from trees almost fully spiked, were dibbled last year to see if the disease is inherited through the seeds. Only a very small percentage of these germinated, and the seedlings are quite healthy up to now. Work in this direction is still being continued.

135. *Green Bug Fungus*—(*Empusa lecanii. zimm.*).—The black fungus killing green bugs was studied in detail but attempt at growing it on artificial media failed. The question of ants carrying the fungal threads and spores on their legs, and thus spreading the fungi, was studied in the field.

136. *Mango Hopper Fungus* (*Isaria sp.*).—Mango hoppers were found killed by a fungus and fixed to the mango leaf by radiating threads. The interior of the insect was found to be filled with the fungus. The real *Isaria* stage with a number of club shaped bodies breaking out of the body of the insect was observed this year. Similar structures were also obtained in some of the cultures.

137. *Striga on Ragi Roots*.—Work was started in connection with the germination of the seeds, and the parasitism of *striga* which attacks ragi roots.

138. *Katte Roga of Paddy* (*Ephelis sp.*).—Earheads of paddy attacked by this disease were received from Chikmagalur. The earheads appeared to be glued together to form a cylindrical body. This is caused by a fungus, attacking young grains, the spores being imbedded in the mucilage. This disease is being studied by the Madras Agricultural Department.

ENTOMOLOGY.

139. *Kumblihula*.—(*Amsacta albistriga*).—Two contiguous hoblis, viz., Santebennur and Burmanayakkandurg were brought under the Mysore Pest Regulation. In accordance with the rules drawn up under the Regulation, the provisions of the Regulation and the life history of the pest were made known to the raiyats of the villages concerned well in advance of the season, by means of leaflets and circulars. A large poster illustrating the stages of the insect and the method of hand-picking, the first of its kind issued in India, was also distributed. The raiyats knew in advance what was expected of them and the fieldmen and the Assistants supervising them had little difficulty to organise and carry out the picking even though the failure of the rains caused serious discouragement. It is satisfactory to record that in no case was there any necessity for applying the penal provisions of the Act. The temporary fieldmen have not been satisfactory and in the light of the experience gained efforts will be made to get the services of a more reliable class of men. Besides the two Hoblis, picking work was carried on in three other centres at Kaidalu near Davangere, Guthoor near Harihar, and two villages near Hosdurga. The total collection for the whole season was about 12,000 representing nearly six million caterpillars. This comparatively small number is to be attributed to the long delay in the onset of the monsoon.

140. *The Black-headed Kamblihula*.—Another species of Kamblihula (*Diacrisia obliqua*) which occurs only during the cold weather and as a pest only in parts of Bangalore, Mysore, Kolar and Hassan did considerable damage in several taluks. The pest was investigated and the results indicate that these caterpillars are more omnivorous than the other form (*Amsacta*). The moths, however, seek for egg-laying only large leaves as castor; failing castor, eggs may be laid on Avare. The caterpillars are gregarious until the fifth instar and the presence of these large groups feeding together on the underside of castor leaves can be easily detected by the reduction of the leaves to the appearance of tissue paper. Once these are discovered, the destruction of the caterpillars is easy, for in one village two men were able to handpick nearly one lakh of caterpillars and nearly a hundred moths in less than one hour.

141. *Pulse Beetles*.—*Bruchus sp.*—The investigation of this pest has been completed. A remedy has been devised which is of an extremely simple nature and which is within the reach of the poorest raiyats. A bulletin describing the pest and the remedy is ready for the press.

142. *Paddy Store Pests*.—It appears possible that the remedy for pulse beetles will answer for this pest also if suitably modified.

Mercury as an Insecticide.—The insecticidal properties of this metal have already been referred to in last year's report. Further investigation shows that the action is on the eggs of the beetles. A series of experiments conducted last year has demonstrated the extreme virulence of this poison. For, eggs before hatching require only a three hours' exposure to disintegrate their protoplasm. This is remarkable. Attempts are being made to apply this valuable property in the case of other insects.

143. *Mango-Hoppers*.—Further investigation of this pest has resulted in the interesting discovery that temperature is one of the factors governing the multiplication of this insect. Experiments have been planned to decide how far this discovery will prove of practical value.

With regard to remedies no alternative to spraying has as yet been found. The cost of spraying has worked out at five annas a tree per spraying including labour and chemicals. The cost given by the Madras Department is only $3\frac{1}{2}$ annas a tree for the whole season of 10 to 13 sprayings which is probably an under-estimate, and cannot possibly include all the items of expenditure. Accepting our estimate per tree as the correct one, the cost would be about 3 rupees per tree for the season which is excessive. The necessity for finding a simpler remedy is therefore imperative and efforts in this direction will be continued.

144. *Castor Semi-Looper*.—The investigation of this pest was continued. The fruit-feeding habit of the moth has not yet proved of any remedial value. There is no longer any doubt that the pest starts with the first mungar rains. In the interval between these rains and the sowing of castor, the pest was discovered in stray seedlings in manure pits and backyards. Investigation will be continued to find out whether this is the only way the pest gets a start.

The removal of stubble from the fields in three villages and early hand-picking, saved castor from destruction while in adjacent villages where nothing was done it was damaged badly. The work was very much appreciated by the raiyats. The attraction of birds by boiled rice scattered in the fields and by perches has also proved a very efficient check on the pest. Investigation will be continued to simplify the methods of control.

145. *Lac-Insect*.—The study of this insect has been commenced. Various host plants have been tried of which *Butea frondosa*, *Ficus glomerata* and *Acacia suma* may prove suitable. There appears, however, to be considerable variation in the period of growth. Kusum lac has also been tried on different plants. So far *Ficus*, *Acacia* and *Pithecolobium* only seem to answer well. All these are trials on individual trees. Before trials on a field scale are made, little definite can be said. There are a number of very complex problems connected with this subject such as the species of lac insects concerned in the production of lac of different qualities, the suitability of host plants, and the share they have in the quality of lac, all of which require prolonged investigation such as is impossible with the present limited staff. However waste lands of about thirty acres with a large number of trees of *Shorea talura* will be acquired soon to carry on work on a scientific basis. The lac insect is subject to attack by a number of parasitic Coccinellids and by a moth which complicates the problem still further.

146. *Coffee-Borer*.—The results of scrubbing twice during the period of emergence of the beetle were very encouraging, and a circular detailing them was issued in time for the information of planters.

While scrubbing is certainly effective it has to be admitted that allowances have to be made for some of the more fully grown larvæ and some at least of the eggs laid in the interval between the scrubblings, escaping the operation. Efforts were therefore made to find a simpler remedy. The larva for about two months after hatching is superficially situated and its excreta are in the form of small pellets which are not so closely packed as in the later stages of growth. The result is that liquids with good penetrating power easily pass along these excreta right into the place where the larva is. Brunolineum, a crude distillate from coal tar, has this property and the additional one of emitting fumes which choke and kill the larvæ. Applications, late as two months after hatching, have been entirely successful and there is no longer any doubt that we have in this chemical a most effective remedy. The only thing is to determine whether the trees will be affected by the application. So far no injury has been noticed.

To reduce the quantity required, applications have been made only to the ridges round the stem by means of cotton wool soaked in the chemical. This has also proved quite successful.

Another experiment has yet to be made to see whether application before the emergence of the beetle will kill the insect. The larva cuts a ring in the bark through which it appears possible the chemical may penetrate sufficiently to kill the pupa or the beetle. This has been tried fairly successfully on a closely allied species in Honne (*Pterocarpus marsupium*) and there is reason to believe it will be even more successful against the Coffee Borer. If it proves so, the beetles could be killed before they come out and the injury done by the young larva altogether avoided.

The cost of Brunolineum is only Re. one per gallon in Ceylon so that the remedy will not at all be costly. This is for stuff imported from America. Efforts are being made to obtain it in India alone.

147. *Sugar-cane Borer*.—The study of the pest has made good progress. Borers from wheat, ragi, cane and jola have been obtained. There are no less than four in cane of which the least important one alone is common to it and jola. The prospect of using jola as a trap crop is therefore small. Two alternative host plants have been found for two of the borers in cane, among common weeds in tanks.

148. *Magic Lantern Slides*.—A few coloured slides have been prepared by the Senior Artist. A poster on Kamblihula has also been completed for distribution in affected villages.

149. *Bulletins and Circulars*.—During the year, a bulletin on "Some Scale Insect Pests of Coffee" was published. Two bulletins one on ground beetles and the other on Pulse beetles are ready for the Press. Two circulars one on Coffee-borer and the other on Kamblihula were also issued.

150. *Insecticides, etc.*—Experiments to prevent clogging of the sprayer nozzle in using Bordeaux Fish Oil Resin mixture have yielded no satisfactory results. Bordeaux-kerosine oil-combination proved ineffective. In regard to spraying against mildew, experiments show that without a spreader, Bordeaux mixture fails altogether to spread evenly on the blossoms. As regards emulsifying Fish oil for use against gad flies no satisfactory agent besides carbonate of soda has yet been found.

151. *Insect Cabinets*.—Insect cabinets have been supplied to the District Agricultural Inspectors illustrating the various stages in the life history of the pests in the districts in their charge.

BOTANY.

152. Plant breeding work chiefly on ragi and sugar-cane was continued on the same lines as last year on the Hebbal Farm.

153. *Ragi Breeding Work*.—Sowings were made at the end of July after light showers. The total rain for the cropping season was 27.89 inches. The season may be said to be favourable except for a dry spell of twenty-five days which seriously interfered with the development of earheads.

(a) *Hain Ragies*.—The testing of 14 purified types was continued. Jadesangha and Jenumudda have again given high yields as in last year. The following is a

Agri.

comparative list of those varieties that have done better than the local type, the yield of which is taken as 100—

| | |
|----------------------------|-------|
| 1. Jadesangha | 116.2 |
| 2. Jenumudda | 104.0 |
| 3. Madayyanagiri I | 102.9 |
| 4. Hullubele | 100.0 |

(b) *Testing of pedigree seeds.*—Thirty-nine strains were tested during the season and sixteen of them have given higher yields than the local type. Eight of them were grown on a large scale on the Farm for increasing the seed for general distribution. A few of them have been largely distributed in the districts this year. Private seed farms are being organised all over the State for growing the pedigree seeds for general distribution.

(c) *Individual Plant Selections.*—Eighty-one new selections were made and tested in the rows. Some of them are promising and they will be grown in the "Pedigree seeds" plot in the next season.

Work on Kar Ragies.—The season was not favourable for Kar Ragi this year. No crop could be sown at Devapur as the rains failed and the bulk seed of the violet open type of ragi grown on the normal school farm was distributed in the Mysore District. Violet open type has again given the highest yield, though this is not so high as that of the local Hullubele.

Collection of ragi varieties.—Fifty-six distinct varieties were tested, out of which only twenty are fair yielders; but none of them is superior to the local Hullubele. The mixed samples of North Indian varieties were purified during the last season. One hundred and twenty-five of purified North Indian types were tested during the season; none of them proved superior to the local varieties but they mature somewhat earlier.

154. Work on Sugar-cane.—

(a) *Canes in the Stud plots.*—There are now 447 new types of selected seedling canes raised on the Farm under observation. They are all very rich in sugar and they are being tested for their vigour and productiveness. Forty-nine types were sent to Marthur and one hundred and fourteen to Babbur for further trials.

(b) *Testing of Seedlings.*—Comparative tests for yield were made with eleven seedlings from Red Mauritius and five from White Mauritius. H. 14 a seedling from White Mauritius and three seedlings from Red Mauritius, H. 303, H. 318 and H. 315 have given bigger yields than the Red Mauritius. They are vigorous, contain a high percentage of sucrose, and only traces of glucose.

The following is a list of canes which have given higher yields than the Red Mauritius cane.—

| | Per cent comparison | Total solids in juice |
|------------------------------------|---------------------|-----------------------|
| H. 14 from White Mauritius | 192.7 | 21.64 |
| H. 303 from Red Mauritius | 113.4 | 21.64 |
| H. 318 from Red Mauritius | 107.9 | 21.38 |
| H. 315 from Red Mauritius | 101.1 | 20.18 |
| Red Mauritius parent cane | 100.0 | 20.34 |

(b) Five other promising canes were grown along with the varieties and the results are very promising.

(c) *Fresh Seedlings.*—Out of the total number of fresh seedlings tested, 148 new selections have been made. Many rich reed canes have been raised from the local Pattapatti cane. They are vigorous and free from smut or leaf disease, the two diseases which do so much harm to the Cheni cane and they may in time successfully replace the Cheni cane to the benefit of the raiyat. Three thousand seedlings have been raised this year and planted for selection.

(d) *Fresh introductions.*—Of the newly introduced canes.—

D. 74.
J. 247.
J. 36.
J. 33a.
White transparent.
Striped Tanna.
Tanna Blanche.

the two tannas, J. 247 and Java 33a are very promising. J. 33a is very vigorous and yields a good tonnage and this is therefore being increased for distribution. A

few more canes have been received from Coimbatore and of these J. 139 is very promising. The poor North Indian canes which did not flower in Coimbatore have not only flowered here but have also considerably improved in quality. Prof. Knight kindly sent over thirteen types of new canes from Manjri, Poona, recently and these are now being tried on the farm.

(e) About 3,630 canes have been sent out during the season. Observations regarding variation in seedlings, setting of seeds, and the flowering habit of canes are being continued and some useful data have been already obtained. A large number of seedlings are being tested for their ratooning qualities and some of them are very promising.

155. *Castors and Avars*.—Work in this connection has yielded some good results and heavy yielding strains have been already isolated. For want of space the work has not been extended. Some good strains have been sent to Nagenahalli Farm for further trials. A fresh collection of Avars has been made and the work is being continued.

156. *Groundnuts*.—Ten types of groundnuts were tested and six of them are very promising. They are now being tested on the Nagenahalli Farm.

157. *Indigenous grasses*.—Forty grasses are now under observation in pure cultures and fresh ones are being procured. Some perennial grasses seem to be fairly resistant to drought. They are being analysed to find out their nutritive value.

158. *Cottons*.—The plant breeding work on cotton was carried on, on the Babbur Farm.

The two kinds of cotton generally grown are :—

- I. Doddahatti (*Gossypium Hirsutum*).
- II. Sannahatti (*Gossypium Herbaceum*).

The following types of Doddahatti have been isolated with a view to grow them in pure cultures and study their respective characters.

- Type A—Plants with indefinite branching.
- Type B—Plants with definite branching.

Cottons of these have been harvested separately with a view to ascertain their respective commercial value. Along with this selection work, the following American Cottons were tried in long narrow plots of one-hundredth of an acre each with every third plot as check with Doddahatti. Among the American Cottons, New Orleans has given the best results. This has been confirmed by the Bombay Agricultural Department also.

The so-called Forbes cotton is a mixture of two types which have been separated. One of the types has given as high a ginning percentage as thirty-eight. This type will be sown on a large scale and further tests will be conducted this year.

Besides the above types, four more fresh types, have been imported from America namely, (i) Columbia, (ii) Frice, (iii) Lonestar and (iv) Durango, for testing this year.

In connection with ordinary Sannahatti, the following types have been isolated.

- A II—Plants with fuzzy seeds.
- B II—Plants with naked seed.

Work on plant to plant selection in Sannahatti has been in progress for the last three years, but unfortunately in most of the lines there has been a mixture, the plants falling into two or more types. Cottons of some of these lines which were fairly uniform were submitted for examination to the mills at Bangalore. The reports were not favourable.

Babbur and Davangere Cottons.—Babbur cotton fetches a higher price than that of Davangere. Both cottons were tried on the Babbur Farm as well as at Harihar. The gentleman at Harihar on whose land these cottons were tried last year was satisfied as to the superiority of the Babbur Cotton as regards both quality and yield. Extended trials of these cottons will be made this year both at Davangere as well as at Harihar.

Nandyal and Broach.—These cottons did not do well last year on the Babbur Farm. Fresh selections have been made with a view to grow them in pure cultures this year. Representative samples of cottons grown in various Districts of the State have been collected for trial on the Farm this year.

159. Some amount of preliminary breeding work has been done with respect to Jola also on this farm. Some varieties from Bombay and Bellary have been obtained for trial.

V. AGRICULTURAL EDUCATION.

1. HEBBAL AGRICULTURAL SCHOOL.

160. The School year commenced with seventeen students in the Senior class, of whom fifteen were promoted from the junior class and two were old students who re-joined the class this year. In the junior class, only twenty-one were on the rolls although 47 had been selected in the competitive examination. Of these four left the School at various times during the year and one was dismissed, so that at the time of the final examination there were only sixteen students. Among the seniors one did not sit for the final examination. The attendance was fairly satisfactory.

161 There were altogether fifteen scholarship-holders in the School—8 in the junior class and 7 in the senior. Government were pleased to grant two scholarships of Rs. 15 each to be held by the best student in each of the two classes. The remaining thirteen were distributed as follows :—

| | | | | | | |
|---|----|----|----|----|----|-------------------|
| Chitaldrug District and Taluk | .. | .. | .. | .. | .. | 3 of Rs. 10 each. |
| Kolar District and Taluk | .. | .. | .. | .. | .. | 1 of Rs. 8 " |
| Kolar District and Bowringpet Taluk | .. | .. | .. | .. | .. | 1 of Rs. 8 " |
| Tumkur District | .. | .. | .. | .. | .. | 1 of Rs. 8 " |
| Hassan District and Taluk | .. | .. | .. | .. | .. | 1 of Rs. 8 " |
| Hassan District | .. | .. | .. | .. | .. | 1 of Rs. 4 " |
| Shimoga District and Taluk | .. | .. | .. | .. | .. | 1 of Rs. 10 " |
| Belur Taluk | .. | .. | .. | .. | .. | 1 of Rs. 4 " |
| Tarikere Taluk | .. | .. | .. | .. | .. | 1 of Rs. 5 " |
| Yedatore Taluk | .. | .. | .. | .. | .. | 1 of Rs. 3 " |
| Gubbi Taluk | .. | .. | .. | .. | .. | 1 of Rs. 6 " |

With regard to these scholarships it may be remarked that they range from Rs. 3 to Rs. 15 and considering the necessary expenditure of a student, any scholarship of less than Rs. 10 a month does not afford much help.

162. The well to supply water to the hostel was completed during the year and a Myer's hand pump was fitted for drawing water. Towards the end of the year, arrangements were completed for the Veterinary classes to be held on the farm, thus saving the senior students the necessity of going to the Basavangudi Veterinary Hospital once a week, which entailed a considerable waste of time. A Veterinary Hospital is also under construction and has made considerable progress.

163. A School Library was opened this year with the help of a Government grant.

164. The Students' Debating Society has been fairly active and there have been a number of meetings during the year. The students have started a library containing books of general interest. It is at present a small one, but with the help of donations and the annual grant of Rs. 50 which Government have been pleased to make, may be expected to grow in size and usefulness in course of time. The students are conducting successfully a night school for the benefit mainly of the farm coolies. Government have recently made a grant for the purchase of books, slates, wall maps, etc., for the use of the School.

165. This year, close attention was paid to the observation plots where a great variety of crops was grown by the junior students. The garden plots also received a good deal of attention on the part of the junior students; but when the rains ceased and dry weather set in, the gardens suffered from want of water. The water for the garden plots has to be lifted from a well near by and estimates are being prepared to deepen the well and put in two lifts, one Gold's pump, and the other an iron mhot, not only to supply water for the gardens but also to give the students a practical knowledge of different kinds of water lifts. The students maintained flower gardens round their blocks and were fairly busy at it through the year, competing for the prize offered by the Director for the best planned and maintained garden.

166. The final examination was held on the 24th April 1918 and three succeeding days. Sixteen sat for the examination of which six passed with distinction, five passed and five failed. Mr. P. Raghavendra Rao, B.A., B.L., now Extra Member of Council very kindly presided at the Distribution of prizes and diplomas held on the 10th May 1918.

2. CHIKKANAHALLI AGRICULTURAL SCHOOL.

167. With the close of the official year 1917-18, the School completed its second year of existence. At the beginning of the year, the Head Master K. Krishnamurthi,

was transferred to the Babbur Farm and his place was taken by H. G. Hanumiah Chetty who is the present Head Master.

168. Applications were received from nearly thirty students for admission. An entrance examination was held and ten students were selected, which is the full number for which provision has been made in the School. One more student was sent from the Taluk Progress Committee of Chiknayakanhalli on a small scholarship paid out of that Committee's funds. All these students have been in residence regularly with the exception of two who dropped out towards the end of the year. The third year has also commenced with eleven students on the rolls.

169. *Courses of Instruction.*—During the year under report, arrangements for imparting practical instruction have been much more satisfactory. The school year began sufficiently early. The rains were favourable and the students were therefore able to receive training in all the principal kinds of farm work. Nearly all the important dry crops have been grown, improved varieties and methods have been tried, and on the wet land sugar-cane, paddy and garden crops were grown. Special mention may be made here of the following items of the practical work of the students.—

(a) The use of improved implements.

(b) The growing of sugar-cane, and milling and jaggory boiling.

The present students conducted the milling and jaggory boiling, by the improved furnace, from the cane grown by the first year's batch; they have also planted and raised an excellent crop of cane which will be available for milling at the next season by the incoming students.

(c) Work with Kapile irrigation;

(d) The methods of garden cultivation for

which there are excellent facilities in the splendid arecanut gardens in the neighbourhood and the vegetable gardens of the local tigarars.

170. The School has a reading room, which subscribed for four Kannada and one English paper. A grant of Rs. 25 was kindly made to the Reading Room by the donor Mr. Munilingayya, to whom the thanks of the School are due. The reading room is also free to the public.

171. During the year, a debating society was started. Thirteen meetings were held and the students were able to have considerable practice in speaking upon agricultural subjects.

172. *Excursion.*—In addition to the excursion to the gardens and fields of the neighbouring villages, the students had the advantage of a tour of inspection to the Government Farm at Babbur, in the Hiriyur Taluk. This experience has been most valuable to the students. A record of the studies during this visit is very interesting reading and the students have certainly made very good use of their opportunity.

173. In August 1917, a blacksmith's class was opened, and the students have had regular practice. Rings, chains, staples, sickles, tongs, pincers, cultivator blades and various other farm requisites have been prepared by the students.

174. The School has also done all the carpentry work needed for the making of large and small kuntas, kapile, mhote fixtures, wooden ploughs, etc.

175. The whole of the syllabus as prescribed in the rules has been carried through; and the students carry with them complete lecture notes, which ought to be valuable to them as referent books.

176. The school is serving as a small centre for the spreading of a knowledge of improved agriculture and as an out-agency of the Agricultural Department. Thus it maintains a branch Implement Depot; it raises on its farm seeds of improved varieties for supply to the local raiyats; it demonstrates improved methods; it lends out improved implements. The Head Master is frequently consulted for advice on agricultural matters.

Thus the school has sold Rs. 230-0-8 worth of implements, hired out its jaggory boiling outfit, sold 5,820 single sets of Red Mauritius sugar-cane which is being taken up for the first time in this locality, has distributed 220 seers of improved strains of Ragi and 420 seers of groundnut.

177. During the current year, the School had arranged for the holding of short courses on the model of those held on the Hebbal and other farms. As a 'Sante' assembles every Sunday near the School a 'Sante' Class with demonstration is also held on these days.

178. As in the former year, the examination in both theory and practice was conducted by the Deputy Director. Eight students were declared eligible for the certificates.

179. The distribution of prizes and certificates to the successful students was held on the 6th July 1918. Mr. K. R. Srīnivasa Iyengar, M.A., Revenue Commissioner in Mysore, kindly presided on the occasion. A bar share plough and a K. M. cultivator were among the prizes given away, the former by the Chairman and the latter by the Sira Taluk Progress Committee.

180. The School celebrated the birthday of His Highness the Maharaja of Mysore by holding a social evening. Two cocoanut plants were planted in memory of the occasion.

181. During the year, the School was visited by the Dewan Sir M. Visvesvaraya, K.C.I.E.

3. RURAL SCIENCE INSTRUCTION.

182. Agricultural instruction on the lines sketched by Dr. Coleman in the report for last year was continued in the four schools mentioned there, *viz.*, Hunsmarnahalli, Varthur, Kyatsandra and Devarayasamudra. The instruction was in the charge of teachers who in addition to their training at the Normal School at Mysore had undergone a course at the Hebbal Farm and was also inspected very frequently by the Rural Science Supervisor of the Department, specially deputed for the purpose. An outbreak of plague in the latter part of the calendar year seriously interfered with work in the Schools at Hunsmarnahalli and Kyatsandra. Work in the Varthur School had to be discontinued in February last for want of a sufficient number of students and suitable land in the vicinity for practical instruction. The scheme may be considered to have worked satisfactorily in the Schools at Hunsmarnahalli, Kyatsandra and Devarayasamudra. This work was under the general supervision of the Deputy Director up to the end of January 1918. By arrangement with the Inspector-General of Education, a second short course was held on the Hebbal Farm in the months of May and June for the benefit of village school masters. An examination both theoretical and practical was held at the end of the course, which thirty-seven attended. All were declared to have passed. These passed men will be eligible for employment in schools when the scheme of rural instruction is further developed.

183. *Short Courses.*—Four short courses as detailed below were arranged in the Hebbal and Marthur Farms. The first one at Marthur proved a failure as none attended.

Hebbal.—1. Ploughing paddy lands and economic methods of transplanting paddy seedlings.

2. Selection of ragi earheads for seed purposes.

3. Threshing of paddy and ragi.

4. Planting of canes; oil cake manuring at the time of planting.

Marthur.—1. Transplantation of paddy.

2. Use of improved ploughs for dry and wet lands.

3. Demonstration of areca drying.

4. Sugar-cane cultivation and making of jaggory only.

184. *Vernacular School.*—The institution of a vernacular course in Agriculture in connection with the Hebbal Agricultural School was sanctioned in Government Order No. 4958-71—A. & E. 95-16-19 of the 24th November 1917; but it has not been possible to take any action with regard to this chiefly for want of accommodation.

VI. AGRICULTURAL STATISTICS.

185. The Crop Cutting Experiments with respect to the crops mentioned in the report for last year were continued during the year under review. Details are shown in Appendix A.

In this connection reference may be made to the Agricultural and Experimental Union of which the first meeting was held in May 1918. It has now a membership, both official and non-official distributed over almost all the districts of the State. Through the co-operation of the members of the Union, it is hoped that more reliable information may become available hereafter.

The crop cutting statements for the quinquennium ending with the year 1916-17 received from the several Deputy Commissioners were scrutinised and a consolidated statement was prepared and submitted to Government as required in para 2 of Government Order No. 222-24—Agri. 94-13-7. of the 8th July 1914.

The Season and Crop Reports for the years 1915-16 and 1916-17 received from the Revenue Commissioner in Mysore were reviewed as per para 2 of Government Order No. 246-63—Agri. 3-16-2 of 6th July 1916 and submitted to Government in August 1917, and March 1918, respectively.

VII. CONCLUSION.

186. Reference has already been made in the body of the report to the want of accommodation for the departmental Library. This disadvantage is not peculiar to the library alone but almost every Section of the work of the Department is suffering from it. The want of residential quarters on the Farm also is very keenly felt. A good many officers are obliged to go to the Farm every day from Bangalore and a good deal would be gained in time and efficiency of work if these were enabled to live on the Farm. The question of providing additional accommodation sufficient for the needs of the growing department deserves the early favourable consideration of Government.

187. It is satisfactory to be able to place on record that the Staff of the Department have done their work in a loyal and efficient manner during the year.

BANGALORE,
September 16, 1918.

H. V. KRISHNAYYA,
Offg. Director of Agriculture.

APPENDIX A.

BANGALORE DISTRICT.

1. The Agricultural Inspectors, Bangalore and Channapatna Ranges were on tour 171 and 89 days, respectively. They visited 50 villages. They held 118 demonstrations showing the use of improved implements in different parts of the District. Ploughing after harvest was conducted on twenty-four acres. Jaggory boiling demonstrations were held in six villages.

2. Transplanting of paddy with single and double seedlings was demonstrated on twenty acres of land in the District. Implements to the value of Rs. 2,290 were sold from the Branch Depot at Bangalore.

3. Seven hundred seers of Sunn-hemp seed for green manuring of paddy and sugar-cane were distributed in the District. In Varthur and Thogur, green manure crops were raised by raiyats on the advice of the Department.

4. Seed selection of ragi and paddy by salt water method as recommended by the Department was continued. One hundred and ninety seers of ragi and one hundred and fifty-five seers of paddy selected by this method were sown in several parts of the District.

Selection of earheads of ragi for good seed was continued, the total quantity of seed thus selected being four hundred and thirty seers. Selected Hain ragi seeds to the extent of two thousand five hundred and forty-two seers were distributed to private seed farms.

5. Three thousand and fifty-two sets of sugar-cane were distributed to sugar-cane cultivators in the District.

Three hundred and seventy-seven pounds of groundnut seed, four hundred and twenty-two seers of quick growing paddy and about twenty-four maunds of Cambodia cotton seed were distributed to landholders.

6. One hundred and ninety-two tons of oil cake were distributed as manure for sugar-cane. A large quantity of the mixture of bonemeal and oil cake recommended by the Department was continued to be distributed during the year.

7. The Agricultural Inspector attended fourteen meetings of the District and Taluk Committees and Conferences.

8. The following crop cutting experiments were conducted.

| Crops experimented with | Number | Area | |
|-------------------------|--------|------|----|
| | | A. | G. |
| Paddy | 3 | 20 | 0 |
| Ragi | 4 | 50 | 0 |
| Sugar-cane | 4 | 30 | 0 |

MYSORE DISTRICT.

1. The Agricultural Inspectors, Mysore and Nanjangud Ranges were on tour 199 and 161 days, respectively. They visited 82 estates in the District.

2. They held 206 demonstrations showing the use of improved implements in the several parts of the District. Jaggory making demonstrations were held in ten villages. Transplanting of paddy with single and double seedlings was demonstrated on fifty-one acres of land in the District.

Ploughing after harvest is common in the district. Implements to the value of Rs. 2,436 were sold from the Branch Depots in this District.

3. One thousand and seventy-four seers of Sunn-hemp and one hundred and fourteen seers of Daincha were distributed for green manuring for paddy and sugar-cane.

4. Seed selection of ragi and paddy by salt water method was continued and one hundred seers of ragi and two thousand three hundred and thirty-six seers of paddy were selected in this District by this method. Selection of earheads of ragi for good seed was continued and one hundred and forty-nine seers of ragi were selected by this method. Six hundred and twenty-nine seers of selected Hain ragi were distributed to private seed farms.

5. Eighteen thousand nine hundred sets of sugar-cane sets were distributed to sugar-cane cultivators in the District. Four hundred and eighty seers of groundnut seed, nine hundred and ninety-three seers of quick growing paddy and one thousand four hundred and eighty-nine pounds of cotton seed were distributed to landholders.

6. Twenty-nine and half tons of oil cake were distributed as manure for sugar-cane.

A large quantity of special manure—a mixture of bonemeal and oil cake for special crops also was distributed in this District.

7. The Agricultural Inspectors attended fifty meetings of the District and Taluk Committees.

8. The following crop cutting experiments were conducted.

| Crops experimented with | Number | Area | |
|-------------------------|--------|------|----|
| | | A. | G. |
| Paddy | 13 | 30 | 0 |
| Ragi | 7 | 19 | 20 |
| Sugar-cane | 4 | 9 | 0 |
| Jola | 6 | 27 | 0 |
| Horse-gram | 1 | 4 | 0 |
| Green gram | 1 | 2 | 0 |

TUMKUR DISTRICT.

1. The Agricultural Inspector was on tour 280 days and visited 130 estates in the District.
2. He held 102 demonstrations showing the use of improved implements in several parts of the District. Ploughing after harvest was conducted on 14 acres. Jaggory making demonstrations were held in 10 villages. Transplanting of paddy with single and double seedlings was demonstrated in 36 places. Implements to the value of Rs. 1,726 were sold in the branch Depot at Tumkur.
3. Eight hundred seers of Sunn-hemp seed were distributed for green manuring of paddy and sugar-cane. In Tiptur and Hebbur green manure crops were raised by raiyats on the advice of the Department.
4. Seed selection of ragi and paddy by salt water method was continued and 350 seers of ragi and 150 seers of paddy were selected by this method. Selection of earheads of ragi for good seed was continued and 280 seers were selected this year. Two hundred and ninety-two seers of selected Hain ragi were distributed to private seed farms.
5. Eighteen thousand eight hundred and twenty sets of sugar-cane were distributed to landholders. One thousand one hundred and twenty-five pounds of cotton seed also were distributed to landholders.
6. Twenty tons of oil cake were distributed as manure for sugar-cane. A large quantity of special manure, a mixture of bonemeal and oil cake for special crops was distributed in this District. Coconut manure was continued to be used in Tiptur.
- The grass paddocks of Kunigal Stud Farm were treated with a special manure of a mixture of bonemeal and groundnut oil cake.
7. The Agricultural Inspector attended 68 meetings of the District and Taluk Committees and Conference.
8. The following crop cutting experiments were conducted.

| Crops experimented with | Number | Area | |
|-------------------------|--------|------|----|
| | | A. | G. |
| Paddy | 9 | 24 | 0 |
| Sugar-cane | 2 | 6 | 0 |
| Ragi | 14 | 63 | 0 |

KOLAR DISTRICT.

1. The Agricultural Inspector was on tour for 241 days and visited 27 estates in the District.
2. He held 113 demonstrations showing the use of improved implements. Ploughing after harvest was made on 20 acres. Jaggory making demonstrations were held in 6 villages. Transplanting of paddy with single and double seedlings was demonstrated on 23 acres of land. Implements to the value of Rs. 2,753 were sold in the Branch Depot at Kolar.
3. One thousand nine hundred and eighty seers of Sunn-hemp and 25 seers of Daincha were distributed for green manuring of paddy and sugar. In Subbanhalli and Kallodi green manure crops were raised on the advice of the Department.
4. Seed selection of paddy by the salt water method was continued and 1,150 seers were selected by this method. Selection of earheads of ragi was also continued and 375 seers of ragi were selected. Six hundred and eighty seers of selected Hain ragi were distributed to private seed farms.
5. Twenty thousand sets of sugar-cane were distributed to sugar-cane cultivators in the District. Eight hundred and fifty-two lbs. of groundnut seed, 2,025 seers of quick growing paddy and 550 lbs. of cotton were distributed to landholders in the District.
6. Eighty-five and half tons oil cake were distributed as manure for sugar-cane.
7. The Agricultural Inspector attended 46 meetings of the District and Taluk Committees, Conferences, etc.
8. The following crop cutting experiments were conducted.

| Crops experimented with | Number | Area | |
|-------------------------|--------|------|---------------|
| | | A. | G. |
| Paddy | 6 | 12 | $\frac{3}{4}$ |
| Sugar-cane | 9 | 25 | 0 |
| Ragi | 4 | 35 | 0 |

SHIMOGA DISTRICT.

1. The Agricultural Inspector, Shimoga, visited 170 estates in the District during the year and gave advice to cultivators on agricultural matters.
 2. He held one hundred and four demonstrations of improved implements in different parts of the district. Economic transplantation of paddy was demonstrated on one hundred and twenty acres and twenty-four jaggory making demonstrations were held in several parts of the District.
 3. Two hundred and thirty-four seers of Sunn-hemp seed were distributed for green manuring paddy.
 4. Two hundred and seventy-seven seers of selected Hain ragi were distributed.
 5. Two lakhs fifty-three thousand and five hundred sets of sugar-cane were distributed to sugar-cane cultivators on concession rates.
- Four hundred seers of three months paddy, two hundred and forty-two maunds of groundnut, thirty-seven maunds of Doddahatti and nine maunds of Cambodia cotton were distributed to landholders. Fifty-eight maunds of turmeric were sold to cultivators for seed purposes. One hundred seers of Jola were distributed for raising fodder.

6. Fifty eight tons of oil cake were distributed for sugar-cane growers of which about ten tons were supplied to the Sugar-cane Growers' Association of Sowlanga for distribution to its members.
7. Four hundred and ninety-eight packets of copper sulphate were distributed for smut prevention in jola.
8. The Agricultural Inspector attended twenty-six meetings of the District and Taluk Committees, etc.
9. The following crop cutting experiments were conducted.

| Crops experimented with | Number Area | |
|-------------------------|-------------|------|
| | A. | G. |
| Paddy | 22 | 47 0 |
| Sugar-cane | 15 | 8 34 |
| Ragi | 9 | 37 5 |
| Cotton | 2 | 5 16 |
| Jola | 2 | 9 0 |
| Chillies | 1 | 1 0 |
| Navane | 1 | 1 0 |
| Avare | 1 | 1 0 |
| Arecanut | 2 | 3 20 |
| Hutchellu | .. | 1 2 |
| Togari | .. | 1 1 |
| Hurali | .. | 4 22 |

CHITALDRUG DISTRICT.

1. The Agricultural Inspector visited one hundred and eighty-four estates and gave advice to raiyats on Agricultural matters.
2. He held sixty-one demonstrations of improved implements. Fourteen jaggory making demonstrations were held in the District.
3. Five hundred and twenty-five seers Sunn-hemp seed were distributed for green manuring paddy.
4. Two hundred and forty-eight seers of selected Hain ragi were distributed for trial.
5. Forty thousand sets of sugar-cane were distributed to sugar-cane growers. Seventy-five seers of Chintamani Sanna Bhatta, twenty-one maunds of groundnut, ninety-two maunds of Doddahatti and one hundred and five maunds of Cambodia cotton were distributed. Also sixty-three maunds of Poona variety of turmeric were distributed.
6. Fifty-four tons of oil cake were distributed to sugar-cane growers in the District.
7. One hundred and eighty-seven packets of copper sulphate were sold to raiyats for smut prevention in Jola.
8. The Agricultural Inspector attended twelve meetings of the District and Taluk Committees, etc.
9. The following crop cutting experiments were conducted.

| Crops experimented with | Number Area | |
|-------------------------|-------------|--------|
| | A. | G. |
| Paddy | 2 | 8 0 |
| Sugar-cane | 5 | 16 20 |
| Ragi | 27 | 201 20 |
| Cotton | 5 | 23 0 |
| Jola | 19 | 157 0 |
| Navane | 1 | 6 0 |
| Black-gram | 1 | 4 0 |
| Green-gram | 1 | 1 30 |
| Groundnut | 13 | 71 0 |
| Hurali | 9 | 35 0 |

HASSAN DISTRICT.

1. The Agricultural Inspector was on tour for 276 days and visited 230 estates situated in several parts of the District and gave advice to cultivators on agricultural matters.
2. He held twenty-nine demonstrations of improved implements and five jaggory making demonstrations. Transplanting of paddy with single and double seedlings was demonstrated on forty acres.
3. One thousand five hundred seers of Sunn-hemp were distributed for green manuring paddy.
4. One hundred and six seers of selected Hain ragi were distributed for trial.
5. One lakh and four hundred sets of sugar-cane were distributed to sugar-cane growers. Seven hundred and forty seers Chintamani Sanna Paddy, seven hundred and twenty-eight maunds of Doddahatti, and fifty maunds of Cambodia cotton were distributed.
6. One hundred and thirty tons of oil cake were distributed to sugar-cane growers.
7. The Agricultural Inspector attended nineteen meetings of District and Taluk Committees, etc.

8. The following crop cutting experiments were conducted.

| Crops experimented with | Number Area | |
|-------------------------|-------------|-------|
| | A. | G. |
| Paddy | 16 | 82 14 |
| Sugar-cane | 5 | 19 10 |
| Ragi | 4 | 15 13 |
| Cotton | 3 | 8 11 |
| Chillies | 2 | 4 12 |
| Castor | 1 | 2 0 |
| Coriander | 1 | 3 0 |
| Togari | 1 | 1 30 |

KADUR DISTRICT.

1. The Agricultural Inspector was on tour for 232 days and visited 166 villages in several parts of the District and gave advice to 143 persons on agricultural matters.

2. He held ninety-five demonstrations of improved implements and eight jaggory making demonstrations. Economic transplanting of paddy was demonstrated on seventy-five acres in the District.

3. One thousand seven hundred and thirty-seven seers of Sunn-hemp and three thousand three hundred and sixty-five seers of cowpea have been distributed for green manuring paddy in this District.

4. Five hundred and eighty-three seers of selected Hain ragi were distributed to raiyats for trial. Five hundred and twenty-five seers of ragi and one thousand three hundred and seventy-five seers of paddy were selected by the salt water method.

5. Three lakhs sixty-four thousand eight hundred and twenty-five sets of sugar-cane were distributed to sugar-cane growers. Four hundred and eighty-four seers of Chintamani Sanna Paddy, seven thousand seers of Alur Sanna, eighty-six maunds of groundnut seed, sixty-six maunds of Doddahatti and four maunds of Cambodia cotton were distributed to raiyats. Seventy-six maunds of turmeric, Poona Variety, were sold.

6. One hundred and fifty tons of oil cake were distributed to be used as manure for sugar-cane.

7. Six hundred and two packets of copper sulphate were distributed to raiyats for smut prevention in jola.

8. The Agricultural Inspector attended twenty meetings of the District and Taluk Committees, Conferences, etc.

9. The following crop cutting experiments were conducted.

| Crops experimented with | Number Area | |
|-------------------------|-------------|-------|
| | A. | G. |
| Paddy | 34 | 34 0 |
| Sugar-cane | 21 | 17 25 |
| Ragi | 19 | 19 1 |
| Cotton | 1 | 1 0 |
| Coriander | 5 | 5 0 |
| Bengal-gram | 7 | 7 0 |
| Jola | 9 | 9 0 |
| Safflower | 2 | 2 0 |

APPENDIX B.

TABLE I.

Milk Yield (in pounds) of the Hebbal Dairy animals for the official year 1917-18.

| No. | Names of animals | July | August | September | October | November | December | January | February | March | April | May | June | Total |
|-----|---------------------|--------|--------|-----------|---------|----------|----------|---------|----------|-------|-------|--------|--------|--------|
| | | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| 1 | Nurjehan Cow .. | 218 | 169½ | 39 | .. | .. | 40½ | 184½ | 182½ | 250½ | 233½ | 197 | 178 | 1,693 |
| 2 | Radha .. | 225½ | 176 | 140 | 108 | 77½ | 10 | .. | .. | .. | 79 | 240½ | 265 | 1,321½ |
| 3 | Tara .. | 320½ | 396½ | 335 | 339 | 305 | 302 | 206½ | 173½ | 179½ | 137½ | 7 | .. | 2,702 |
| 4 | Ranee .. | 343½ | 302½ | 196 | 4½ | .. | .. | .. | 176½ | 503 | 414 | 363 | 309 | 2,612 |
| 5 | Padma .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 6 | Gowri .. | 324½ | 227½ | 216 | 157½ | 130 | 130 | 84½ | 36 | .. | .. | .. | .. | 1,306 |
| 7 | Lakshmi .. | 300½ | 271 | 221½ | 166 | 123 | 10½ | .. | .. | .. | 262 | 357 | 289 | 2,000½ |
| 8 | Kamala .. | 295½ | 249 | 220½ | 203½ | 179½ | 219 | 154 | 122 | 152 | 147 | 110½ | 59½ | 2,118 |
| 9 | Sumitra .. | 194 | 162½ | 80 | .. | .. | .. | .. | .. | .. | .. | 182½ | 243 | 862 |
| 10 | Ganga .. | 388 | 375 | 248½ | 181½ | 147½ | 123½ | 30 | .. | .. | .. | .. | .. | 1,494 |
| 11 | Seetha .. | .. | .. | 271 | 359½ | 329 | 315 | 212½ | 176 | 207 | 205 | 90½ | .. | 2,165½ |
| 12 | Indira .. | .. | .. | .. | .. | .. | .. | 6 | 120½ | .. | .. | .. | .. | 126½ |
| 13 | Sundari .. | .. | .. | .. | .. | .. | .. | .. | 161½ | 361 | 275 | 207 | 206 | 1,210½ |
| 14 | Parvathi Buffalo .. | 220 | 35½ | .. | .. | 193½ | 532½ | 387 | 420½ | 477½ | 450 | 428½ | 394 | 3,539 |
| 15 | Kabri .. | 305½ | 330 | 353 | 330½ | 295½ | 314 | 227 | 120 | 1 | .. | .. | .. | 2,276½ |
| 16 | Kapila .. | .. | .. | .. | .. | 88½ | 390½ | 378 | 403 | 430 | 422 | 431 | 396 | 2,939 |
| 17 | Princess .. | .. | .. | 64 | 234½ | 252½ | 285½ | 224 | 194 | 181½ | 149½ | 147 | 111 | 1,843 |
| | Total .. | 3,135½ | 2,695 | 2,390½ | 2,084½ | 2,121½ | 2,663 | 2,094 | 2,286 | 2,743 | 2,774 | 2,761½ | 2,450½ | 30,209 |

APPENDIX B.

TABLE II.

Statement showing the production of milk, skim-milk, cream, butter, and ghee for the year 1917-18

| No. | Months | Whole milk | | | Colostrum | Skim-milk | | Cream | | | Butter | | | Ghee | | Quantity of milk purchased from outside and included in the sales |
|-----|----------------|------------|--------|-----------|-----------|------------|-------|------------|-----------|-----------|------------|-----------|-----------|------------|-----------|---|
| | | Production | Sales | Separated | | Production | Sales | Production | Sales | Churned | Production | Sales | Melted | Production | Sales | |
| | | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. ozs. | lbs. ozs. | lbs. ozs. | lbs. ozs. | lbs. ozs. | lbs. ozs. | lbs. ozs. | lbs. ozs. | lbs. |
| | 1917 | | | | | | | | | | | | | | | |
| 1 | July | 3,135½ | 2,977 | 78½ | 75½ | 66 | 53 | 6 15 | .. | 6 15 | 4 2 | 1 12 | 2 6 | 1 4 | 3 0* | .. |
| 2 | August | 2,695 | 2,669 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 3 | September .. | 2,390½ | 2,271½ | .. | 38½ | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 4 | October | 2,084½ | 1,986 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 5 | November | 2,121½ | 1,927 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 6 | December | 2,673 | 3,559 | 114½ | 26 | 94½ | .. | 13 12 | 1 12 | 12 0 | 7 4 | 3 5 | 3 15 | 2 8 | 2 8 | 1,170½ |
| | 1918 | | | | | | | | | | | | | | | |
| 7 | January | 2,094 | 3,877½ | 139½ | 12 | 114½ | 80 | 14 0 | .. | 14 0 | 6 12 | 3 0 | 3 2 | 2 1 | 2 1 | 20,059 |
| 8 | February | 2,286 | 3,318½ | 155 | 107½ | 124 | 11 | 17 15 | .. | 17 15 | 10 15 | 4 1 | 6 14 | 5 0 | 5 0 | 13,899 |
| 9 | March | 2,743 | 3,786 | 116 | .. | 96 | 14 | 9 13 | .. | 9 13 | 6 8 | 1 10 | 4 14 | 3 8 | 3 8 | 13,929 |
| 10 | April | 2,774 | 3,494 | 44 | 112 | 37½ | .. | 3 1 | 1 3 | 2 14 | 1 7 | 0 2 | 1 5 | 0 15 | 0 15 | 9,769 |
| 11 | May | 2,761½ | 3,451½ | 144½ | 59 | 133½ | .. | 13 1 | 0 10 | 12 7 | 6 0 | 4 2 | 0 15 | 0 12 | 0 12 | 967½ |
| 12 | June | 2,450½ | 3,382½ | 217 | .. | 181 | 15 | 20 4 | 3 14 | 15 2† | 8 4 | 1 15 | 6 12 | 4 13½ | 4 13½ | 1,194½ |
| | Total | 30,209½ | 36,700 | 1,009 | 430½ | 847 | 173 | 98 13 | 7 7 | 91 2 | 51 4 | 20 9 | 30 3 | 20 13½ | 22 9½ | 9,094½ |

* Includes 1 lb. 12 oz. of last year.

† One lb. 4 oz. carried over.

APPENDIX C.

TABLE I.

Implement Depot Demand, Collection and Balance Statement, 1917-18.

| Items | Outstanding on 1st July 1917 | Issues in 1917-18 | Total dues | Collections in 1917-18 | Outstanding at the end 1917-18 |
|---------------------------------------|------------------------------------|----------------------|--------------------|------------------------------|--------------------------------------|
| | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. |
| Credit sales | 24,434 13 5 | 32,690 5 8 | 57,125 3 1 | 20,791 14 7 | 36,333 4 6 |
| Issues on the hire purchase system .. | 1,754 11 9 | 1,246 3 6 | 3,000 15 3 | 496 14 7 | 2,504 0 8 |
| Cash sales | .. | 2,207 3 6 | 2,207 3 6 | 2,207 3 6 | .. |
| Total .. | 26,189 9 2 | 36,143 12 8 | 62,333 5 10 | 23,496 0 8 | 38,837 5 2 |

APPENDIX C.

TABLE II.

| Number | District | Verity ploughs | Kolar Mission ploughs | Syracuse ploughs | New Bar Share ploughs | Eureka ploughs | Meston ploughs | Kirloskar ploughs | Hindustan ploughs | Cultivators | Lever Harrows | Sultan Mills | Raja Sugar-cane Mills | F. 6 Steel Shares | F. 4 Steel Shares | Slip point shares | Slip points (imported) | Slip points (local) | Steel bar points | Syracuse shares | Eureka shares | Eureka points | Verity steel shares | Verity cast shares | Meston steel shares | Meston cast shares | Plough chains | Round pans | Square pans | Chaff Cutter (Heebner) | Country seed drill | |
|--------|-------------------|----------------|-----------------------|------------------|-----------------------|----------------|----------------|-------------------|-------------------|-------------|---------------|--------------|-----------------------|-------------------|-------------------|-------------------|------------------------|---------------------|------------------|-----------------|---------------|---------------|---------------------|--------------------|---------------------|--------------------|---------------|------------|-------------|------------------------|--------------------|----|
| | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | |
| 1 | Bangalore | 1 | 90 | 2 | 22 | 6 | 26 | .. | 17 | 30 | .. | 3 | .. | 104 | 25 | 43 | 12 | 42 | 36 | 25 | 22 | 22 | .. | 57 | .. | 65 | 41 | 1 | .. | .. | 1 | |
| 2 | Mysore | 2 | 30 | .. | 53 | .. | 117 | .. | .. | 6 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 38 | .. | .. | .. | .. | | |
| 3 | Tumkur | 1 | 37 | .. | 5 | .. | 62 | .. | 11 | 21 | .. | .. | .. | 15 | 1 | .. | .. | .. | 3 | .. | .. | 6 | .. | 2 | .. | 16 | 1 | .. | .. | 1 | .. | |
| 4 | Kolar | .. | 70 | 2 | 10 | .. | 64 | .. | 12 | 21 | .. | 2 | .. | 12 | 25 | 2 | .. | 6 | 24 | 12 | 1 | 1 | 2 | 21 | .. | 37 | 26 | .. | .. | .. | 1 | |
| 5 | Shimoga | 4 | 6 | .. | .. | .. | 300 | .. | .. | 7 | .. | 1 | 14 | 1 | .. | 2 | .. | .. | 3 | .. | 1 | 1 | .. | 4 | .. | 101 | 15 | .. | .. | .. | .. | |
| 6 | Kadur | 1 | 8 | .. | 1 | 5 | 226 | .. | 9 | 3 | .. | 1 | 7 | .. | 2 | .. | .. | .. | 3 | .. | 1 | 1 | .. | 4 | .. | 111 | .. | .. | .. | .. | .. | |
| 7 | Hassan | 1 | 1 | .. | 10 | .. | 227 | .. | .. | 3 | .. | .. | .. | .. | 2 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 100 | 5 | .. | .. | .. | .. | |
| 8 | Chitaldrug | 73 | 12 | .. | 1 | 4 | 25 | 46 | .. | .. | .. | 6 | 1 | 4 | 3 | .. | .. | 4 | 1 | .. | 2 | 5 | .. | 4 | .. | 111 | .. | .. | .. | .. | .. | |
| 9 | Outside the State | 1 | 1 | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| | Total .. | 84 | 255 | 4 | 103 | 15 | 1,047 | 46 | 49 | 92 | 1 | 14 | 22 | 137 | 56 | 48 | 12 | 58 | 67 | 38 | 26 | 37 | 2 | 286 | 11 | 574 | 89 | 3 | 1 | 2 | 2 | 2 |

| Number | District | Disc Harrows | Verity Slip Point shares | Verity slip points | Frog of K. M. Plough | Hindustan plough shares | Tynes for spring tooth cultivators | Extra shares for Kirloskar plough | Cream Separator | Churn | Alfa Pails | Rough Sieves | Fine Sieves | Frames for ladles | Fire Bars | Spanners for K. M. plough | Spanners for Eureka plough | Can brushes | Butter Scoop | K. M. plough mould boards | Frog of Meston plough | D. P. W. Cast shares for K. M. ploughs | Landsides for K. M. plough | Spanners for Meston plough | Bolt for Meston share | Eureka bolts and nuts | Body of Verity plough | Value |
|--------|-------------------|--------------|--------------------------|--------------------|----------------------|-------------------------|------------------------------------|-----------------------------------|-----------------|-------|------------|--------------|-------------|-------------------|-----------|---------------------------|----------------------------|-------------|--------------|---------------------------|-----------------------|--|----------------------------|----------------------------|-----------------------|-----------------------|-----------------------|-------------|
| | | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 |
| 1 | Bangalore | 1 | 2 | 3 | 11 | 30 | 48 | .. | 1 | 1 | 3 | 6 | 4 | 5 | .. | 1 | 1 | 2 | 1 | 6 | 1 | 295 | 17 | .. | 1 | 2 | .. | Rs. a. p. |
| 2 | Mysore | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | 2 | 2 | .. | .. | .. | .. | 1 | 6 | 1 | 56 | 1 | .. | 30 | 2 | 7,436 14 4 | |
| 3 | Tumkur | .. | 3 | 2 | .. | 7 | .. | .. | .. | .. | .. | 1 | 1 | 2 | .. | .. | .. | .. | .. | 1 | .. | 56 | .. | .. | 3 | .. | 3,154 1 6 | |
| 4 | Kolar | .. | .. | .. | .. | 12 | .. | .. | .. | .. | .. | 3 | 3 | 2 | .. | .. | .. | .. | .. | .. | .. | 98 | .. | 1 | 6 | .. | 2,173 5 10 | |
| 5 | Shimoga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 3 | 21 | .. | .. | .. | .. | .. | .. | .. | 51 | .. | .. | 3 | .. | 3,112 12 0 | |
| 6 | Kadur | .. | .. | .. | .. | 9 | .. | .. | .. | .. | .. | 12 | 12 | 24 | .. | .. | .. | .. | .. | .. | .. | 25 | .. | .. | 1 | .. | 5,849 10 0 | |
| 7 | Hassan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 6 | .. | .. | .. | .. | .. | .. | .. | .. | 62 | .. | .. | 36 | 3 | 3,930 14 0 | |
| 8 | Chitaldrug | 1 | 114 | 212 | .. | .. | .. | 6 | .. | .. | .. | 3 | 4 | 3 | .. | .. | .. | .. | .. | .. | .. | 24 | .. | .. | .. | 2 | 1,887 4 0 | |
| 9 | Outside the State | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | .. | .. | .. | .. | 8,403 3 0 | |
| | Total .. | 3 | 119 | 217 | 12 | 59 | 48 | 6 | 1 | 1 | 3 | 32 | 32 | 57 | .. | 1 | 1 | 2 | 1 | 7 | 1 | 621 | 18 | 1 | 68 | 19 | 12 | 36,143 12 8 |