



AGRICULTURE DEPARTMENT

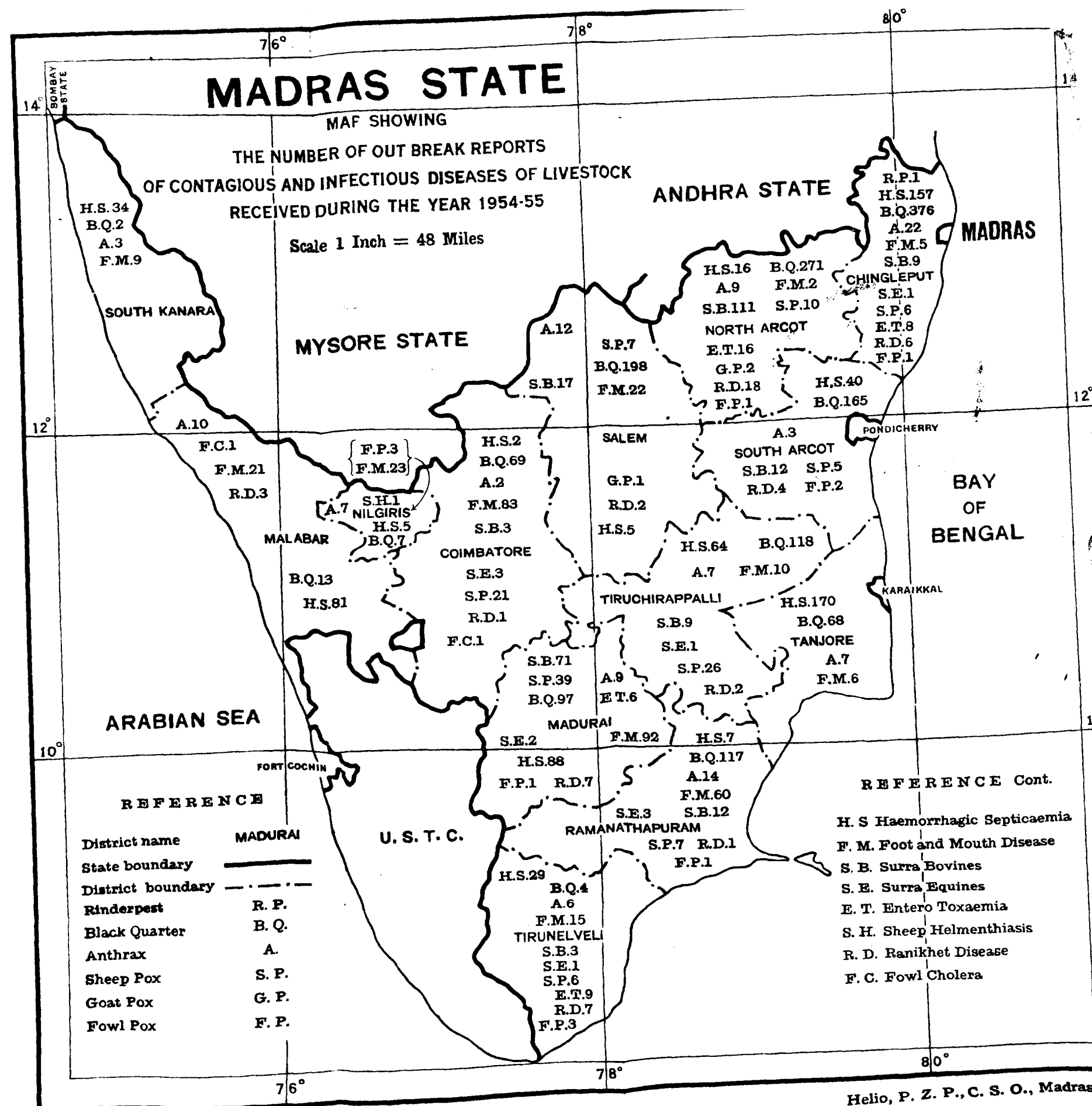
**ADMINISTRATION REPORT**  
OF THE  
**MADRAS ANIMAL HUSBANDRY**  
**DEPARTMENT**  
FOR THE YEAR  
**1954-55**

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A.H.A.R.

Helio, P. Z. P., C. S. O., Madras.

# ADMINISTRATION REPORT OF THE MADRAS ANIMAL HUSBANDRY DEPARTMENT FOR THE YEAR 1954-55.

## CHAPTER I.

### GENERAL.

*1. Veterinary Education.*—The number of admissions to the B.V.Sc. were restricted as usual to 80 for the year under report. The Veterinary and Livestock Inspectors' course for which admission of students was kept in abeyance from the previous year came to a virtual close by June 1954. The Dockmen course was introduced in its place and 55 students inclusive of 15 from Andhra State were admitted to this course. The Post-Graduate Refresher course was continued during the year and one batch of seven students underwent training. The flaying course has completed its second year of existence and two auxiliary centres were opened during the year. Ninety students both amateurs and professionals were trained in flaying during the year.

The Veterinary education imparted at the College was maintained at the high standards attained in the preceding years and the College produced 68 Veterinary Assistant Surgeons during the year. Besides 43 students were declared as having passed the Final examination of the Veterinary and Livestock Inspector's course.

The College continued to provide facilities for Post-Graduate Research and 10 students were pursuing research in Genetics. One member of the staff was awarded the M.Sc. degree during the year.

The students of the College took part as usual in the various inter-collegiate competitions and one student won the finals in his weight class in the inter-collegiate boxing tournament.

The College Association and the Social Service League continued to play their important roles in the extra curricular activities of the students.

The hospital attached to the College maintained its popularity and as many 13,783 cases were attended to during the year giving a daily average attendance of 120.0.

The number of specimens received in the Laboratories of the College was 474 during the year.

During the year the Government were pleased to redesignate the posts of 2 Lecturers into that of Professors and one Additional Professor. The College completed fifty years of valuable service for the cause of livestock and advancement of Veterinary Science and the Golden Jubilee of the College was therefore celebrated this year in a fitting manner. The function was presided over by the Governor of Madras and inaugurated by the Prime Minister of India.

*Institute of Veterinary Preventive Medicine, Ranipet.*—The name of the Institute was changed during the year from the Veterinary Biological and Research Institute to the Institute of Veterinary Preventive Medicines. In order to meet the needs of this State and the Andhra State, the Institute sold biological products to other neighbouring States and a sum of rupees 3-7-4 were realized by way of such outside sales.

4. *Veterinary Health Service and Itinerating Staff.*—During the year 2,51,568 cases were treated and 43,134 castrations were done at the veterinary institutions in the State. The itinerating staff treated 1,38,252 cases and performed 37,301 castrations both at headquarters and on tours during the year. Besides 9,63,615 preventive inoculations and vaccinations were carried out by them during the year. Due to the untiring efforts put forth in the previous years, rinderpest has almost been wiped out from this State. There was only one stray outbreak during the year and as many as 1,37,328 animals were protected against the disease during the year. With the preventive inoculations and vaccinations done against this disease by the regular staff and the staff of the Quarantine Stations, this position will be consolidated in the coming years. Measures are also being taken to chalk out endemic areas and carry out advance preventive inoculations in these areas with regard to the other contagious diseases of livestock. The absence of a quick mode of transport was keenly felt when attending to outbreak reports from the interior villages.

5. *Investigation and Research.*—The Veterinary Disease Investigation Officers, Cattle, Sheep and Goats, and Poultry and the several departments of the Madras Veterinary College continued to engage themselves in research work. A scheme for the control and eradication of and research on contagious abortion in livestock was implemented during the year.

6. *Veterinary Public Health.*—The services of the Veterinary Assistant Surgeons of this Department were utilized by 38 panchayats and 40 municipalities during the year for meat inspection work. The staff also inspected the milk and milch animals maintained by 67 co-operative societies in addition to inspecting the buffaloes and cows brought for milking at 54 human hospitals.

7. *Animal Husbandry Statistics.*—A Statistical Section was formed during the year to analyse statistically all the problems connected with animal breeding, feeding and disease control.

8. *Propaganda.*—The several sections of the department in general and the propaganda unit in particular conducted wide propaganda during the year by way of participating in exhibitions, conducting cattle shows, delivering lectures on livestock improvement and disease prevention and distributing departmental leaflets.

## CHAPTER II—STAFF.

### ADMINISTRATION.

9. I continued to hold the post of the Director of Animal Husbandry, Madras, for the year under report. During this period I attended the following meetings:—

- (i) The Soil Conservation Committee meeting at Ootacamund on the 25th May 1954.
- (ii) The State Livestock Improvement Board meeting at Hosur on the 20th June 1954.
- (iii) The Expert Committee meeting on preservation of cattle at Bangalore on the 26th June 1954.
- (iv) The Rinderpest Control Committee meeting at New Delhi on the 16th July 1954.

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(v) The Expert Committee meeting on the preservation of useful cattle at New Delhi on the 9th August 1954.

(vi) The Southern Regional Committee meeting (Animal Husbandry) of the Indian Council of Agricultural Research at Coimbatore on the 21st August 1954.

(vii) The Expert Committee meeting on the preservation of useful cattle at Bombay on the 3rd September 1954.

(viii) The Expert Committee meeting on the preservation of useful cattle and the Eastern Regional Committee meeting of the Indian Council of Agricultural Research at Calcutta from the 22nd to 28th September 1954.

(ix) The Publication Committee meeting of the Indian Council of Agricultural Research at New Delhi on the 22nd October 1954.

(x) The Advisory Committee meeting of the Indian Council of Agricultural Research at New Delhi from the 8th to 13th November 1954.

(xi) The Expert Committee meeting for the prevention of slaughter of cattle at Madras from the 3rd to 6th December 1954.

(xii) The Silver Jubilee celebration of the Indian Council of Agricultural Research at New Delhi on the 14th and 15th December 1954.

(xiii) The Expert Committee meeting for the prevention of slaughter of cattle at New Delhi from the 29th to 31st December 1954.

(xiv) The State Livestock Improvement Board meeting at Neikarapatty on the 2nd February 1955

I also delivered a lecture at the Aarey Milk Colony for the Food and Agricultural Organization trainees at Bombay on the 29th December 1954 and toured in Patiala district as one of the members of the Expert Committee for the preservation of useful cattle in August 1954.

10. (a) I was assisted by the Deputy Director of Animal Husbandry (Veterinary) on all matters relating to administration other than the livestock of the State. The post of the Deputy Director of Animal Husbandry (Veterinary) was held by Sri Bertie A. D'Souza till the 18th June 1954 afternoon and by Sri I. D. Mantramurti from the 29th July 1954 afternoon onwards. During the interim period I was in additional charge of the post.

The Deputy Director of Animal Husbandry (Veterinary) inspected the District Veterinary Offices, Veterinary Institutions, Minor Veterinary Dispensaries and the Touring Billets during the year. He also visited the scene of outbreaks of contagious diseases and checked the efficiency of the preventive measures taken by the staff and issued detailed instructions whenever necessary. He made a detailed tour of the National Extensive Service and Community Project areas and discussed the various activities and problems with the respective Block Development Officers and Assistant Project Executive Officers wherever possible. He also attended a few of the important conferences held in the Madras Secretariat along with me. He participated in the opening ceremony of the Veterinary Dispensary opened by the Chief Minister at Koradacheri and addressed the public on the occasion of the opening of a new Veterinary dispensary at Ponneri by the Minister of Agriculture. He also attended to the Gosamvardhana Day Cattle Show at Saidapet and acted as a judge and helped me in organizing the "more milk day". He addressed the students of the Gramasevak Training School at Pattukkottai. He also accompanied the members of the Expert Committee for prevention of slaughter of cattle to some important places in the Madras City.

(b) The post of the Deputy Director of Animal Husbandry (Livestock) was held by Sri D. Pattabiraman from 1st April 1954 to 7th February 1955 when he proceeded on leave for four months. I held additional charge of the post for the rest of the period ending 31st March 1955. Both Sri D. Pattabiraman and I toured all over the State regularly and inspected the work carried out in the Livestock Farms and Institutions and the livestock improvement work done in the field. The Deputy Director of Animal Husbandry (Livestock) attended the Regional Meeting of the Indian Council of Agricultural Research at Coimbatore held in August 1954 and the Animal Breeding Committee meeting of the Indian Council of Agricultural Research held at Delhi in October 1954.

11. The work turned out by the Gazetted Officers and the Subordinate staff during the year was efficient and their tours in connexion with the effective control of epizootics and livestock development adequate.

12. *Gazetted staff.*—The sanctioned strength of Gazetted Officers of this Department at the beginning of the year was 52 and at the end of the year it was 56 inclusive of the five new posts sanctioned during the year and excluding the one post of Professor of Hygiene held by the Principal, Madras Veterinary College, and the one post of Additional Lecturer in Animal Husbandry abolished during the year. The five new posts in the scale of Rs. 260—700 that were created during the year are detailed below :—

(i) Lecturer for Stockmen course, Madras Veterinary College at Hosur Cattle Farm.

(ii) Animal Husbandry Statistician, Office of the Director of Animal Husbandry, Madras.

(iii) Superintendent, District Livestock Farm, Orathanad, Tanjore district.

(iv) Regional Sterility Officer, Madras.

(v) Special Officer for Cross Breeding Scheme, Ootacamund.

The last named post was not filled up during the year.

13. *Non-Gazetted Staff.*—The sanctioned strength of Veterinary Assistant Surgeons in the Department on 31st March 1955 was 374 as detailed in Table XI. The sanctioned strength during the previous year was 289.

The sanctioned strength of the Veterinary and Livestock Inspectors and the compounders and Stockmen compounders stood at 166 and 108 respectively at the end of the year.

14. *Deputation.*—Sri G. B. Radhakrishnan, Superintendent, District Livestock Farm, Pudukkottai, who was deputed on 18th February 1954 to New Zealand for training in livestock improvement under this Commonwealth Technical Co-operative Scheme rejoined duty on 28th January 1955 after completion of the training.

Sri M. C. Chellam, District Veterinary Officer, Tirunelveli, was deputed to undergo training in Sweden for a period of about one year in Theoretical and Practical Obstetrics and Animal Gynaecology including Artificial Insemination consisting of lectures and practical demonstration from 26th August 1954 to end of the period.

## CHAPTER III—EDUCATION.

## MADRAS VETERINARY COLLEGE.

**15. Courses of study—(a) Education.**—Madras Veterinary College, B.V.Sc Degree course. This course continued to be held during the year under report.

**Admissions.**—The admission of students to this course was, as usual, restricted to 80 for the year under review and these 80 seats were distributed as follows:—

|                                                                                                                   |           |
|-------------------------------------------------------------------------------------------------------------------|-----------|
| For students coming from foreign countries .. .. .                                                                | 6         |
| For students coming from States other than Madras and Andhra—                                                     |           |
| Coorg .. .. .                                                                                                     | 1         |
| Travancore and Cochin .. .. .                                                                                     | 2         |
| Orissair .. .. .                                                                                                  | 2         |
| Kashm .. .. .                                                                                                     | 2         |
| Andaman and Nicobar Islands .. .. .                                                                               | 1         |
|                                                                                                                   | 8         |
| For students whose parents or guardians are Central Government Officers serving, but not domiciled in this State. | 2         |
| For military demobilised personnel .. .. .                                                                        | 1         |
| For students belonging to the Madras State .. .. .                                                                | 40        |
| For students belonging to the Andhra State .. .. .                                                                | 23        |
|                                                                                                                   | —         |
| <b>Total ..</b>                                                                                                   | <b>80</b> |

As usual students for admission were selected by a Committee specially constituted by the Government.

The candidates who sought for admission to this course were divided into three categories, viz., (1) Scheduled Castes and Scheduled Tribes, (2) Socially and Educationally Backward classes and (3) Others.

According to the instructions of the Government, 15 per cent of the seats allotted to this State was reserved for the candidates belonging to the Scheduled Castes and Scheduled Tribes and 25 per cent for the candidates belonging to the socially and educationally backward classes. Seats left unfilled were taken to the general pool. For selecting candidates of the Scheduled Castes and Scheduled Tribes, the whole State was taken as one unit; whereas the candidates of the remaining two categories were distributed on the district-wise quota fixed by the Government on the basis of population of the respective districts. The seats left unfilled by the candidates of other States and of foreign countries were filled up by the local candidates.

In all, only 80 applications were received from the candidates of the Madras State.

All these candidates were required to appear before the Selection Committee at the College on different dates from the 25th to the 30th June 1954, but only 68 candidates did so. The Committee selected 40 out of them straightaway for admission, placing the remaining 28 candidates in the waiting list according to merit.

The Central Government having availed of three seats, surrendered the remaining three seats and also one seat reserved for the Andaman and Nicobar Islands. No woman candidate applied for admission this year, nor wards of

Central Government Officers. The three seats reserved for them were also rendered vacant. So in all, seven more seats became available for being filled up with local candidates.

Thus, on the whole, 47 candidates belonging to the Madras State were admitted to the course.

The students of other States and foreign countries admitted to the course are as shown hereunder:—

|                               |           |
|-------------------------------|-----------|
| Andhra .. .. .                | 23        |
| Travancore and Cochin .. .. . | 2         |
| Coorg .. .. .                 | 1         |
| Orissa .. .. .                | 2         |
| Kashmir .. .. .               | 2         |
| Malaya .. .. .                | 3         |
|                               | —         |
| <b>Total ..</b>               | <b>33</b> |

The number of students on the roll at the end of the year under report was 309.

(b) *The Veterinary and Livestock Inspectors' course.*—This course to which admission of students was kept in abeyance from the year 1953–54, came to a virtual close by June 1954. In its stead, the Stockmen course of 11 months' duration was started in August 1954.

(c) *Stockmen course.*—The Stockmen course was started this year in place of the Veterinary and Livestock Inspectors' course which stood suspended from the year 1953–54. This course is intended to give the candidates elementary knowledge in the subjects related to Veterinary Science with special emphasis on Animal Husbandry, so that they may perform the routine duties of stockmen.

The candidates seeking admission to this course should not be below 17 years or above 22 years of age on the date of admission and should have been declared eligible for admission to the University course of studies in the Madras, Annamalai and Andhra Universities. The course is spread over a period of 11 months—8 months at the Livestock Research Station, Hosur, and 3 months at the Madras Veterinary College and the teaching consists of theoretical and practical training.

**Admissions.**—Though the number of admissions to this course was fixed by the Government at 40 (15 seats to the Andhra and 25 seats to the Madras State), it was subsequently increased to 55, allotting the additional 15 seats to the Madras State. The selection of candidates of the Madras State was made by a Committee consisting of the Director of Animal Husbandry, Madras, and the Principal, Madras Veterinary College. The principles that are generally applicable for the selection of students for admission to the B.V.Sc. Degree course are applicable to this course as well.

In all, 255 applications were received for admission to this course of which 25 were selected first and 83 were placed in the waiting list as shown hereunder:—

|                                           | Scheduled Castes, etc. | Backward Classes. | Others. | Total. |
|-------------------------------------------|------------------------|-------------------|---------|--------|
| Applications received .. .. .             | 12                     | 143               | 100     | 255    |
| Number selected .. .. .                   | 4                      | 15                | 6       | 25     |
| Number placed in the waiting list .. .. . | 2                      | 45                | 36      | 83     |

On receipt of orders of Government increasing the number of admissions from 40 to 55, fifteen more candidates from the waiting list were called for to join the course.

The Andhra State selected and admitted candidates for all the 15 seats reserved for it.

The number of students on the rolls at the end of the year under report was 53.

(d) *Flying course*.—This course completed the second year of its existence this year. As the duration of the course is three months, candidates for admission were called for once in three months, interviewed, selected and admitted to this course. Three batches of students, in all 60—51 amateurs and 9 butchers—were trained during the year under report.

Two auxiliary centres were also opened by the Veterinary Assistant Surgeons who underwent training in Flying while undergoing Refresher course in this college, one at Coonoor and the other at Tiruchirappalli. The number of students trained in these two centres was as follows :—

|                  | Coonoor. | Tiruchirappalli. | Total. |
|------------------|----------|------------------|--------|
| I batch .. .. .  | 4        | 5                | 9      |
| II batch .. .. . | 4        | 17               | 21     |
|                  | —        | —                | —      |
| Total .. .. .    | 8        | 22               | 30     |
|                  | —        | —                | —      |

The III batch of students were under training.

(e) *Refresher Course*.—One batch of seven students deputed for this course during the period under report completed their training. Proposals for extending the period of the course and intensifying the syllabus were under way.

16. *Examinations*—(a) *B.V.Sc. Degree Course*.—During the year under report, the Annual and Supplementary examinations for the B.V.Sc. Degree course were held by the University of Madras and the results were as shown hereunder :

| B.V.Sc.                                    | Number appeared. |           | Number passed. |           |
|--------------------------------------------|------------------|-----------|----------------|-----------|
|                                            | Whole.           | By parts. | Whole.         | By parts. |
| Annual—(April and June 1954)—              |                  |           |                |           |
| Preliminary .. .. .                        | 70               | 2         | 36             | 2         |
| Intermediate, Part I .. .. .               | 68               | 19        | 10             | 5         |
| Intermediate, Part II .. .. .              | 64               | 8         | 25             | 8         |
| Final .. .. .                              | 70               | 20        | 30             | 17        |
| Supplementary (October and December 1954)— |                  |           |                |           |
| Preliminary .. .. .                        | 6                | 24        | 3              | 24        |
| Intermediate, Part I .. .. .               | 1                | 71        | ..             | 47        |
| Intermediate, Part II .. .. .              | ..               | 41        | ..             | 29        |
| Final .. .. .                              | 2                | 40        | ..             | 21        |

On the whole, 68 Veterinarians were produced during the year under report.

(b) *Veterinary and Livestock Inspectors' course*.—The Annual and Supplementary examinations were held for the Veterinary and Livestock

Inspectors' course during the year under report and the results were as shown hereunder :—

|                                    | Number appeared. | Number passed. |
|------------------------------------|------------------|----------------|
| Annual (June 1954) .. .. .         | 43               | 35             |
| Supplementary (March 1955) .. .. . | 8                | 8              |
|                                    | —                | —              |
| Total .. .. .                      | 51               | 43             |
|                                    | —                | —              |

Forty-three students qualified themselves as Veterinary and Livestock Inspectors during the year under report.

(c) *Flying course*.—The Lecturer in flying conducted examinations at the respective centres for each batch of trainees. During the year, in all 90 students were trained in flying.

17. *Scholarships and stipend*—(a) *B.V.Sc. Degree course*.—All the five scholarships sanctioned by Government were awarded to five Backward Class students of the I year, there being no Scheduled Caste candidates available for admission to the course during the year under report. Apart from these, recipients of the scholarship before they were restricted to five each year, who were eligible for the scholarships, continued to enjoy them during the year under report.

In addition, 24 students were getting scholarships kindly granted by the Harijan Welfare Department, Madras, and four students were getting scholarships granted by the "Scheduled Castes and Scheduled Tribes and other Backward Class Scholarship Board" of the Central Government.

(b) *Veterinary and Livestock Inspectors' course*.—All the students under study in the II year class of the Veterinary and Livestock Inspectors' course were paid a stipend of Rs. 30 each per month during the year under report. In the case of Harijan students, the stipend amount paid was Rs. 35 per mensem.

(c) *Stockmen course*.—Such of those students of the Stockmen course who were eligible for drawal of stipend were paid a stipend at the monthly rate of Rs. 35 for Scheduled Tribes and Scheduled Castes candidates and Rs. 30 for Backward Class candidates respectively.

(d) *Flying course*.—The Flying course students were also drawing stipends of Rs. 10 and Rs. 25 per mensem each according to whether they were licensed butchers or new recruits.

18. *Practical farm training*.—As usual, all the students of the B.V.Sc. Degree course obtained the required practical training in Animal Husbandry at the Livestock Research Station, Hosur Cattle Farm, during the summer vacation, the first, second and third year classes for one and a half months and the fourth year class for two months. During the period of training, the students of the IV year class visited the Indian Dairy Research Institute, Bangalore, the Mysore Serum Institute, the Hasarghatta Farm, the Sheep and Goat Farm at Ootacamund and the Central Farm at the Agricultural College, Coimbatore, where they also had a course of lectures in Agricultural Economics.

19. *Educational tours*.—The students of the II year class accompanied by the Professor and Assistant Lecturer in Hygiene, visited the Corporation Water Works at Kilpauk, the Red Hills and the Poondi Reservoir. The students of the IV year class visited the King Institute at Guindy and the

Institute of Veterinary Preventive Medicine at Ranipet to acquaint themselves with the working of both these Institutes. The students of the Flaying course were taken to the Institutes of Leather Technology, Washermanpet and Guindy, and the Chrome Leather Factory at Tambaram.

20. *Post-graduate Research*—(a) *Staff*.—Of the two members of the staff who took up the examination in M.Sc., this year one qualified himself for the award of the M.Sc. degree while the other failed in his attempt. A third member of the staff got himself registered for the M.Sc. examination. One Lecturer was deputed to undergo the D.T.V.Sc. Course at the Indian Veterinary Research Institute, Izatnagar.

One Assistant Lecturer was awarded a Research Fellowship in Animal Bacteriology by the Government of India. He has since been working at the Indian Veterinary Research Institute, Izatnagar.

Two other Assistant Lecturers had gone to America to pursue Post-Graduate Courses in Animal Husbandry.

One Demonstrator was granted the necessary leave to take up the Post-Graduate Course in the Bio-Chemical Laboratories of the University of Madras.

(b) *Students*.—The two University Research Scholars continued to pursue their researches in respect of "the influence of sex-hormones on the expression of coat colour (Inheritance of coat colour in cattle)" and on "Poultry genetics and the Physiology of avian germ cells", respectively. The former registered himself for the Ph.D. degree and the latter for the M.Sc. degree during the year under report.

21. *Hostel, health and athletics*—(a) *Hostel*—(i) *B.V.Sc. Degree course*.—The problem of providing adequate accommodation to the students in the hostel still remains unsolved. The question of acquiring the site behind the hostel, hitherto occupied by the Military, for constructing an identical block is under correspondence with the Government.

During the year under report, 222 students inclusive of 8 students of foreign nationality, were provided with hostel accommodation. As usual, two messes—one vegetarian and the other non-vegetarian—functioned during the year catering to the needs of the inmates and the monthly dividend ranged from Rs. 35 to Rs. 40 each. The inmates of the hostel fully availed of the facilities provided for playing indoor games such as Carroms, Chess and Table-tennis and outdoor games such as Ring-tennis, Badminton, Volleyball and Chedu-kudu. The services of the hostel telephone and radio were fully utilized by the students.

The Hostel Day was celebrated on 24th November 1954, under the presidency of Sri Bertie A. D'Souza, Principal, Madras Veterinary College. Sri M. Bhaktavatsalam, Minister for Agriculture, was the Chief Guest of that day and he distributed the prizes to the students who won the several contests held in the hostel. A purse containing Rs. 243 was presented to the Minister for the Gandhi Memorial Fund. The portrait of Dr. I. M. Azizuddin, late Principal, Madras Veterinary College, was unveiled by the Hon'ble Minister after a short speech.

(ii) *Stockmen Course*.—Though the College hostel at the Livestock Research Station, Hosur, was constructed to meet the needs of as many as 100 students, only 54 students admitted to the Stockmen course, resided in

it. Only a vegetarian mess was run, by the students themselves, under the guidance and control of the Lecturer of the course, on a monthly dividend basis of about Rs. 30 each.

The Hostel Day was celebrated on 5th March 1955 under the presidency of Sri V. R. Rajagopalan, Director of Animal Husbandry.

(iii) The discipline of the students in the hostels was good.

(b) *Health and medical inspection of the students*.—The medical inspection of the students was conducted by Dr. B. N. Hegde, as usual.

(c) *Athletics and games*.—Sri I. D. Mantramurti, Professor of Hygiene, was the Sports Secretary till he was transferred and appointed as Deputy Director of Animal Husbandry (Veterinary). In his place, Sri Frank D. Wilson, Lecturer in Flaying, was appointed as the Sports Secretary and he continued to hold the post for the rest of the year under report. He was assisted in this post by Sri A. N. Lamech, Physical Director.

The College team took part in the Inter-Collegiate Knock-out Tournament in Football and Hockey. The football team also competed in the May & Baker and the B. V. Naidu Cup Knock-out Tournaments in addition.

The students showed great interest in Boxing and some were coached up by Sri B. Masilamany with a view to enable them to compete in the Inter-Collegiate Boxing Tournament held at Tambaram. One student of this College won the finals in his weight class.

The Annual Sports of the College was held on 18th January 1955 in conjunction with the Golden Jubilee celebrations of the college presided over by Sir A. Lakshmanaswamy Mudaliar, Vice-Chancellor of the Madras University. The prizes were distributed by the Vice-Chancellor to the winners and runners-up. He also delivered a short and very appreciative speech on the growth and progress of the College on the occasion.

The function was highlighted by the presence of Sri Ajit Prasad Jain, Union Minister for Food and Agriculture, who laid the foundation stone for the Open Air Theatre for this College for the construction of which the Central Government offered to contribute Rs. 7,000 through the Madras University under the Youth Welfare Programme.

22. *Miscellaneous*—(a) *Association*.—The Madras Veterinary College Association continued to play an important role in the extra-curricular activities of the students and staff of the College. During the year under review, the College took part in the Inter-Collegiate debates in Tamil, Telugu and English, and the College was also a member of the Madras City College Students' Union and took part in the three-day festival conducted by the Council and contributed an item. It also continued to send teams of students to take part in the weekly Quiz programme arranged by the All-India Radio, Madras.

Further, it participated in the Inter-Collegiate Music Competition conducted by the Madras Medical College Hostel and won the Second Prize for light music. It arranged with the United States Information Service for the screening of the following films: (i) Poultry a billion dollar industry, (ii) Poultry raising and (iii) Blue Ribbon. It also deputed the Secretary of the Association to represent this College at the Conference held at Bombay for the formation of the All-India Veterinary Students' Association and as a result of his participation, he was elected as the Association's first President.

In order to augment its financial position, it conducted a benefit performance in the Annamalai Hall with some reputed artist and also conducted a sale of flags. Under the auspices of the Association, the following functions were celebrated :—

(i) The Independence Day—Sri S. K. Chettur, I.C.S., Secretary to Government, Revenue Department, addressed.

(ii) The Republic Day—Sri Bertie A. D'Souza, Principal, Madras Veterinary College, addressed.

(b) *Social Service*.—The Madras Veterinary College Students' Social Service League which is affiliated to the Madras Students' Social Service League, continued to do active service. Two students took part in the Fifth Conference of the Students' Social Service League and the Madras Adult Education Council held at Madras during the year under report.

The members of the league continued to educate the dwellers of the sium in the Naval Hospital Road to keep their surroundings in a clean and hygienic manner, and ran a night school in that area for adults. The League also celebrated the Republic Day in the area and distributed sweets to children. The food packets received through the Guild of Service were distributed in the area. The students helped the Labour Night School at Mylapore to conduct adult education by contributing funds got by way of a benefit show.

(c) *Library*.—During the year under review, 128 new books were purchased and added to the Library, bringing the total number of books available in the Library to 3,589. There were also 1,470 bound volumes of periodicals.

Seven periodicals were subscribed for by the College while an equal number were subscribed for by the Director of Animal Husbandry, Madras.

During the year under report, 2,716 books in all were issued to the students and staff of the College.

(d) *Students' bus*.—The services of the College bus were fully availed of by the students for their visits in connexion with the curricular and extra-curricular activities both in and outside the City of Madras.

(e) *Inspection of Police animals*.—The quarterly inspection of the City Police horses were conducted as usual and necessary treatment and professional advice were given for the care and management of Police horses and dogs.

(f) *The S.P.C.A.*—The S.P.C.A., Madras, admitted 32 cases into the College hospital for care and treatment during the year under review.

(g) *Professional Papers contributed*.—The following papers were contributed by the members of the staff of the College during the year under report :—

*Anatomy*.—(i) A note on a rare case of early conception in a heifer calf.

*Parasitology*.—(i) *Paryphostomum sufrartyfea* in pigs in Madras.

(ii) Role of pigs in the life cycle of *Lingutual serrata*.

(iii) Paraflariasis(?) of elephants.

(iv) Further observations on paraflariasis of elephants.

(v) A check-list of Parasites (Classes—Trematoda, Cestoda and Nematoda) in the Department of Parasitology, Madras Veterinary College.

(vi) A note on Cooperiasis in buffalo calves.

(vii) Transmission of *Trypanosoma evansi* from mammals to fowls

(viii) Prophylactic value of Antrycide Prosalt against *Trypanosoma evansi*.

(ix) Notes of Parasitological interest.

(x) A note on the occurrence of *Oesophagostomum apistomum* in Indian monkeys.

*Bacteriology*.—A paper entitled " Mygration of ovum in the Indian buffalo (*Bos bubalis*) ".

*Animal nutrition*.—(i) Micro-biological determination of Cystine in proteins and foods by using lacto-bacillus Arabinosis.

(ii) Protein requirements of poultry.

(iii) Nutritive value of green manure crops—*Sesbania Speciosa*.

(iv) Selenium poisoning in men and animals.

(v) The composition of and nutritive value of *Prosopis Juliflora*

*Pod.*

(vi) The composition and nutritive value of tobacco seed cake or meal.

(vii) The scientific feeding of cattle.

(viii) Feeding mash for starting chicks.

(ix) Cystine and Cysteine in health and disease.

(x) Feeding mash for growing chicks.

*Medicine*.—(i) An outbreak of a nervous disease in poultry possibly due to the Ranikhet disease virus.

(ii) Glycosuria in Rabies.

(iii) Meat inspection and its importance.

(iv) Diseases transmitted through milk.

*Reviews*.—The following books were reviewed :—

(i) Organization and execution of anti-epizootic measures in the U.S.S.R. by Professor Leonov.

(ii) Advances in the control of Zoonoses.

(iii) The practice of Veterinary Medicine—Sixth Edition.

(h) *Meetings and Conferences*.—(i) Sri C. K. Velayudhan Nair, Professor of Pharmacology, who was one of the members of the Sub-committee of the Indian Council of Agricultural Research on Indigenous Drugs, attended the meeting of the Committee held at Calcutta in March 1955.

(ii) The meeting of the Principals of Veterinary Colleges in connection with Veterinary Education, was attended by Sri Bertie A. D'Souza, Principal, Madras Veterinary College.

(iii) Dr. V. Mahadevan, Professor of Animal Nutrition, attended the annual meeting of the Animal Nutrition Committee of the Indian Council of Agricultural Research at New Delhi in October 1954.

(i) *Visiting Committee*.—The Board of honorary visitors, with Sri Nallasenapathi Sarkarai Manradiar, Pattagar of Palayakottai as President, continued during the year.

(j) *Visitors*.—Dr. Reed, Professor under Technical Co-operation and Administration, and a batch of Food and Agriculture Organization trainees in Dairying visited the College.

Sri Sao Moun, State Minister for Education, Shan State Government, Union of Burma, Sri M. Suota, State Minister for Works and Communications, Shan State Government, Union of Burma, and Sri U. Ba Yi, Vice-Consul for Burma in Madras, visited the College during the year under report.

Dr. A. R. Sidkey, Minister for Agriculture, Egypt, visited the College.

23. Hospital.—(a) The cases treated and operations performed during the year under report and for the years 1953-54 and 1952-53 are tabulated hereunder :—

TABLE I.—Cases treated.

|                                    | 1954-55.      | 1953-54.      | 1952-53.      |
|------------------------------------|---------------|---------------|---------------|
| <b>In-patients—</b>                |               |               |               |
| Bovines .. .. .                    | 179           | 200           | 241           |
| Equines .. .. .                    | 38            | 63            | 71            |
| Canines and others .. .. .         | 457           | 441           | 489           |
| <b>Out-patients—</b>               |               |               |               |
| Bovines .. .. .                    | 4,979         | 4,745         | 4,035         |
| Equines .. .. .                    | 231           | 197           | 154           |
| Canines and others .. .. .         | 7,901         | 7,277         | 6,356         |
| <b>Total ..</b>                    | <b>13,783</b> | <b>12,923</b> | <b>11,346</b> |
| <b>Daily average attendance ..</b> | <b>127.33</b> | <b>126.5</b>  | <b>120.0</b>  |

TABLE II.—Operations.

|                            | 1954-55.   |            | 1953-54.   |            | 1952-53.   |            |
|----------------------------|------------|------------|------------|------------|------------|------------|
|                            | Major.     | Minor.     | Major.     | Minor.     | Major.     | Minor.     |
| Bovines .. .. .            | 278        | 58         | 287        | 86         | 264        | 28         |
| Equines .. .. .            | 4          | 16         | 13         | 6          | 16         | 11         |
| Canines and others .. .. . | 25         | 261        | 20         | 278        | 14         | 242        |
| <b>Total ..</b>            | <b>307</b> | <b>329</b> | <b>320</b> | <b>370</b> | <b>294</b> | <b>279</b> |

TABLE III.—Castrations.

|                            | 1954-55.  | 1953-54.  | 1952-53.  |
|----------------------------|-----------|-----------|-----------|
| Bovines .. .. .            | 29        | 9         | 19        |
| Equines .. .. .            | 4         | 1         | 11        |
| Canines and others .. .. . | 13        | 23        | 27        |
| <b>Total ..</b>            | <b>46</b> | <b>33</b> | <b>57</b> |

The following table shows the Medical and Surgical cases treated in the wards of the hospital during the year under report :—

|                                            | Bovines.     | Equines.   | Canines and others. | Total.       |
|--------------------------------------------|--------------|------------|---------------------|--------------|
| <b>Medical cases.</b>                      |              |            |                     |              |
| Contagious diseases .. .. .                | 19           | ..         | 1,406               | 1,425        |
| Protozoan diseases .. .. .                 | 48           | ..         | 164                 | 212          |
| Diseases of the respiratory system .. .. . | 103          | 21         | 98                  | 220          |
| Do. digestive system .. .. .               | 2,056        | 36         | 2,816               | 4,908        |
| Do. circulatory system .. .. .             | 13           | ..         | 47                  | 60           |
| Do. urinary system .. .. .                 | 11           | 2          | 11                  | 24           |
| Do. nervous system .. .. .                 | 43           | ..         | 300                 | 343          |
| Do. generative system .. .. .              | 146          | 1          | 91                  | 238          |
| Do. locomotor system .. .. .               | 12           | 1          | 111                 | 124          |
| Do. skin (parasitic) .. .. .               | 24           | 1          | 166                 | 191          |
| Do. skin (non-parasitic) .. .. .           | 36           | 10         | 586                 | 632          |
| General diseases .. .. .                   | 201          | 47         | 328                 | 576          |
| Diseases of unknown origin .. .. .         | 132          | 2          | 149                 | 283          |
| Anti-rabic treatment .. .. .               | 17           | ..         | 355                 | 372          |
| Rabies .. .. .                             | 6            | ..         | 96                  | 102          |
| <b>Total ..</b>                            | <b>3,867</b> | <b>121</b> | <b>6,622</b>        | <b>9,610</b> |

|                                             | Bovines.     | Equines.   | Canines and others. | Total.       |
|---------------------------------------------|--------------|------------|---------------------|--------------|
| <b>Surgical cases.</b>                      |              |            |                     |              |
| Abscesses, wound, etc. .. .. .              | 517          | 63         | 503                 | 1,083        |
| Tumours, cyst, etc. .. .. .                 | 82           | ..         | 140                 | 222          |
| Hernia, prolapse, etc. .. .. .              | 73           | ..         | 23                  | 96           |
| Diseases of bones .. .. .                   | 68           | 8          | 155                 | 231          |
| Do. horns .. .. .                           | 79           | ..         | ..                  | 79           |
| Do. articulations .. .. .                   | 54           | 18         | 21                  | 93           |
| Do. muscles, tendons, etc. .. .. .          | 63           | 11         | 4                   | 78           |
| Do. vessels and nerves .. .. .              | ..           | 2          | 2                   | 4            |
| Do. glands .. .. .                          | 261          | ..         | 68                  | 329          |
| Do. foot .. .. .                            | 44           | 16         | 152                 | 212          |
| Do. eye, ear, nose, throat, .. .. .         | 108          | 10         | 283                 | 401          |
| Do. urinary and generative systems. .. .. . | 281          | 7          | 64                  | 352          |
| Docking .. .. .                             | 3            | ..         | 66                  | 69           |
| Castrations .. .. .                         | 29           | ..         | ..                  | 29           |
| Test for pregnancy .. .. .                  | 615          | ..         | ..                  | 615          |
| Received for destruction .. .. .            | 1            | 4          | 112                 | 117          |
| Carcases received for post-mortem .. .. .   | 11           | 9          | 143                 | 163          |
| <b>Total ..</b>                             | <b>2,289</b> | <b>148</b> | <b>1,736</b>        | <b>4,173</b> |

(b) Diseases among livestock—(i) *Small Animal Clinic*.—During the year under report 8,358 cases in all were treated as against 7,718 cases of the previous year. Twenty-five major operations and 261 minor operations were conducted while 13 castrations were performed.

(ii) *Rabies*.—Out of 96 dogs admitted for observation for rabies, 44 proved positive. Necessary prophylactic measures were taken. As many as 255 dogs were protected against the disease free of cost with Anti-rabic Vaccine obtained from the Pasteur Institute, Coonoor, as against 233 dogs protected in the previous year.

(iii) Twenty chicks were vaccinated against fowl-pox.

(c) *Cattle ward*.—In this ward, as many as 5,156 animals were treated during the year under report as against 4,945 of the previous year.

Some of the interesting cases that were treated are given below :—

(i) *Rinderpest*.—During the year under report, one newly purchased animal suspected for Rinderpest was brought to the hospital for treatment which ended fatally. The necessary prophylactic measures were taken to prevent the spread of the disease.

(ii) *Blackquarter*.—Three cases were brought for treatment all of which died before proper treatment could be given. One case was confirmed microscopically.

(iii) *Cow-pox*.—There were six cases of cow-pox among the out-patients and the owners were advised of the prophylactic measures to be adopted.

(iv) *Contagious bovine abortion*.—Serum samples from five suspected cases were found negative on agglutination test.

(v) *Contagious pustular dermatitis*.—Six cases of this disease in goats were treated in the hospital but the results of examination of the materials from the angles of the mouth proved inconclusive.

(vi) *Rabies*.—During the year under report, six animals were admitted with symptoms of rabies, all of which proved positive. Seventeen animals were treated with Anti-rabic Vaccine.

(vii) *Nasal granuloma*.—Three cases were treated for this disease which was later on confirmed by microscopical examination. All these cases were successfully treated with Bayer's Antimosan.

(viii) *Theileriasis*.—There were 30 cases in all during the year under report. Smears from these cases were examined microscopically at various stages of treatment and these cases responded well for treatment with 1 per cent solution of acriflavine.

(ix) *Piroplasmosis*.—There were four cases due to *B. bigemina* which responded well for Babesan.

(x) *Coccidiosis*.—Fourteen cases of this kind were treated during the year under report with sulphamezathine.

(xi) *Skin diseases*.—Forty-four samples of skin scrapings were microscopically examined of which eight were positive for *Trichophyton* and five for *Demodectic mange*.

(xii) *Mastitis*.—During the year under report, 261 animals were brought for various conditions associated with mammary glands, majority of which were for minor complaints as injuries, obstruction, etc., of the teat. The commonest cause was tead injuries caused by the adjacent animals. For a few of the cases, "Columbus" teat plugs were tried and they were found to be beneficial. Seventy-eight cases of mastitis were treated successfully for specific affections such as *Streptococci*, *Staphylococci* and *Coli-aerogenous group*. The routine treatment adopted was infusion of, Udolac with Penicillin, Penicillin in oil and wax, Crystalline Penicillin and Aureomycin as infusion, and a combination of Streptomycin and Penicillin with advantage except in very chronic cases. Acute cases responded well for Penicillin G. sodium, Aureomycin, and the Penicillin Streptomycin combination.

(xiii) *Sterility*.—During the year under report, 160 cases were brought for treatment for sterility. The gross percentage of sterility among cows and buffaloes and heifers was found to be 0.47.

The commonest cause of sterility accounting for 46.3 per cent of the cases was found to be due to inflammation of the external genitalia.

Endometritis was responsible for about 20 per cent of the sterility cases. These were usually found secondary to retention of placenta left untreated. Cystic ovaries were responsible for about 3.7 per cent of the cases. Anoestrus condition and persistent-corpus luteum were responsible for about 11 per cent of the cases. Suboestrous condition due to hormonal insufficiency was responsible for 3 per cent of sterility cases.

Infantile genitalia was responsible for about 6 per cent which responded well to the administration of germinated gram and *Tribulus species* leaves mixed with jaggery and coconut. Cervicitis and indurated cervix were responsible for 6.2 per cent of the cases. Both were treated at the hospital, but the latter did not respond to treatment. Fibrosed ovaries were responsible for about 2 per cent of sterility cases.

(xiv) *Dystokia*.—There were 51 cases of dystokia during the year under review. Most of the cases were found to be due to malpresentation of the foetus. There were two cases of torsion of the uterus.

(xv) *Retention of placenta*.—During the year under report, 156 cases of retention of placenta were attended to.

(xvi) *Pregnancy test*.—Six hundred and fifteen cows and buffaloes were tested for pregnancy.

(d) *Horse ward*.—Out of 269 cases treated in this ward, 121 cases most of which were for disorders of the digestive and respiratory tracts were medical cases and the remaining 148 were surgical cases. Four major operations and ten minor operations were conducted. The major operations included removal of cystic ovaries in a racing mare and trephining the fascial sinuses. Four stallions were castrated.

(e) *Radiology*.—During the year under report, 51 cases were attended upon for radiographic examination, of which two cases were from the Cattle ward and 49 from the Dog ward. Of the 51 cases, 32 cases were charged for radiographic examination and the remaining 19 cases were examined for diagnostic and demonstration purposes.

(f) *Pharmacy*.—The total number of prescriptions dispensed during the year under report in the Pharmacy was 29,580 of which 264 were for private cases, 1,700 for the Horse ward, 10,156 for the Cattle ward and 17,460 for the Dog ward, with a daily average of 81.04.

(g) *Shoeing Forge*.—The number of horses and bullocks shod and whose feet were repaired was 521 during the year under report as against 480 of the previous year. Most of the horses belonged to the Madras City Police. The forge is used for instructional purposes and the students were given practical training in the art of scientific shoeing.

(h) *Fees*.—The number of cases admitted in the College hospital and the fee realized during the year under report and during 1953-54 and 1952-53, are given below :—

| Year.           | Number of cases treated. | Fee realized. |    |    |
|-----------------|--------------------------|---------------|----|----|
|                 |                          | RS.           | A. | P. |
| 1954-55 .. .. . | 13,783                   | 15,839        | 2  | 3  |
| 1953-54 .. .. . | 12,923                   | 15,617        | 4  | 3  |
| 1952-53 .. .. . | 11,346                   | 19,909        | 15 | 3  |

24. (a) *Laboratories*.—The number of specimens received during the year under report for examination in the Departments of Bacteriology, Pathology, Parasitology and Clinical Laboratory was 11,774 as against 13,155 of the previous year. The fall is due to the less number of specimens received from the Andhra areas. The sources from which these materials were received are as follows :—

|                                                                                                         |               |
|---------------------------------------------------------------------------------------------------------|---------------|
| (i) From the staff of the department in the field .. .. .                                               | 3,617         |
| (ii) From the wards and laboratories of the Madras Veterinary College .. .. .                           | 6,062         |
| (iii) From the Livestock Research Station, Hosur Cattle Farm, and other farms of the department .. .. . | 360           |
| (iv) From the Veterinary Disease Investigation Officers, Ranipet .. .. .                                | 161           |
| (v) From the Corporation of Madras .. .. .                                                              | 26            |
| (vi) From the Agricultural Department .. .. .                                                           | 9             |
| (vii) From the Forest Department .. .. .                                                                | 79            |
| (viii) From the Co-operative Department .. .. .                                                         | 97            |
| (ix) From the private bodies including other States .. .. .                                             | 1,363         |
| <b>Total .. .. .</b>                                                                                    | <b>11,774</b> |

The following table shows the results of examination of the specimens :—

| Description.                   | Number of specimens positive. |
|--------------------------------|-------------------------------|
| Adenocarcinoma .. .. .         | 1                             |
| Adenoma .. .. .                | 4                             |
| Anæmic changes .. .. .         | 9                             |
| Anthrax .. .. .                | 24                            |
| Atellectasis .. .. .           | 1                             |
| Auto-vaccine (for) .. .. .     | 30                            |
| Avian leucosis complex .. .. . | 33                            |
| Babesia bigemina .. .. .       | 55                            |
| Babesia cabali .. .. .         | 2                             |
| Babesia canis .. .. .          | 5                             |
| Babesia equi .. .. .           | 1                             |
| Babesia gibsoni .. .. .        | 2                             |
| Basalcell carcinoma .. .. .    | 2                             |
| Blackquarter .. .. .           | 10                            |
| Bovine lymphangitis .. .. .    | 44                            |

| Description.                                       | Number of specimens positive. |
|----------------------------------------------------|-------------------------------|
| Theileria Annulata .. .. .                         | 3                             |
| Theileria mutans .. .. .                           | 256                           |
| Theileria sp.—sheep .. .. .                        | 3                             |
| Trichophyton sp. .. .. .                           | 79                            |
| Trypanosoma evansi (bovines) .. .. .               | 79                            |
| Trypanosoma evansi (canines) .. .. .               | 6                             |
| Trypanosoma evansi (equines) .. .. .               | 8                             |
| Trypanosoma theileria .. .. .                      | 5                             |
| Tuberculosis .. .. .                               | 2                             |
| Veneral sarcoma .. .. .                            | 7                             |
| Miscellaneous .. .. .                              | 48                            |
|                                                    | <hr/> 3,939                   |
| Negatives .. .. .                                  | 6,383                         |
| Materials of insignificant nature .. .. .          | 1,348                         |
| Materials unfit for examination .. .. .            | 57                            |
| Materials pending communication of results .. .. . | 47                            |
| Total ..                                           | <hr/> 3,939                   |
| Grand total ..                                     | <hr/> 11,774                  |

(b) *Diagnostic and analytical work carried out by various departments of the College—Bacteriology Department.*—During the year under report, 1,714 specimens were received in this department for diagnostic work as against 2,147 specimens received during the previous year. The fall is due to the less number of specimens received from the Andhra State. The nature of materials received were as follows :—

|                                                                              |             |
|------------------------------------------------------------------------------|-------------|
| (i) <i>For Microscopical examination—</i>                                    |             |
| Smears consisting of blood, pus and tissues ..                               | 868         |
| Bowel washing and rectal pinch smears ..                                     | 106         |
|                                                                              | <hr/> 974   |
| (ii) <i>For Cultural examination—</i>                                        |             |
| Blood swabs .. .. .                                                          | 58          |
| Ear swabs .. .. .                                                            | 48          |
| Pus swabs .. .. .                                                            | 98          |
| Tissue swabs .. .. .                                                         | 60          |
| Uterine and vaginal swabs .. .. .                                            | 17          |
| Ascitic fluid samples .. .. .                                                | 2           |
| Pericardial fluid samples .. .. .                                            | 1           |
| Peritoneal fluid samples .. .. .                                             | 1           |
| Blood samples .. .. .                                                        | 4           |
| Milk samples .. .. .                                                         | 172         |
|                                                                              | <hr/>       |
| Nasal discharge samples .. .. .                                              | 24          |
| Saliva samples .. .. .                                                       | 1           |
| Urine samples .. .. .                                                        | 4           |
| Stomach and intestinal contents .. .. .                                      | 21          |
|                                                                              | <hr/> 552   |
| (iii) <i>Biological tests—</i>                                               |             |
| Blood swabs, tissue swabs and tissue fluid samples .. .. .                   | 32          |
| Tissues .. .. .                                                              | 89          |
| Goat hair, bone sinews, etc., for issue of Anthrax-free certificates .. .. . | 7           |
|                                                                              | <hr/> 128   |
| (iv) <i>Serological tests—</i>                                               |             |
| Sera, synovial fluid and amniotic fluid samples .. .. .                      | 60          |
|                                                                              | <hr/> 60    |
|                                                                              | <hr/> 1,714 |

The following are the results of the examination done on the materials received during the period :—

| Disease suspected.<br>(1)                             | Positive.<br>(2) | Negative.<br>(3) | Total.<br>(4) |
|-------------------------------------------------------|------------------|------------------|---------------|
| Anthrax .. .. .                                       | 24               | 76               | 100           |
| Actino bacillosis .. .. .                             | ..               | 1                | 1             |
| Actinomycosis .. .. .                                 | ..               | 2                | 2             |
| Bovine lymphangitis .. .. .                           | 44               | 59               | 103           |
| Blackquarter .. .. .                                  | 10               | 67               | 77            |
| Brucellosis .. .. .                                   | 8                | 57               | 65            |
| Fowl cholera .. .. .                                  | 1                | 14               | 15            |
| Fowl typhoid .. .. .                                  | ..               | 1                | 1             |
| Hæmorrhagic septicæmia .. .. .                        | 28               | 147              | 175           |
| John's disease .. .. .                                | 22               | 96               | 118           |
| Tuberculosis .. .. .                                  | 1                | 27               | 28            |
| Materials not coming under the above diseases .. .. . | ..               | ..               | 802           |
| Milk samples .. .. .                                  | ..               | ..               | 172           |
| Auto-vaccines .. .. .                                 | ..               | ..               | 39            |
| Materials under examination .. .. .                   | ..               | ..               | 25            |
| Total ..                                              |                  |                  | 1,714         |

(v) *Biological tests*.—Biological tests were conducted with the materials suspected for Anthrax, Blackquarter, etc., with the following results :—

| Diseases.<br>(1)                      | Positive.<br>(2) | Negative.<br>(3) | Total.<br>(4) |
|---------------------------------------|------------------|------------------|---------------|
| Anthrax .. .. .                       | 4                | 46               | 50            |
| Blackquarter .. .. .                  | 7                | 31               | 38            |
| Hæmorrhagic septicæmia .. .. .        | 1                | 28               | 29            |
| Tuberculosis .. .. .                  | 1                | ..               | 1             |
| Safety test for auto-vaccines .. .. . | ..               | ..               | 24            |
| Gas gangrene .. .. .                  | ..               | ..               | 1             |
| Under tests .. .. .                   | ..               | ..               | 7             |
| Total ..                              |                  |                  | 150           |

(vi) *Auto-vaccine*.—Twenty-four auto-vaccines were prepared and supplied during the period under report. These were prepared from bacteria isolated from chronic suppurative cases not responding to routine treatment. The most common illness was Otterrhoea and the common bacterium isolated was *Pseudomonas aeruginosa*. Six auto-vaccines were under preparation.

| Kind of animal.<br>(1) | Otter-<br>rhoea.<br>(2) | Mastitis.<br>(3) | Multi-<br>ple-<br>neck.<br>(4) | Abscess<br>body.<br>(5) | Chronic<br>dis-<br>charge<br>from<br>trunk.<br>(6) | Total.<br>(7) |
|------------------------|-------------------------|------------------|--------------------------------|-------------------------|----------------------------------------------------|---------------|
| Bovines .. .. .        | 3                       | 1                | 1                              | ..                      | ..                                                 | 5             |
| Canines .. .. .        | 15                      | 1                | ..                             | 1                       | ..                                                 | 17            |
| Elephants .. .. .      | ..                      | ..               | ..                             | ..                      | 2                                                  | 2             |
| Total ..               | 18                      | 2                | 1                              | 1                       | 2                                                  | 24            |

(c) *Pathology department*.—During the period under report, 321 autopsies were performed as against 561 performed during the previous year :—

|                                                |     |
|------------------------------------------------|-----|
| Dogs .. .. .                                   | 94  |
| Cattle .. .. .                                 | 32  |
| Goat .. .. .                                   | 1   |
| Deers .. .. .                                  | 2   |
| Horses .. .. .                                 | 18  |
| Donkeys and asses .. .. .                      | 6   |
| Cats .. .. .                                   | 11  |
| Leopard .. .. .                                | 1   |
| Rabbit .. .. .                                 | 1   |
| Poultry including 1 swan and 1 peacock .. .. . | 155 |
| Total ..                                       | 321 |

Among the autopsies conducted, the following interesting conditions were met with :—

Patchy meningitis—dog.

Generalised gout—hens.

Post-vaccinal encephalitis (after anti-rabic treatment)—bitch.

Unilateral hydronephrosis caused by the ureter ending blindly in the pelvis—cat.

Traumatic endocarditis involving the tricuspid valve due to a needle passing through it—cow.

Solitary cyst and hydronephrosis—dog.

Pancreatitis with extensive fat necrosis—bitch.

(d) *Parasitology department*.—The total number of clinical materials received for examination consisting of blood smears, faecal samples, skin scrapings, etc., was 4,261 as against 5,926 of the previous year. The fall in the number of materials received and examined was due to the decrease in the number of specimens received from the Andhra State.

(e) *Physiology department*.—As many as 920 clinical materials were received during the period under report as against 813 of the previous year as shown hereunder :—

| Nature of specimens.<br>(1)                 | Canines.<br>(2) | Bovines.<br>(3) | Equines.<br>(4) | Others.<br>(5) | Total.<br>(6) |
|---------------------------------------------|-----------------|-----------------|-----------------|----------------|---------------|
| Urine .. .. .                               | 271             | 37              | 14              | 11             | 333           |
| Blood for total count .. .. .               | 106             | 15              | 5               | ..             | 126           |
| Hæmo-globin estimation .. .. .              | 66              | 2               | 1               | ..             | 69            |
| Blood smears for differential count .. .. . | 151             | 75              | 16              | ..             | 242           |
| Serum for calcium estimation .. .. .        | ..              | 49              | ..              | 1              | 50            |
| phosphorous estimation .. .. .              | ..              | 33              | ..              | 1              | 34            |
| magnesium estimation .. .. .                | ..              | 48              | ..              | 1              | 49            |
| Ascitic fluid .. .. .                       | 6               | 6               | ..              | ..             | 12            |
| Fluid from sinew wound .. .. .              | ..              | 1               | ..              | ..             | 1             |
| Cystic fluid .. .. .                        | ..              | 1               | ..              | ..             | 1             |
| Milk for the presence of acetone .. .. .    | ..              | 2               | ..              | ..             | 2             |
| Blood for sugar estimation .. .. .          | 1               | ..              | ..              | ..             | 1             |
| Total ..                                    |                 |                 |                 |                | 920           |

(f) *Helminthology department*.—The study of the worm-burden in amphistome infections of ruminants was continued by regular collections from the Madras slaughterhouse and analysis in the laboratory. In all, 121 collections were made during the year under report.

Representative specimens were suitably prepared for identification purposes and preliminary observations made on the genera *Paramphistomum* and

*Cotylophoron Gastrothylax* and *Fischoederius*. It has been noticed that while only two species of *Paramphistomum*, viz., *Paramphistomum cervi* and *Paramphistomum explanotrom* have been recorded until now, a few others may also be present. The principles of identification employed by Nasmak were considered of no practical value and hence attempts were being made to recognize the species on morphological grounds only.

Experimental feeding of a cow and a calf with weeds from the Karnur and Jegur tanks in the Hosur Cattle Farm suspected to contain encysted cercaria (*Cercaria indica* XXVI, Sewell) was done with the hope of obtaining their adults and estimating their prepatent period. The animals did not show evidence of infection.

Snails from various places in and around the city were examined for amphistome cercaria.

A cow artificially inseminated on 17th November 1953 was fed with infective eggs of *A. Vitulorum* from 17th to 26th August 1954. A bull-calf born on 3rd September 1954 showed eggs of the worm first on 27th September 1954 (25th day) and thereafter till 24th November 1954. This is the second instance where conclusive results in favour of pre-natal infection have been obtained after oral administration of eggs to the cow.

Other subjects on which investigation was undertaken during the year include tetrameres in poultry, black grub infection in *Catla-Catla* and *distoma* metacercaria in *Sagitta inflata* and publications on these have appeared in journals from Germany, London and France, respectively.

A note on "Ascariasis in calves, its prevention and treatment" was prepared for discussion at the fifth Disease Investigation Officers' Conference in April 1955 at Poona.

(g) *Animal Nutrition department*.—Though over 100 samples were received from the staff of the department, the Union Government, Food depots, Commercial firms and Livestock farms for analysis to ascertain their nutritive value and to judge their suitability as livestock food, all of them could not be taken up for analysis for want of added facilities to do analytical work in bulk. However, 11 samples were analysed and they were as follows:—

(i) One sample of Milo contaminated with *Datura* seeds and declared unfit for human consumption was received from the Director of Food, Ministry of Agriculture, Government of India, and on examination was reported unfit for use as livestock food.

(ii) A specimen of damaged chick peas received from the Madras Port Trust was analysed and reported as unfit for feeding cattle and poultry as such without processing them suitably to separate the foodgrains which were about 2/3 of the whole.

(iii) On a reference from a private merchant in Tuticorin for the export of "Udankai" to Ceylon, a sample of this feed used for goats and sheep was received from the Central Government to know if it could be permitted for export. After examination, it was reported that as the State was in short supply of adequate feeding stuffs, this useful feed for sheep and goats should not be exported.

(iv) A damaged sample of paddy received from the Veterinary Assistant Surgeon, Kancheepuram, was found to be musty with high acidity and was declared unfit for feeding poultry without sterilizing the same and mixing it with good grains in equal proportion.

(v) A leguminous plant received from the Veterinary Assistant Surgeon, Srivaikuntam, and reported to have caused hydrocyanic acid poisoning in buffaloes was analysed for the presence of hydrocyanic acid and was found to be negative.

(vi) A sample of deoiled groundnut oilcake received from the Madras Oil and Fertilizers, Limited, was examined and reported upon as inferior to the ordinary groundnut oil cake in total nutrients for cattle.

(vii) The computed cattle food, received from the President, Madras State Cattle Breeding Co-operative Society was analysed and reported upon its quality, suitability and regarding its marketing for use as cattle feed.

(viii) A sample of mango seed, two samples of fishmeal and one specimen of grass were received from the staff of the department and they were reported upon after examination and analysis.

25. *Features which deserve special mention*—(a) *Bacteriology department*—(i) *Anthrax*.—Six samples of goat hair and one sample of bone sinew were examined and on obtaining negative results, Anthrax-free certificates were issued enabling their export to foreign countries.

(ii) *Tuberculosis*.—Among the materials examined microscopically, only one was found positive and this was from a bullock belonging to the Corporation of Madras.

(iii) *Mastitis*.—The casual organisms detected in the course of examination of samples of milk and milk-smears, from clinically suspected cases of mastitis are detailed below:—

|                                                             |     |     |     |     |     |
|-------------------------------------------------------------|-----|-----|-----|-----|-----|
| Staphylococci                                               | ... | ... | ... | ... | 56  |
| Streptococci                                                | ... | ... | ... | ... | 2   |
| Pseudomonas aeruginosa                                      | ... | ... | ... | ... | 9   |
| Coli-aerogenes group                                        | ... | ... | ... | ... | 36  |
| Diphtheroids                                                | ... | ... | ... | ... | 10  |
| Mixed infection                                             | ... | ... | ... | ... | 9   |
| Samples which did not give growth of bacteria on incubation | ... | ... | ... | ... | 56  |
| Total                                                       | ... | ... | ... | ... | 178 |

(iv) *Small animal colony*.—The breeding and maintenance of small animals such as rabbits, guinea-pigs, mice and white rats for experimental purposes were continued as usual.

(b) *Pathology department*—(i) *Avian Leucosis complex*.—This disease was detected in 33 fowls received for histopathological examination.

(ii) *Johne's disease*.—The disease was detected in one case from material received for histopathological examination.

(iii) *Tuberculosis*.—Generalised tuberculosis was detected in a dog at autopsy, involving the heart, lung, liver, spleen and kidney. Biological test showed tentatively that the type involved was human. Besides this, the disease was also confirmed in the intestines and the liver of one hen and in the spleen of another from materials received for histopathological examination.

(iv) *Ranikhet disease*.—This contagion was detected in two hens at autopsy.

(v) *Coccidiosis*.—This disease was detected in four chicks and one rabbit at autopsy and in two chicks from materials received for histopathological examination.

(vi) *Cirrhosis of the liver*.—This condition was detected in five dogs.

(c) *Parasitology department*—(i) *Schistosoma spindalis*.—Infection with this blood fluke was noticed in a sheep.

(ii) *Thelazia bubalis*.—This new species of the ocular worm was once again recovered from the eyes of a buffalo-calf.

(iii) *Spirocercosis*.—The tumour was seen at the region of the ileo-caecal valve in a dog.

(iv) *Microfilariae (unsheathed)*.—These were detected in the smears made from the skin nodule of an elephant from the Coorg State. This record indicated the prevalence of the condition outside the Madras State also.

(v) *Microfilariae (sheathed)*.—These were detected in the blood smears of a fowl for the second time.

(vi) *Dracunculus medinensis*.—The 'Guinea worm' was recovered from the skin lesion in the leg of a dog.

(vii) *Leucocytozoan sp.*—This blood protozoan was detected for the second time in the blood of a fowl.

(viii) *Rickettsia canis*.—Two cases were recorded.

(ix) *Rickettsia bovis*.—Organisms resembling *R. Bovis* were seen in the blood smears of a she-buffalo.

(x) *Raillietina echinobothridia* and *Pseudoaspidodera pavonis*.—These were collected from a peacock for the first time in Madras.

(xi) *Oesophagostomum apiostomum*.—This was got from an Indian monkey for the first time in India.

(xii) *Trichuris cyanocephalus*.—This was found in the caecum of a monkey, which happened to be the first find in Madras.

26. *Livestock—Animal Husbandry department*.—The College Livestock Section and the Poultry Unit, which stood transferred to the Institute of Veterinary Preventive Medicine, Ranipet, on 19th March 1954 and which was restored in November 1954, continued to be attached to the section.

(a) *Breeding bulls at stud*.—There were 13 breeding bulls, of the Ongole, Scindhi, Holstein Freisian, Gir and Murrah breeds at stud during the year under report.

The number of services performed by the bulls intended for natural service was 210. The other bulls were utilised for artificial insemination work.

(b) *Poultry*.—In connection with the Golden Jubilee Celebration, 2 cockerels and 12 pullets of Rhode Island Red breed were obtained in November 1954.

During the year under report, 969 eggs were collected giving an average daily egg-yield of 7.82.

In all, 256 chicks were hatched out during the year under report of which 43 were sold to public, 2 were destroyed as they are crippled and weak and 89 died from various causes (76 died on account of experimental feedings)—leaving at the end of the year 122 chicks.

27. *General*.—(a) The Golden Jubilee of the Madras Veterinary College was celebrated for 3 days from the 17th to the 19th January 1955 in a fitting manner. The inaugural celebration was held in a specially erected and lavishly decorated pandal in the presence of over 1,000 visitors including Union Ministers, high officials of the State, distinguished Veterinarians from far and wide and a large number of old students.

The function was presided over by the Governor of Madras and inaugurated by the Prime Minister of India.

A well got up souvenir was prepared for the occasion.

A Livestock Show was declared open by Sri O. V. Alagesan, the Union Deputy Minister for Railways, in this connexion.

The department arranged an exhibition in the College premises.

The exhibition which was of an educative and instructive value was kept open to the public for three days and the admission to it was by ticket.

(b) The Government were pleased to redesignate the posts of the following Lecturers to that of Professors and Additional Professor in the College during the year :—

Pathology.  
Physiology.  
Anatomy.  
Animal Genetics.  
Animal Nutrition.  
Surgery.  
Hygiene.  
Chemistry.  
Parasitology.  
Pharmacology.  
Medicine.  
Biology (Additional Professor).

(c) A special pay of Rs. 30 per mensem was sanctioned by Government to the holder of the post of the Personal Assistant to the Principal, Madras Veterinary College.

(d) *Agricultural College, Coimbatore*.—One Lecturer in Animal Husbandry and two Veterinary Assistant Surgeons were working in the Agricultural College, Coimbatore, during the year. The Lecturer was imparting training in Animal Husbandry to the students of the College. In the Hospital attached to the College 4,373 cases both in and out-patients were treated and 596 castrations were performed during the year.

## CHAPTER IV.

### INSTITUTE OF VETERINARY PREVENTIVE MEDICINE, RANIPET.

28. (i) The name of the Institute was changed during the year under report from "The Veterinary Biological and Research Institute" to "The Institute of Veterinary Preventive Medicine".

The Institute which was registered under the Factories Act, 1948, in June 1953 and was under the purview of that Act since then was removed from the registers of the Factories department from the beginning of the year 1955, as it is essentially a Research Institute.

(ii) The post of Special Officer for Production of Rinderpest and other virus vaccines in a freeze dried form, sanctioned in March 1954 was filled up during the year. The scheme for the study on Lapinised Rinderpest Vaccine came to a close on 30th September 1954 after completing the sanctioned period of two years.

29. *Accommodation and equipment.*—(a) One Aerogen standard electrically driven petrol gas generator supplied by the Medical Stores Depot was installed at the Institute by the Public Works Department during the year.

The following works were completed by the Public Works Department during the period :—

(i) Petty repairs to " Q " type quarters undertaken in the previous year.

(ii) Reconstruction of two cattle-sheds.

(iii) Fencing the compound of the Institute.

(iv) Partitioning of the process room into cubicles to make them suitable for bacteriological and cultural work.

(b) The following items of work were in progress during the year :—

(i) Repairs to the quarters of the Veterinary Disease Investigation Officer (Sheep and Goats).

(ii) Additional electrical installations and repairs to existing installations of the Institute.

(c) The following items of work have been sanctioned for execution and are expected to be taken up very soon :—

(i) Provision of ceiling fans to the various sections of the Institute.

(ii) Provision of a ceiling fan to the room of the Research Officer.

(iii) Provision of trellis work to " Q " type quarters.

(d) *Water-supply.*—The supply of water to the Institute was made during the year by Parry and Company, Limited, Ranipet, as in previous years. The Industries and Commerce department undertook trial-boring operations and has bored a bore-well using a power drill to a depth of 200 feet. Water has been tapped in the bore-well and the yield of the spring is estimated to be about 8,000 gallons per day. A deep well turbine pump with motor to be driven by electricity will be fitted to pump up the water, if found suitable.

(e) The community radio set in the Institute continued to be used during the year.

30. *Livestock and fodder.*—Altogether 68 adult he-buffaloes, 567 buffalo calves, 123 bull and heifer calves, 1,486 goats and 254 sheep were purchased during the year under report as against 695 adult he-buffaloes, 646 buffalo calves, 53 bull and heifer calves, 2,283 goats and 207 sheep purchased during the previous year. Out of the discontinued animals 163 adult he-buffaloes, 371 buffalo calves, 84 bull calves, 156 goats and 113 sheep were salvaged and resold to the contractors after preparation of the biological products.

The adult he-buffaloes, buffalo calves, bull calves, heifer calves, goats and sheep required for the preparation and test of biological products manufactured at this Institute were obtained on contract basis as in previous years, while some chicks and rabbits required for experiments were purchased locally on non-contract basis. The guinea pigs and mice required for experiments and research were bred at the Institute itself.

A small poultry unit was maintained at the Institute for the supply of eggs and chicks required in the manufacture and test of Ranikhet disease, fowl-pox and pigeon-pox vaccines.

The various articles of cattle fodder except onions, greens, etc., for guinea pigs and rabbits were purchased on contract basis.

31. *Cultivation of cattle fodder.*—Cholam crops raised in about 2 acres of land yielded 262 lbs. of cholam grains and 3,822 lbs. of cholam straw. Glyricidia seeds and cuttings from the plants available at the Institute were supplied to the Agricultural department officers for distribution to ryots to be grown as green manure. Some mangoes, pomogranates and citrus fruits harvested from the small orchard and garden maintained at this Institute were sold to the staff of the Institute.

32. *Production of biological products.*—(a) *Anti-rinderpest serum.*—The stock of anti-rinderpest serum on hand at the beginning of the year was 1,85,860 doses of 5 c.c. each. During the year under report 10 brews of anti-rinderpest serum were manufactured yielding 2,64,760 doses as against 31 brews manufactured yielding 10,38,540 doses during the previous year. One hundred and seventy adult he-buffaloes were used for the manufacture of this product and on an average a buffalo produced 1,557.4 doses of 5 c.c. each of serum against 1,516.1 doses in the previous year. The total quantity of serum issued during the year was 2,17,335 doses as against 12,25,160 doses in the previous year. The demand for this product was very low during the later part of the year as vaccination against Rinderpest with freeze dried rinderpest vaccine, which does not involve the simultaneous use of serum, was being done on a large scale. All the brews of anti-rinderpest serum manufactured were tested for sterility, safety and potency on buffalo calves before issue to the field staff. Seventy-two buffalo calves were utilized for testing the different brews of anti-rinderpest serum manufactured.

(b) *Rinderpest bull virus.*—A total of 91 buffalo calves and 2 heifer calves were used for the production, maintenance of the virus and conduction of some experiments in the rinderpest bull virus section. The quantity of rinderpest bull virus manufactured during the year was 7,865 c.c. as against 14,480 c.c. during the previous year. Seven thousand two hundred and ninety c.c. of the rinderpest bull virus were issued for use during the year as against 12,055 c.c. in the previous year.

As in previous years the rinderpest bull virus strain was maintained for anti-rinderpest serum production and test purposes. The strain of rinderpest bull virus was maintained by serial passage in buffalo calves. The year, seed bull virus was supplied to the Serum Institutes at Mysore, Hyderabad and Cuttack (Orissa).

(c) *Rinderpest goat virus.*—During the year 284 goats were used for the manufacture of goat blood virus as against 1,423 goats in the previous year. One lakh and nine thousand five hundred and sixty c.c. of goat blood virus were manufactured during the year as against 5,53,840 c.c. of the previous year. Of these 1,00,061 c.c. were issued for use in the field during the year as against 4,95,766 c.c. of the previous year.

The Mukteswar strain " W line " of goat virus was used for the goat virus production.

(d) *Freeze dried rinderpest vaccine (powder).*—There was heavy demand for this product during the year and large quantities of this product were supplied to the Andhra State for protecting animals both in the infected and free areas and for use in the rinderpest eradication campaign. This product was also supplied to the various Quarantine Stations in this State for protecting the animals that were brought into the State from outside. In addition, this product was supplied to the States of Coorg, Kutch and Ajmer.

Fifty-nine batches of freeze dried rinderpest vaccine were manufactured during the year under report. Fifty-six batches from these and four from the last year's batches of vaccine were tested during the period.

Altogether 14,67,050 doses were manufactured during the year under report and 14,16,175 doses were issued for use in the field including the Andhra State. Every batch of vaccine produced was tested for safety, potency and purity and the exact titre of virus in each batch was ascertained before issue.

(e) *Hæmorrhagic septicæmia vaccine*.—The stock of this vaccine at the beginning of the year was 20,046 doses of 5 c.c. each. During the year under report 11,83,610 doses of 5 c.c. each of the vaccine comprising of 39 brews were manufactured as against 5,86,550 doses during the preceding year. The quantity of the vaccine issued for field use during the year was 11,96,772 doses as against 6,28,950 doses of the previous year. Each brew of the vaccine was tested both culturally and biologically for sterility and safety before issue to the field. Two hundred and twenty-five buffalo and zebu calves, 78 rabbits and 284 mice were used for testing the various brews of the vaccine and for other experiments in the section. The virulence of the organism used for the preparation of the vaccine was maintained by its periodical passage through susceptible buffalo calves.

(f) *Blackquarter vaccine*.—The stock of Blackquarter vaccine at the beginning of the year was 27,530 doses of 5 c.c. each. Nineteen brews of the vaccine consisting of 14,50,520 doses of 5 c.c. each were manufactured during the year as against 4,63,370 doses in the previous year. Each brew of the vaccine was tested for sterility, safety and potency. Two hundred and eight buffalo calves, 126 bull calves, 130 sheep and 120 guinea pigs were utilized for the testing of the vaccine and in connexion with experiments in the section. The total quantity of vaccine issued during the year was 14,22,726 doses including that issued to the Andhra State as against 4,62,550 doses issued during the previous year. The demand for the product was very heavy due to the systematic manner in which advance inoculations were enforced in the State.

(g) *Anti-anthrax serum*.—During the period under report, one brew of anti-anthrax serum consisting of 8,000 doses of 15 c.c. each was manufactured. Twelve buffaloes were used for the manufacture of this product and 4 buffalo calves, 3 sheep, 2 goats and 4 guinea pigs were used for the test of the vaccine for safety. Altogether 7,640 doses of the serum were issued to the staff for use in the field.

(h) *Bovine lymphangitis vaccine*.—Vaccine sufficient for 72 animals was on hand at the commencement of the year. Three brews of this vaccine yielding 319 courses were manufactured during the year as against 358 courses of the previous year. The number of courses of vaccine issued to the field staff was 334 as against 420 in the previous year.

(i) *Sheep-pox vaccine*.—Seven brews of this vaccine yielding 1,30,500 doses were manufactured and 87,900 doses were supplied to the field staff as against 36,680 doses manufactured and issued to the field during the previous year. One hundred and twenty-six sheep were utilized for the manufacture of this product and for the various experiments connected with it.

(j) *Ranikhet disease vaccine*.—The manufacture and supply of this product in a freeze dried form was continued during the year under report. The stock of the product on hand on 1st April 1954 was 42 ampoules (32 of

400 doses each and 10 of 200 doses each). During the year under report 23 brews of the vaccine consisting of 8,886 ampoules of 200 doses each (17,77,200 doses) were manufactured and 7,123 ampoules of 20 doses each (14,24,600 doses) were issued to the field staff leaving a closing balance of 1,837 ampoules which will be issued during the next few months. On the whole 233 chicks were used for testing the vaccine and for other experiments in the section.

(k) *Fowl-pox vaccine*.—The year opened with a balance of 320 ampoules (32,000 doses) and 10,300 doses of them were issued to the field staff, leaving a closing balance of 217 ampoules (21,700 doses). One brew of the vaccine was manufactured during the year under report and the same was under test. Forty-eight chicks were used for the manufacture and test of the vaccine in the section.

(l) *Pigeon-pox vaccine*.—The stock of the product on hand at the beginning of the year was 76 ampoules of 50 doses each (3,800 doses). Five brews consisting of 65,100 doses were manufactured during the year and 38,800 doses were issued to the field staff, leaving a balance of 30,100 doses at the close of the year. Seventy chicks were used for testing the vaccine and for experiments in the section.

(m) *Fowl-cholera vaccine*.—Three brews of this vaccine yielding 2,500 doses were manufactured during the year under report as against 2,050 doses of last year. Eleven fowls were used for testing the brews of the vaccine. One thousand and five hundred doses of the vaccine were issued to the field staff during the year as against 1,800 doses of the previous year.

33. *Other sera and vaccines*.—Other kinds of sera and vaccines supplied to the staff during the year are furnished below. They were purchased from the Indian Veterinary Research Institute, Mukteswar.

|                                       | DOSES. |
|---------------------------------------|--------|
| Anthrax spore vaccine ... ..          | 2,885  |
| Tuberculin concentrated ... ..        | 340    |
| Tuberculin avian concentrated ... ..  | 50     |
| Johnin ... ..                         | 295    |
| Bovine tuberculin subcutaneous ... .. | 5      |
| Mallein ... ..                        | 10     |

The quantity of anthrax spore vaccine required by the Inspector of Livestock, Kozhikode, was obtained from Mukteswar and issued.

34. *Experiments and research*.—(a) *Rinderpest*.—(i) Rinderpest bull (Bovine) virus required for immunization and tests for potency was maintained by freeze drying the spleen from infected calves once in three months and storing the same in a deep freeze cabinet at 20° C.

(ii) *Freeze dried rinderpest vaccine*.—The manufacture of anti-rinderpest serum and goat blood virus was discontinued during the latter part of the year and freeze dried goat tissue rinderpest vaccine was manufactured and supplied in its place for protecting livestock against rinderpest.

Vaccinations for the control of rinderpest using freeze dried goat tissue vaccine were continued during the year in the place of serum simultaneous method of inoculation which was in use hitherto. The results of vaccination show that the new product sets up only a very mild reaction in inoculated cattle and buffaloes and confers a durable immunity.

(iii) *Viability tests of freeze dried rinderpest vaccine kept in deep freeze cabinet for varying periods.*—Freeze dried rinderpest vaccine stored at 20° C. in a deep freeze cabinet was tested on buffalo calves after periods of nine months, one year, and one year and three months and found to be viable and potent without any loss of titre. A batch of vaccine stored in the deep freeze for a period of two years was under test.

Freeze dried rinderpest vaccine stored in an ordinary refrigerator 0 to 4°C for periods of three months and 7½ months was tested for its viability and potency. From the tests carried out on buffalo calves, it was observed that the vaccine keeps viable for a period of three months when stored in an ordinary refrigerator, but loses its potency when stored for a period of 7½ months.

(iv) *Viability tests of freeze dried rinderpest vaccine kept at room temperature (90 to 95°F.) for varying periods.*—Ten buffalo calves were utilized for the experiment, and all of them were inoculated with a field dose of 40 m.l.ds. of the virus. The first batch of four calves was vaccinated with vaccine kept at room temperature for eight days, the second batch of three calves was protected with vaccine kept at room temperature for ten days and the third batch with vaccine exposed to the room temperature for 12 days.

All the above calves were subsequently challenged with a dose of virulent rinderpest bull virus and kept under observation for a fortnight. From the tests conducted it was observed that the vaccine kept at room temperature for a period up to ten days was found viable as all the calves of the first and second batches withstood the challenge with virulent rinderpest bull virus, whereas the calves of the third batch that were protected with vaccine, exposed to room temperature for 12 days reacted to the challenge with virulent rinderpest bull virus.

(v) *Experiment to study the effect of atmospheric conditions on the viability of the freeze dried vaccine during transit.*—A few ampoules of freeze dried rinderpest vaccine were sent by post to Vijayawada and after keeping the vaccine at room temperature there for five days, it was returned back by post and this vaccine was reconstituted in saline and one batch of three buffalo calves was inoculated with a field dose of 40 m.l.ds. on the 8th day after the despatch from the institute. The same brew of vaccine exposed to atmospheric condition for 10 days and 12 days was injected into two more batches of buffalo calves. All these vaccinated calves were subsequently challenged with virulent rinderpest bull virus and all of them withstood the challenge.

(vi) Experiments to determine the viability of reconstituted vaccine kept at room temperature 85 to 90° F. for varying periods were conducted during the year and from the results obtained it was observed that the reconstituted vaccine remained viable up to ten hours after reconstitution when exposed to the above room temperature.

(vii) *Titration of wet and dry spleen.*—Experiments to determine the highest dilution of rinderpest wet vaccine (wet spleen pulp) that could set up an infection and afford necessary protection to buffalo calves against rinderpest were conducted during the period. From the tests conducted it was observed that a maximum dilution of 1 : 40,000 of the wet spleen pulp gave adequate protection to the buffalo calves used in the experiments. In the case of freeze dried vaccine the highest dilution of the spleen powder that could confer adequate immunity in vaccinated calves was found to be 1 in 16,000.

(viii) *Interference phenomenon.*—Experiments to study the earliest period in which the freeze dried rinderpest vaccine will confer adequate immunity by the interference phenomenon were also conducted during the period on buffalo calves protected with 40 m.l.ds. of the reconstituted vaccine. From the observations made, it was noted that the interference phenomenon comes into play only after 48 hours of vaccination and the animals were able to withstand a subsequent infection by the 72nd hour.

(ix) Three batches of spleen tissue extract vaccine were prepared during the year for experimental study. On test the extract vaccine gave a titre of 1 in 16,000 buffalo calves.

(x) *Lapinized rinderpest vaccine.*—The Scheme for the Study on Lapinized Rinderpest Vaccine came to a close on 30th September 1954 after the sanctioned period of two years.

During the period up to 30th September 1954, 24 more serial passages of the virus were made in rabbits and the total number of passages completed till the end of the period was 200. The passage of the virus in rabbits being continued to maintain the strain and at the end of the year the virus had undergone five more passages in rabbits.

Detailed studies of the virus were made to determine its immunizing value and safety for protecting the indigenous breeds of cattle and buffaloes, sheep and goats. This virus was found to be extremely mild for the above species of animals and the reactions in cattle and buffaloes were found to be milder than even in the Mukteswar 'W' line of goat virus. It was also found to be highly antigenic and doses as small as ten milligrams were found to be sufficient to protect adult buffaloes and cattle against a subsequent challenge with virulent rinderpest bull virus. It was found possible to produce a reactor vaccine from this virus using goats as donors for yield of larger quantities of the vaccine. Experiments were carried out by back-passaging the virus serially in bovines to see if the virus is capable of reverting back to its original virulence. Even after 20 serial back-passages in buffalo calves, the virus was found to be still mild and did not show any tendency to regain its original virulence. Studies made to find the shortest period necessary for the vaccine to confer immunity in vaccinated animals by the "interference phenomenon" show that it requires four days for the immunity to be conferred in vaccinated animals.

Studies made on the period of viability of this vaccine go to show that the fresh spleen and lymphatic glands from an infected rabbit could be stored in a deep freeze cabinet at 20°C. for a period of three months without the virus losing its potency, while the freeze dried material in vacuum sealed ampoules was found viable after a period of nine months' storage at 20°C.

At room temperature (95–98°F.) the freeze dried virus in ampoules was found viable for 10 days only.

The titre of the virus in the various tissues of the infected rabbits, viz., spleen, blood, lymphatic glands and liver was also studied to determine the yield of vaccine that could be derived from an infected rabbit.

The virus has been freeze dried in its different passage levels and stored in the deep freeze for future use and study.

Field trials and studies on the nature of reaction set up by the virus in the more susceptible breeds of cattle will be taken up in due course.

(b) *Hæmorrhage Septicæmia.*—(i) During the period under report, work on the serological typing of field strains of Pasteurella was continued. Three of the strains isolated from animals of this institute were found to be

antigenically different from the strain used for preparation of vaccine at this institute. The hyper-immune serum from a buffalo-calf immunized with the vaccine strain, viz., Hæmorrhagic Septicæmia 52, failed to protect mice against these three strains. An "Insein" strain of *Pasteurella bovisseptica*, brought by Dr. Bain of Australia, was found to be immunologically identical with strain Hæmorrhagic Septicæmia 52, used for the manufacture of the vaccine at this institute.

Preliminary studies on cross-immunity with the vaccine strain and the antigenically different strain isolated from this institute (S.T.C. 12) show that animals protected with a vaccine manufactured from S.T.C. 12 are capable of resisting a challenge of a virulent culture of Hæmorrhagic Septicæmia 52, whereas animals protected with a vaccine manufactured from Hæmorrhagic Septicæmia 52 do not stand a challenge with S.T.C. 12 strain. Serological typing and further studies on cross-immunity were in progress.

(ii) *Adjuvant vaccines*.—Studies on the manufacture of improved vaccines with better immunizing value against Hæmorrhagic Septicæmia by the addition of suitable adjuvants were continued during the period under report. Since the vaccine manufactured with the addition of liquid paraffin was found to be too thick and creamy to be drawn into a hyperdermic syringe, thinner mineral oils, viz., sheel "Ondina 17" and sheel white oil were used in its place. This gave a comparatively thinner emulsion with almost the same immunizing value. Buffalo calves protected with 2 c.c. of the adjuvant vaccine intramuscularly were able to withstand a challenge dose of 1,000 to 10,000 m.l.ds. of virulent *P. bovisseptica* culture. The immunity in these vaccinated animals was also found to be solid when tested after eight months. This vaccine was also found to have good keeping qualities. Vaccine stored in the cold storage (40° F) for a period of 1½ years was found potent and capable of protecting animals against a challenge dose of 1,000 m.l.ds. of virulent *P. bovisseptica* culture.

(iii) *Alum precipitated adjuvant vaccine*.—A simpler adjuvant vaccine by the addition of alum in 1 per cent concentration as adjuvant to the present broth bacterin manufactured using the organisms in its first phase, was prepared and tested during the year. This vaccine, in doses of 5 c.c., administered both subcutaneously and intra-muscularly conferred adequate protection in vaccinated animals against a challenge dose of 100 to 1,000 m.l.ds. of virulent *P. bovisseptica* culture.

Immunity tests so far carried out on animals protected with this vaccine show that the immunity lasts for a period of five months. Further studies on this aspect were in progress.

With these two types of adjuvant vaccines, it will be possible to control Hæmorrhagic Septicæmia effectively in future.

(iv) *Comparative studies* made on the vaccines prepared from a strain of *Pasteurella bovisseptica* organism maintained by periodical sub-culture in this laboratory and a freshly isolated strain in its first phase revealed that the latter has a better immunizing value than the former.

(v) *Experiments* conducted at this institute go to show that Hæmorrhagic Septicæmia can be transmitted to susceptible animals through intra-nasal insufflation of the organisms.

(vi) *Thirty-two specimens* suspected for Hæmorrhagic Septicæmia were received during the period under report, out of which 11 proved positive for *Pasteurella*.

(c) *Blackquarter*.—(i) Alum precipitated Blackquarter bacterin prepared in Noguchi's medium by mixing equal parts of 14 days and 48 hours' old anacultures of *Cl. chauvoei* and *Cl. septicum* was found to protect buffalo calves and guinea pigs in doses of 5 c.c. and 1 c.c. respectively against 10 m.l.ds. of *Cl. chauvoei* virulent culture. The route of administration of the vaccine did not seem to influence the quality of immunity conferred by the vaccine.

(ii) A study was made to determine the optimum concentration of alum that is required to be incorporated in the vaccine to produce the maximum results. The study made on guinea pigs indicates that 0.8 per cent alum is the optimum concentration necessary as guinea pigs protected with vaccines containing 0.8 per cent and 1 per cent alum withstood challenge with 10 m.l.ds. of *Cl. chauvoei* virulent culture. The increase in the concentration of alum in the vaccine above 1 per cent did not proportionately enhance the strength of immunity produced in the vaccinated guinea pigs and buffalo calves and the reduction in the concentration of this adjuvant below a concentration of 0.8 per cent also seemed to affect the immunising value of the vaccine considerably; as for instance the vaccine with 0.5 per cent alum failed to protect guinea pigs against challenge with even 5 m.l.ds. of *Cl. chauvoei* virulent culture.

(iii) Experiments were conducted to see if there is any correlation between the quantity of the "alum-precipitate" in the vaccine and the quality of immunity conferred by it. It was found that vaccines containing more or less the same amounts of the alum-precipitate, but with different concentrations of alum failed to confer the same degree of protection in the vaccinated animals. The presence of alum in a free state in the vaccine appeared to be a necessary adjunct in the process of localization and delayed absorption of the antigen in the tissues, to give a prolonged and continued stimulus for better antibody production.

(iv) A study was made to determine if the addition of alum solution before and after the formalization of cultures, to vaccine flasks had any effect in the nature of immunity set up by the alum precipitated vaccines. It was found that the time of addition of alum to the culture did not cause any difference in the quality of immunity set up, as judged from the results obtained in animals vaccinated with this vaccine. However, in view of the dangers involved in handling live virulent cultures it is considered more convenient and advisable to inactivate the cultures with formalin in the first instance and then add alum solution to the required concentration.

(v) Studies were made to find out if changes in the hydrogenion concentration (pH) of the alum-precipitated bacterin had any influence on the immunising value of the product. The results of tests obtained on guinea pigs indicate that changes in (pH) did not have any influence on its immunizing power as vaccines with pH 4.0, 7.0 and 8.0 had more or less the same immunising value. However, further work has to be carried out to know whether the changes in the pH of the vaccine have any relationship to the keeping quality of the vaccine.

(vi) Experiments carried out to determine whether the supernatant fluid in the alum-treated vaccine has got any immunizing value show that guinea pigs protected with the fluid in doses as high as 5 c.c. could not resist challenge with even 3 m.l.ds. of *Cl. chauvoei* culture, indicating that the supernatant fluid has very little immunising value.

(vii) The minimum protective dose of the alum-precipitated vaccine for bull-calves or buffalo-calves, sheep and guinea pigs seems to be 5 c.c., 3 c.c. and 1 c.c. respectively. In these doses, the bull-calves and guinea pigs could withstand challenge with 10 m.l.ds. of Cl. chauvoei culture and the sheep with 10 m.l.ds. of Cl. septicum culture.

(viii) Experiments conducted to find out the value of a booster dose of the vaccine in animals show that the administration of a booster-dose ten days after the first inoculation enhances the immunity conferred in the vaccinated animals to nearly two times to that conferred by a single inoculation. Animals protected with a second booster-dose of the vaccine were capable of resisting a challenge dose of 5 m.l.ds. of virulent Cl. chauvoei culture as against a resistance against 3 m.l.ds. only shown by animals receiving a single injection. In the case of alum-precipitated vaccine, animals protected with a single dose of the vaccine were able to withstand a challenge dose of 10 m.l.ds. of the culture, while the administration of a second dose of vaccine enabled them to withstand a challenge dose of 20 m.l.ds. of the culture.

Experiments carried out show that sheep protected with 3 c.c. of the alum-precipitated Blackquarter vaccine were able to resist challenge with 10 m.l.ds. of Cl. septicum culture and the sheep immunized with 5 c.c. of the alum-precipitated concentrated vaccine were found to be solidly immune against challenge with 15 to 20 m.l.ds. of the same culture.

In guinea pigs the alum-precipitated concentrated vaccine conferred solid protection against 20 m.l.ds. of Cl. chauvoei culture following immunisation by a single dose (2 ml.) when a "booster-dose" was administered to these guinea pigs on the 10th day, the development of immunity was so much accentuated that the animals were able to resist challenge with 40-50 m.l.ds. of Cl. chauvoei culture.

(ix) Experiments conducted to determine the earliest period in which immunity develops in vaccinated calves and guinea pigs showed that it takes 4 to 7 days for adequate immunity to develop following vaccination.

(x) *Keeping quality of the Blackquarter vaccine.*—Alum-precipitated Blackquarter vaccine prepared in Noguchi's medium was found potent after 68 days' storage at room temperature (90° to 98° F) and 9 months' storage in cold storage room (38° to 42° F). Further studies were in progress.

(xi) During the period under review 8 specimens from the field, suspected for Blackquarter infection were received and 7 of them proved positive for Cl. chauvoei infection.

(d) *Experiments with sheep-pox vaccine.*—(i) During the year, a new technique was used in the manufacture of sheep-pox vaccine. Young susceptible sheep were infected by injecting the virus subcutaneously in the region of the abdomen and the gelatinous material from the Oedematous infiltration at the site of the lesion was collected on the 4th or 5th day. This yielded a good harvest of material rich in virus and this was processed and freeze-dried in glass ampoules of convenient sizes. Dilutions as high as 1 in 32,000 of this material were found infective for sheep. Before use, the material from the ampoule were reconstituted in suitable quantities in 50 per cent sterile glycerine saline and the vaccination was carried out by the scarification method on the inside of the ear. The results of vaccination carried out in the field are reported to be satisfactory.

Cross immunity studies made with the vaccine strain of virus used at this Institute and the Mukteswar strain of sheep-pox virus show that both the strains are immunologically identical.

(ii) Attempts to cultivate the sheep-pox virus on C.A. membrane of 12 days' old developing eggs were continued during the year.

(e) (i) *Experiments on cow-pox.*—Some studies were made to find out if the vaccinia virus used for vaccination against smallpox could be used for protecting cattle against cow-pox. A strain of the virus was obtained from the King Institute, Guindy, and Zebu calves were vaccinated on the inside of the ear by the scarification method. Redness followed by pustules and scab formation was seen at the site of infection and as cow pox virus was not available for challenge purposes, these calves were challenged with the same vaccinia virus. They were found not to react while the control calves reacted to the test. The work will be continued when a field strain of cow-pox virus becomes available. Attempts to infect sheep and goats with the vaccinia virus were unsuccessful.

(ii) Three materials from sheep received from the field and suspected for sheep-pox were found to be non-infective for sheep when tested at the Institute. Two specimens suspected for goat-pox were received for diagnostic purposes and of those one was found infective for goats.

A specimen from an elephant suspected for pox was received at the Institute from the Veterinary Disease Investigation Officer (Cattle) and the material was found to be non-infective for rabbits when tested at the Institute.

(f) *Experiments conducted in Ranikhet disease vaccine and fowl-pox vaccine sections.*—(i) *Mixed vaccine experiments.*—Fifty-two 8 weeks' old chicks were vaccinated by the wing-web puncture method with a mixed vaccine made by mixing equal quantities of reconstituted concentrated freeze dried ranikhet disease and fowl-pox vaccines. All the vaccinated birds showed good takes at the site of vaccination by about 5th day thereby showing that they had reacted to the fowl-pox vaccine. Regarding their immunity against ranikhet disease, four months after vaccination, 10 chicks were selected at random and were challenged with virulent ranikhet virus with a control chick. The control chick died on the 3rd day showing typical lesions of ranikhet disease whereas the other chicks withstood the challenge proving that immunity was produced even by injecting the vaccine by the wing-web puncture method.

More vaccinations of this type will be conducted and the chicks will be challenged both with ranikhet and fowl-pox viruses and the results evaluated in due course.

(ii) *Viability test for fowl-pox vaccine stored in a deep freeze cabinet at 20° C.*—A brew of fowl-pox vaccine manufactured on 27th August 1952 and stored in a deep freeze cabinet at 20° C. was tested on 12 chicks on 30th September 1954, about 2 years after the date of manufacture. All the vaccinated chicks showed takes on the 4th or 5th day and the scabs fell off by about the 14th or 15th day after vaccination showing thereby that the vaccine was viable even after 2 years of manufacture when stored in a deep freeze.

(g) *Brucella abortus vaccine.*—(i) The scheme for the production of brucella abortus vaccine and antigens was continued during the period. Ten brews of brucella abortus vaccine comprising of 4,270 doses of 5 c.c. each were prepared as per the outlines of the Bureau of Animal Industry, Washington D.C., using the vaccine strain of the organism obtained from the Indian Veterinary Research Institute, Mukteswar, and 3,607 doses were issued to the Veterinary Disease Investigation Officer (Cattle) and the

Veterinary Assistant Surgeon-in-charge of Brucella Eradication Scheme for use in the field. All the batches of vaccine were tested on white calves and guinea pigs for safety and potency and no untoward reactions were noticed in the vaccinated animals.

(ii) *Brucella antigens*.—A total of 2,400 c.c. of tube antigen and 500 c.c. of plate antigen were produced. Four hundred and seventy-five c.c. of tube antigen were supplied to the Veterinary Disease Investigation Officer (Cattle) and other staff and 3,075 c.c. were used in the section for conducting series of agglutination tests. Altogether one hundred and twenty-five c.c. of plate antigen were supplied to the Veterinary Assistant Surgeon-in-charge, Brucella Eradication Scheme, Veterinary Disease Investigation Officer (Cattle) and Principal, Madras Veterinary College, during the period.

A detailed study of the agglutination titre of blood Sera of the vaccinated calves from the day of vaccination for a period of two months after vaccination was made daily during the period. The vaccine has produced agglutinin titres ranging from 640 to 5,120 in the tested calves. Agglutinins commence to appear from the 4th or 5th day after vaccination. The titre reaches its peak during the period from the 10th to 20th day, begins to decline after 30 days and goes down gradually after 60 days.

(iii) *Viability count*.—Vaccine kept in cold storage was periodically tested for its viability by plating out the vaccine at 10-8 and 10-9 dilutions. It was observed that up to 45 days there was no fall in the count. Similar experiments with the vaccine kept at room temperature for varying periods were in progress.

(iv) During the period, 19 specimens of sera and synovial fluid were received from animals suspected to be ailing from Brucellosis. Of these five were positive for Brucellosis.

(h) *Anthrax spore vaccine*.—(1) During the year 5 brews of vaccine comprising of 26,640 doses were manufactured and 3 more Brews manufactured were under test. During the period under review 28,520 doses of Anthrax spore vaccine were supplied to the Veterinary Disease Investigation Officer (Cattle), Veterinary Disease Investigation Officer (Sheep and Goats) and field staff as compared to 11,220 doses supplied during 1953-54.

Altogether 116 sheep, 140 goats, 11 buffalo-calves, 2 heifer-calves, 50 guinea pigs and 9 mice were made use of, for the manufacture of the product and connected experiments and immunity tests.

(ii) *Test for the period of immunity in cattle*.—The vaccine has been found to confer solid immunity up to 3 months' duration in buffalo calves and white calves so far tested. Further study was in progress.

(iii) *Vaccination in sheep and goats by the Intra-dermal method*.—Since this vaccine was found to produce a sort of cellulitis in a small percentage of the vaccinated goats, when administered by the subcutaneous route, a few goats were vaccinated by the intracutaneous route into the caudal fold to overcome the difficulty. The reactions in these goats were found to be mild and no cellulitis of any kind was met with. The study was being continued.

(i) *Johne's disease vaccine*.—Experimental work in connexion with the manufacture of a vaccine for the control of Johne's disease among livestock in the State was taken up during the year. A strain of the organisms has been obtained from the Veterinary Research Laboratory, Weybridge, for this purpose. The work was in progress.

(f) *Bacterin for Enterotoxaemia in sheep*.—During the period, 89,100 doses of bacterin using Cl. Welchii types B and D were manufactured and 78,860 doses were issued for the use of the Veterinary Disease Investigation

Officer (Sheep and Goats) and the departmental staff. The results of vaccinations are reported to be quite satisfactory. At the request of the Veterinary Disease Investigation Officer (Sheep and Goats) 300 doses of a mixed bacterin using Cl. Welchii types B and D and Cl. septique were prepared and supplied for protecting Government sheep in the Government Sheep Farm, at Dunsandle, Nilgiris. No untoward reaction was met with and the vaccinated animals were reported to be normal.

35. *Freeze dried vaccine section*.—The following virus vaccines were manufactured in freeze dried form during the year.

|                                              |    |    |    |             |
|----------------------------------------------|----|----|----|-------------|
| (i) Rinderpest goat tissue vaccine           | .. | .. | .. | 59 batches. |
| (ii) Ranikhet disease vaccine                | .. | .. | .. | 25 "        |
| (iii) Fowl-pox vaccine                       | .. | .. | .. | 1 "         |
| (iv) Pigeon-pox vaccine                      | .. | .. | .. | 5 "         |
| (v) Sheep-pox vaccine                        | .. | .. | .. | 7 "         |
| (vi) Goat-pox vaccine                        | .. | .. | .. | 1 "         |
| (vii) Rinderpest goat tissue extract vaccine | .. | .. | .. | 3 "         |
| (viii) Lapinised rinderpest vaccine          | .. | .. | .. | 5 "         |

In addition to the one Edwards Freeze Drying Unit supplied by the Food and Agricultural Organization one more unit was purchased during the year and both the machines were utilized for the manufacture of the above detailed biological products in freeze dried form.

36. *Laboratory*.—(a) During the period under report, 1,789 microscopical specimens were examined as detailed below :—

|                                    |    |    |    |    |    |       |
|------------------------------------|----|----|----|----|----|-------|
| Blood smears                       | .. | .. | .. | .. | .. | 1,761 |
| Scrapings                          | .. | .. | .. | .. | .. | 1     |
| Subcutaneous fluids                | .. | .. | .. | .. | .. | 4     |
| Liver impression smears            | .. | .. | .. | .. | .. | 2     |
| Muscle smears                      | .. | .. | .. | .. | .. | 5     |
| Spleen smears                      | .. | .. | .. | .. | .. | 2     |
| Faeces (including caecal contents) | .. | .. | .. | .. | .. | 14    |

The positive findings were as listed below :—

|                      |    |    |    |    |    |    |
|----------------------|----|----|----|----|----|----|
| Pasteurella          | .. | .. | .. | .. | .. | 43 |
| Trypanosomes         | .. | .. | .. | .. | .. | 11 |
| Clostridia           | .. | .. | .. | .. | .. | 5  |
| Anthrax              | .. | .. | .. | .. | .. | 19 |
| B. Subtilis          | .. | .. | .. | .. | .. | 8  |
| Pseudomonas          | .. | .. | .. | .. | .. | 2  |
| Spirochaetes         | .. | .. | .. | .. | .. | 2  |
| Microfilaria         | .. | .. | .. | .. | .. | 2  |
| Post-mortem Invaders | .. | .. | .. | .. | .. | 3  |
| Staphylococci        | .. | .. | .. | .. | .. | 1  |
| Trichophyton         | .. | .. | .. | .. | .. | 1  |
| Ova of Trematodes    | .. | .. | .. | .. | .. | 1  |
| Ova of Strongyles    | .. | .. | .. | .. | .. | 2  |
| Ova of Ascaris       | .. | .. | .. | .. | .. | 2  |
| Oocysts of Coccidia  | .. | .. | .. | .. | .. | 1  |

Total .. 103

(b) *Post-mortem*.—During the period under report 1,391 post-mortems were conducted, the details of which were as follows :—

|                |    |    |    |    |    |          |       |
|----------------|----|----|----|----|----|----------|-------|
| Goats          | .. | .. | .. | .. | .. | ..       | 1,286 |
| Buffaloes      | .. | .. | .. | .. | .. | ..       | 8     |
| Sheep          | .. | .. | .. | .. | .. | ..       | 7     |
| Buffalo calves | .. | .. | .. | .. | .. | ..       | 90    |
|                |    |    |    |    |    |          | <hr/> |
|                |    |    |    |    |    | Total .. | 1,391 |

In 63 cases of goats, infestation with worms of *Hæmonchus* species was seen. Hydatid cysts in lungs and liver were detected in 31 cases of goats and in 8 buffalo calves.

Interesting pathological specimens and anatomical freaks were preserved in the museum. This included a case of Volvulus in a goat, Hæmorrhagic Septicaemia lesions in the heart, diphtheretic inflammation of large intestines in buffalo calves, and large hydatid cysts in the liver of a buffalo-calf.

Skins and bones from 1,286 carcasses inclusive of 2 buffalo calves were sold to the contractor.

37. *Sale of Biological products.*—During the year, a sum of rupees 35,863-7-4 was realized by the sale of biological products to neighbouring states and private practitioners. This amount is exclusive of products sold to Andhra State as the sale price of the products to Andhra State has not yet been fixed and the bill of charges preferred. A statement showing the names of purchasers and the products and quantity sold is given below.

| Serial number and name of the State.                                                | (1)     | (2)      | (3)      | (4)     | (5)       | (6)      | (7)     | (8)     | (9)     | (10)    | (11)    | (12)     | (13)                                | (14)                    | (15)               | (16)             | (17)       |
|-------------------------------------------------------------------------------------|---------|----------|----------|---------|-----------|----------|---------|---------|---------|---------|---------|----------|-------------------------------------|-------------------------|--------------------|------------------|------------|
|                                                                                     |         | DOSES.   | DOSES.   | DOSES.  | DOSES.    | DOSES.   | DOSES.  | DOSES.  | DOSES.  | C.C.    | C.C.    | DOSES.   | Bovine lymphangitis vaccine course. | Normal Saline solution. | SHEEP-POX VACCINE. | Goat spleen wet. | CL. WEICH. |
| (i) Bombay State .. .. .                                                            | .. .. . | 65,000   | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (ii) Director of Animal Husbandry, Ajmer.                                           | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (iii) Kutch State .. .. .                                                           | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (iv) Madhya Pradesh .. .. .                                                         | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (v) Bengal (West) .. .. .                                                           | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (vi) Hyderabad .. .. .                                                              | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (vii) Mysore Serum Institute, Bangalore.                                            | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (viii) Coorg Government .. .. .                                                     | .. .. . | 1,200    | .. .. .  | 200     | 14,000    | 15,600   | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | 600      | .. .. .                             | 70,000                  | .. .. .            | .. .. .          | .. .. .    |
| (ix) Travancore and Cochin State.                                                   | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | 1,600    | 200     | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | 3                                   | 100                     | .. .. .            | .. .. .          | .. .. .    |
| (x) Project Executive Officer, Tiruvandram.                                         | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | 30,000   | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (xi) Pondicherry Government .. .. .                                                 | .. .. . | .. .. .  | 900      | .. .. . | .. .. .   | .. .. .  | 300     | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (xii) Sri Anrobinda Ashram, Pondicherry.                                            | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | 600      | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (xiii) Kannan Devan Mills Production Company, Limited, Kundally Estate, Travancore. | .. .. . | 720      | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | 600     | .. .. . | .. .. . | .. .. .  | .. .. .                             | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (xiv) Ceylon Government .. .. .                                                     | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | 40                                  | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (xv) Military Farm, Wellington .. .. .                                              | .. .. . | .. .. .  | .. .. .  | .. .. . | .. .. .   | .. .. .  | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | 1                                   | .. .. .                 | .. .. .            | .. .. .          | .. .. .    |
| (xvi) Community Project in Madras .. .. .                                           | .. .. . | 11,400   | .. .. .  | .. .. . | .. .. .   | 18,600   | .. .. . | .. .. . | .. .. . | .. .. . | .. .. . | .. .. .  | .. .. .                             | 200                     | .. .. .            | .. .. .          | .. .. .    |
| (xvii) National Extension Service, Madras.                                          | .. .. . | 16,700   | .. .. .  | .. .. . | .. .. .   | 89,400   | 200     | 650     | .. .. . | .. .. . | .. .. . | .. .. .  | 1                                   | 1,600                   | 4,800              | .. .. .          | 1,440      |
| (xviii) Andhra State .. .. .                                                        | .. .. . | 4,44,454 | 6,63,476 | 4,060   | 10,87,650 | 8,58,200 | 1,800   | 23,550  | 750     | .. .. . | 60,630  | 1,41,480 | 46                                  | .. .. .                 | 28,220             | .. .. .          | 43,360     |

38. *Five-Year Plan Schemes.*—The Scheme for the purchase of Laboratory equipment and furniture sanctioned for Rs. 30,000 and the Scheme for the purchase of books for the Library sanctioned for Rs. 10,000 were the two Schemes relating to the Institute included in the Five-Year Plan.

The expenditure incurred in respect of these two Schemes during the period was Rs. 4,184-11-6 and the total progressive expenditure at the end of 1954-55 was Rs. 34,553-1-6 leaving a balance of Rs. 5,446-14-6. Purchases are being made as and when sanction is received. The progress of the Schemes was satisfactory.

39. (a) *Miscellaneous.*—The following papers have been sent for publication by the Superintendent and staff of the Institute.

- |                                                                                                |                            |
|------------------------------------------------------------------------------------------------|----------------------------|
| (i) Studies on Black Quarter Vaccine                                                           | Indian Veterinary Journal. |
| (ii) Studies on a new Madras strain of Lapinised Virus suitable for use in Vaccine production. | Do.                        |
| (iii) Studies on Haemorrhagic Septicaemia Vaccine.                                             | Do.                        |
| (iv) Studies on Freeze Dried Rinderpest Goat Tissue Vaccine.                                   | Do.                        |

(b) The different culture media required by the Investigation Officers were supplied to them as per their requirements.

(c) The Dispensary attached to the Junior Certified School, Ranipet, was thrown open to the staff of the Institute and the duties of the Medical Officer was enlarged to cover the medical needs of all the Government servants of the locality including the staff of the Institute of Veterinary Preventive Medicine.

(d) One Veterinary Assistant Surgeon was appointed as Technical Assistant to the Rinderpest Eradication Committee of the Indian Council of Agricultural Research and he was relieved from this Institute on Foreign Service terms on 25th June 1954. Another Veterinary Assistant Surgeon was relieved on the afternoon of 31st March 1955 to enable himself to report to the Director, Indian Veterinary Research Institute, Mukteswar for the post of a Research Fellowship on Animal Pathology and Bacteriology.

(e) *Visitors.*—The following important personages who visited the Institute were taken round the Institute during the year:—

- (i) Sri R. V. S. Bain of the Food and Agriculture Organization.
- (ii) Sri M. R. Mahajan, Secretary, Rinderpest Eradication Committee, Indian Council of Agricultural Research, New Delhi.
- (iii) Sri N. Murugesu Mudaliar, Deputy Secretary to Government of Madras, Agriculture Department.
- (iv) Sri K. S. Nair, retired Joint Director of Animal Husbandry, Madras.

(v) In addition, students and teachers from various schools and colleges and students from the Madras Veterinary College and Hyderabad Veterinary College visited the Institute on their educational tours.

## CHAPTER V.—LIVESTOCK.

### CATTLE.

40. *Livestock Research Station, Hosur Cattle Farm.*—(a) *Strength.*—There were 1,368 animals at the beginning of the year as against 1,338 of

the previous year. During the year under report, there were 226 births, 10 receipts, 26 deaths, 6 destructions, 42 sales, 237 auction sales and 183 external transfers thus leaving a total strength of 1,110 animals on 31st March 1955, as detailed below.

Among the sales 13 Scindhi bulls, 5 cows, 5 heifers and 2 suckling calves were sold to the Kashmir Government, 4 Scindhi bulls were sold to the Travancore-Cochin State and one Gir bull was sold to the Secretary, Pinjarpole, Bombay State.

| Breed.                 | Cows.  | Heifers.  | Young bulls. | Breeding bulls. | Calves. | Work cattle. | Total. |
|------------------------|--------|-----------|--------------|-----------------|---------|--------------|--------|
| (1)                    | (2)    | (3)       | (4)          | (5)             | (6)     | (7)          | (8)    |
| Scindhi .. ..          | 184    | 113       | 107          | 10              | 92      | 12           | 468    |
| Kangayam .. ..         | 127    | 87        | 82           | 5               | 83      | 37           | 421    |
| Hallikar .. ..         | ..     | ..        | ..           | 5               | ..      | 14           | 19     |
| Cross-breed .. ..      | 19     | 10        | 16           | ..              | 12      | 11           | 68     |
| Gir .. ..              | 31     | 30        | 43           | 2               | 11      | 3            | 120    |
| Tharparkar .. ..       | ..     | ..        | ..           | ..              | ..      | 5            | 5      |
| Murrah Buffaloes .. .. | ..     | ..        | 2            | 1               | ..      | ..           | 3      |
| Horses .. ..           | 1      | 2         | ..           | 3               | ..      | ..           | 6      |
|                        | (mare) | (fillies) |              | (horses)        |         |              |        |
| Total .. ..            | 312    | 242       | 250          | 26              | 198     | 82           | 1,110  |

The reduction in strength by 258 animals compared to last year's strength was due to the issue of a large number of bulls for stud purposes as also due to the systematic culling of uneconomical and unthrifty animals.

(b) *Culling.*—Culling was more strictly enforced during the year resulting in the effective gradual improvement of the rest of the stock.

(c) *Dairy.*—The following table gives the particulars of the average number of cows in each breed, milk yield, etc., during the year:—

| Breed.            | Average number of cows in the herd. | Average number of cows in milk. | Total milk yield during the period lb. | Daily average yield per cow during 1954-55 in lb. |                           | Daily average yield per cow during 1953-54 in lb. |                           |
|-------------------|-------------------------------------|---------------------------------|----------------------------------------|---------------------------------------------------|---------------------------|---------------------------------------------------|---------------------------|
|                   |                                     |                                 |                                        | for the cows in milk.                             | for the cows in the herd. | for the cows in milk.                             | for the cows in the herd. |
| (1)               | (2)                                 | (3)                             | (4)                                    | (5)                                               | (6)                       | (7)                                               | (8)                       |
| Scindhi .. ..     | 129.3                               | 75.9                            | 357,441.0                              | 12.9                                              | 7.6                       | 11.8                                              | 6.4                       |
| Kangayam .. ..    | 124.6                               | 65.2                            | 158,440.0                              | 6.7                                               | 3.5                       | 5.9                                               | 2.9                       |
| Cross-breed .. .. | 14.9                                | 10.3                            | 45,326.5                               | 12.1                                              | 8.3                       | 12.2                                              | 7.4                       |
| Gir .. ..         | 32.5                                | 16.9                            | 82,487.0                               | 13.4                                              | 7.0                       | 13.0                                              | 6.4                       |

(d) *Reasons for variations in milk yield.*—The variations in milk yield of the above breeds were due to the following reasons:—

(i) Variation between animal and animal in a herd occurs ordinarily and herd improvement is attempted by selection of animals within the herd.

(ii) In order to build up the herd, a number of unproductive cows were also culled out during the year and auctioned.

(iii) There is increase in the milk yield average particularly of Scindhi and Kangayam herds since most of the high yielders in them were in milk during the year.

(e) Details of the good performers which completed their lactation periods during the year are given below :—

| Breed.              | Cow number. | Milk yield lb. | Number of days in milk. | Daily average for the lactation. |
|---------------------|-------------|----------------|-------------------------|----------------------------------|
| (1)                 | (2)         | (3)            | (4)                     | (5)                              |
| Scindhi .. .. .     | 309         | 11,480.5       | 365                     | 31.5                             |
| Do. .. .. .         | 228         | 7,811.5        | 371                     | 21.1                             |
| Do. .. .. .         | 299         | 7,765.0        | 317                     | 24.5                             |
| Do. .. .. .         | 229         | 6,494.5        | 298                     | 21.8                             |
| Do. .. .. .         | 215         | 6,210.5        | 260                     | 23.9                             |
| Kangayam .. .. .    | 593         | 5,163.0        | 343                     | 15.1                             |
| Do. .. .. .         | 838         | 4,145.5        | 302                     | 13.4                             |
| Do. .. .. .         | 598         | 4,131.5        | 266                     | 15.5                             |
| Do. .. .. .         | 720         | 4,043.0        | 298                     | 13.7                             |
| Do. .. .. .         | 406         | 3,252.0        | 287                     | 11.3                             |
| Do. .. .. .         | 523         | 3,188.5        | 298                     | 10.8                             |
| Gir .. .. .         | 21          | 9,832.5        | 416                     | 23.6                             |
| Do. .. .. .         | 23          | 7,399.5        | 346                     | 21.4                             |
| Do. .. .. .         | 30          | 5,010.0        | 357                     | 14.0                             |
| Cross-breed .. .. . | 462         | 5,286.0        | 316                     | 16.7                             |
| Do. .. .. .         | 470         | 5,242.0        | 333                     | 15.7                             |

(f) *Fat tests.*—Fat tests were conducted for all Scindhi cows and recorded. The fat per cent during the period under review was 4.4 on an average for all the cows that completed lactation during the period under report.

(g) *Veterinary Hospital and Disease position.*—(i) The particulars of work done in the Veterinary Hospital are as follows :—

Number of cases treated—1,040.

Number of castrations done—15.

Daily average attendance—46.58.

(ii) *Disease position.*—A total of 1,060 animals were given protection against Black Quarter as a Prophylactic measure.

Particulars of cases treated for the different conditions are given below :—

| Name of the disease.      | Number of cases treated. |
|---------------------------|--------------------------|
| Ephemeral fever .. .. .   | 111                      |
| Mastitis .. .. .          | 27                       |
| Coccidiosis .. .. .       | 33                       |
| Helminthiasis .. .. .     | 4                        |
| Mange .. .. .             | 10                       |
| Navel-ill .. .. .         | 16                       |
| John's disease .. .. .    | 13                       |
| Piroplasmosis .. .. .     | 1                        |
| Theileriasis .. .. .      | 1                        |
| Abortion .. .. .          | 6                        |
| Retained Placenta .. .. . | 3                        |
| Cancer .. .. .            | 2                        |

NOTE.—(i) The common forms of mastitis were staphylococcal and streptococcal often a mixed affection.

(ii) Routine dosing of sheep with Phenothiazine every two months was undertaken.

(iii) The type of mange was demodectic.

(iv) Six cases were confirmed by examination of bowel washings and seven cases by postmortem examination for John's diseases.

Double intradermal tests with Johnin were carried out this year. Among 722 cattle and 251 sheep tested there were only 9 suspicious reactors.

(v) The one case of Theileriasis was confirmed.

(vi) Young calves in the main dairy between the ages of 1 to 4 months continued to be affected with Ring Worm. Spontaneous cure was brought about in all animals after two or three months with routine treatment.

(vii) All the cases of abortion were negative for Brucellosis.

(h) *Laboratory work.*—A total of 138 specimens were sent to the Principal, Madras Veterinary College and Disease Investigation Officers and 310 specimens were examined at the Veterinary Hospital, Livestock Research Station, Hosur Cattle Farm. Among them 157 specimens gave positive results.

(i) *Pregnancy test.*—Animals which were served were examined at the Veterinary Hospital for pregnancy and sterility. During this year 915 animals were examined and 310 were found pregnant.

(j) *Sterility work.*—The work on sterility was continued on the lines suggested by the Food and Agriculture Organization Expert. The following animals were examined at Farm Hospital :—

(i) Cows which were served were examined for pregnancy.

(ii) Cows which had prolonged anoestrous periods if they did not come to heat within three months after calving were examined.

(iii) Heifers which were over two and a half years and which had not taken the bull were also examined.

During the course of examination, the following cases were met with :—

*Scindhi herd—*

|                                  |     |
|----------------------------------|-----|
| Persistent corpus luteum .. .. . | 110 |
| Anoestrous condition .. .. .     | 22  |
| Follicles .. .. .                | 10  |
| Infantile genitalia .. .. .      | 2   |
| Fibrosed Ovaries .. .. .         | 1   |

Total ... 145

*Kangayam herd—*

|                                  |    |
|----------------------------------|----|
| Persistent corpus luteum .. .. . | 72 |
| Anoestrous condition .. .. .     | 18 |
| Follicles .. .. .                | 10 |
| Infantile genitalia .. .. .      | 1  |
| Cystic ovaries .. .. .           | 5  |
| Corvicitis .. .. .               | 2  |

Total ... 108

*Gir herd—*

|                                  |    |
|----------------------------------|----|
| Persistent corpus luteum .. .. . | 20 |
| Anoestrous condition .. .. .     | 4  |
| Follicles .. .. .                | 1  |
| Cystic ovaries .. .. .           | 2  |
| Vaginitis .. .. .                | 1  |

Total ... 30

*Cross bred herd—*

|                                  |   |
|----------------------------------|---|
| Persistent corpus luteum .. .. . | 7 |
| Follicles .. .. .                | 1 |
| Cystic ovaries .. .. .           | 1 |

Total ... 9

The following treatment was undertaken :—

(i) *Persistent Corpus luteum*.—First it was definitely ascertained that the animal was not pregnant. The Persistent Corpus luteum was enucleated and the bull was allowed to serve the cow after four days.

(ii) *Cystic ovaries*.—In this condition attempts were made to rupture the cysts and the animals were tested every month.

(iii) *Cervicitis, pyometra, etc.*—Animals were douched with antiseptic lotions and treated with sulphanamide pessaries.

(iv) *Anoestrous condition*.—Animals having a long anoestrous period were examined regularly. Heat was induced artificially in the following ways :—

The Ovaries were massaged once or twice.

Potassium or sodium iodide grs. vi. was given daily orally for a week.

Lastly hormone treatment was tried. The products so far used in this farm this year were "Theelin" in oil, Gonadotrophin and Ketodestin.

(v) *Infantile Genitalia*.—This condition was met with in heifers. Repeated examination and massaging of genitalia was done. As a last resort hormone treatment was also tried.

*Results and observations*.—It was observed that in some cases after the removal of the persistent corpus luteum, the animal came to natural heat. Bulls were allowed to serve the cows after four days if they did not come to natural heat after two days.

With the abovementioned treatments 59 Scindhi cows, 31 Kangayam cows, 7 Gir cows and 4 cross-bred cows became pregnant.

(k) *Massaging of udders of cows*.—Massaging the udders of cows and heifers in their advanced pregnancy, and premilking some of them were continued. These have definitely improved the docility and milch temperament of the animals. Animals taken up for massaging were as follows :—

*Scindhi herd*.—Cow Nos. 648, 560, 464, 610, 695, 681, 622, 304, 544, 611, 483, 686, 539, 499, 483, 690, 248, 291, 303, 612, 742, 690, 309, 215, 563, 509, 414, 429, 598, 520, 621—31 animals.

*Kangayam herd*.—Cow Nos. 652, 851, 536, 856, 707, 843, 983, 688, 616, 699, 43, 734, 406, 719, 838, 536, 621—17 animals.

*Gir herd*.—Nos. 39, 50, 37, 26, 63, 64, 59, 51—8 animals.

*Cross-bred herd*.—Nos. 453, 496, 451, 491 and 492—5 animals.

(1) *General*.—(i) The weekly weights of calves were taken to study the variation in the growth of calves under the existing conditions of feeding and management. The average weekly increase in the body weight of different breeds for the period under review were as follows :—

|                   | LB. |
|-------------------|-----|
| Scindhi calves    | 6.8 |
| Kangayam calves   | 6.1 |
| Gir calves        | 7.0 |
| Cross-bred calves | 7.7 |

(ii) A trial on guinea grass was taken up to study the yielding capacity by giving it treatment, as done for paddy in the Japanese method. An area of 8 cents was taken up. The guinea grass nursery raised as per the Japanese method for paddy was planted in four plots of one cent each. Another four

plots were planted as per the farm practice. The growth of the grass was quite satisfactory except during the winter season. So far three cuttings have been taken up. The results of yield in lb. are given below :—

| Date.              | Experimental plots.  |     |                  |     | Control plots.       |     |                  |     |
|--------------------|----------------------|-----|------------------|-----|----------------------|-----|------------------|-----|
|                    | Raised by seedlings. |     | Raised by slips. |     | Raised by seedlings. |     | Raised by slips. |     |
|                    | (1)                  | (2) | (1)              | (2) | (1)                  | (2) | (1)              | (2) |
| 10th October 1954  | 254                  | 316 | 283              | 275 | 271                  | 252 | 258              | 289 |
| 22nd December 1954 | 242                  | 205 | 242              | 217 | 202                  | 186 | 197              | 192 |
| 10th March 1955    | 214                  | 186 | 193              | 165 | 165                  | 163 | 119              | 147 |
| Average            | 237                  | 236 | 239              | 219 | 213                  | 200 | 191              | 209 |

The experimental plots have yielded more than the control plots.

(ii) In place of small gutta bunds regular contour bunding work was started during the year as a measure of soil conservation. During the year pucca contour bunds were put up in an area of 34 acres. No work could be taken up from August last to January 1955 as there was standing crop in all the areas. The work was taken up again in February and March 1955 but again it had to be suspended till the receipt of a shower as the ground was very hard and cost of bunding was very high.

(iv) During the year 1,100 saplings of Glycidia, tamarind, etc., were planted.

41. *District Livestock Farm, South Kanara*.—(a) *Strength*.—The strength on 1st April 1954 was 286. There were 93 births, 17 sales, 1 transfer, 20 auctions and 35 deaths during the year, thus leaving a total strength of 306 on 31st March 1955 as shown below :—

| Breed.   | Cows. | Heifers. | Young bulls. | Breeding bulls. | Calves. | Work cattle. | Total. |
|----------|-------|----------|--------------|-----------------|---------|--------------|--------|
| (1)      | (2)   | (3)      | (4)          | (5)             | (6)     | (7)          | (8)    |
| Murrah   | 56    | 27       | 18           | 1               | 28      | ..           | 130    |
| Dharwar  | 6     | 2        | 1            | 1               | 2       | ..           | 12     |
| Scindhi  | 19    | 16       | 13           | 2               | 13      | ..           | 63     |
| Gir      | 4     | 5        | 7            | 1               | 1       | ..           | 18     |
| Local    | 26    | 18       | ..           | 1               | 21      | ..           | 66     |
| Hallikar | ..    | ..       | ..           | ..              | ..      | 17           | 17     |
| Total    | 111   | 68       | 39           | 6               | 65      | 17           | 306    |

NOTE.—One Canbal Dog was also maintained in the farm throughout the year.

The increase in strength was due to more number of births during the year.

(b) *Culling*.—Systematic culling was practised in this farm and during the year 20 animals were culled out and sold in public auction.

(c) *Dairy*.—Particulars of milk yield, etc., for each breed are given below :—

| Breed.  | Average number of cows in the herd. | Average number of cows in milk. | Total milk yield during the period in lb. | Daily average yield per cow in 1954-55 in lb. |                       | Daily average yield per cow in 1953-54 in lb. |                       |
|---------|-------------------------------------|---------------------------------|-------------------------------------------|-----------------------------------------------|-----------------------|-----------------------------------------------|-----------------------|
|         |                                     |                                 |                                           | for cows in milk.                             | for cows in the herd. | for cows in milk.                             | for cows in the herd. |
|         | (1)                                 | (2)                             | (3)                                       | (4)                                           | (5)                   | (6)                                           | (7)                   |
| Murrah  | ..                                  | 54.6                            | 36.4                                      | 1,73,948.5                                    | 13.1                  | 8.7                                           | 13.0                  |
| Dharwar | ..                                  | 6.0                             | 2.8                                       | 8,629.0                                       | 8.4                   | 3.9                                           | 7.9                   |
| Scindhi | ..                                  | 17.4                            | 11.3                                      | 54,882.5                                      | 13.3                  | 8.6                                           | 14.2                  |
| Gir     | ..                                  | 4.4                             | 2.3                                       | 10,960.5                                      | 13.0                  | 6.8                                           | 13.1                  |
| Local   | ..                                  | 21.7                            | 14.3                                      | 11,248.5                                      | 2.2                   | 1.4                                           | 2.5                   |
|         |                                     |                                 |                                           |                                               |                       |                                               | 1.7                   |

(d) *Reasons for variation in milk yield*—(i) *Murrah herd*.—The daily average milk yield for the she-buffaloes in milk during the year was slightly higher than that of the previous year.

(ii) *Dharwar herd*.—There was an increase in the daily average yield for cows in milk.

(iii) *Scindhi herd*.—It would appear from the daily individual average for cows in milk during the year, that the milk yield in this herd has recorded a slight decline but in reality it is the converse, since the milk yield obtained for the completed lactations was far above that of the previous year and in that the average milk yield of a herd as a unit at a given time depends upon the number of lactations of the animals reckoned and the stage of the lactation of the animals reckoned. Further, this herd comprised of a greater percentage of older animals; for example, among the 13 animals that completed their lactation during the year, one completed its 6th lactation, 5 completed their 5th lactation, 2 completed their 4th lactation, 3 completed their 3rd, one completed its second and one completed its first lactation. The composition of the herd at the close of the year was one in the 7th, 3 in the 6th, one in the 5th, 3 in the 4th, one in the 3rd and 4th in the first, lactations making a total of 13 animals in milk on 31st March 1955.

(iv) *Gir herd*.—There was not much variation in the daily average yield when compared to last year.

(v) *Local herd*.—All the animals in this herd were advanced in their lactation and they have practically passed off their best yielding parts.

(e) Particulars of some of the good performers which completed their periods of lactation during the year are given below in respect of each breed.

| Breed.          | Cows number. | Milk yield in lbs. | Number of days in milk. | Daily average for lactation in lbs. |
|-----------------|--------------|--------------------|-------------------------|-------------------------------------|
| Murrah .. .. .  | 29           | 6,124.0            | 428                     | 14.3                                |
| Do. .. .. .     | 14           | 5,673.0            | 337                     | 16.8                                |
| Do. .. .. .     | 35           | 5,401.5            | 323                     | 16.7                                |
| Dharwar .. .. . | 12           | 3,381.0            | 316                     | 10.7                                |
| Do. .. .. .     | 2            | 2,261.0            | 284                     | 8.0                                 |
| Scindhi .. .. . | 490          | 7,122.0            | 371                     | 19.2                                |
| Do. .. .. .     | 284          | 5,962.5            | 394                     | 15.1                                |
| Do. .. .. .     | 555          | 5,065.0            | 334                     | 15.0                                |
| Gir .. .. .     | 28           | 5,178.5            | 337                     | 15.4                                |

(f) *Veterinary Hospital and Disease Position*.—Altogether 193 in-patients were treated during the year. As a prophylactic measure, vaccinations were carried out on 704 animals against Haemorrhagic Septicaemia and on 239 animals against Rinderpest.

42. *District Livestock Farm, Malabar*—(a) *Strength*.—The strength on 1st April 1954 was 126. There were 14 births, 5 receipts, 3 auctions, 2 sales, 8 transfers and 1 destruction during the year, thus leaving a closing balance of 131 on 31st March 1955 as shown below :—

| Breed.           | Cows. | Heifers. | Young bulls. | Breeding bulls. | Calves. | Work cattle. | Total. |
|------------------|-------|----------|--------------|-----------------|---------|--------------|--------|
| Murrah .. .. .   | 29    | 18       | 15           | 2               | 8       | ..           | 72     |
| Dharwar .. .. .  | 6     | 2        | ..           | 1               | 3       | ..           | 12     |
| Scindhi .. .. .  | 7     | 3        | 2            | 3               | 3       | 2            | 20     |
| Kangayam .. .. . | 3     | ..       | ..           | ..              | ..      | 17           | 20     |
| Mysore .. .. .   | ..    | ..       | ..           | ..              | ..      | 4            | 4      |
| Local .. .. .    | ..    | ..       | ..           | ..              | ..      | 2            | 2      |
| Sahiwal .. .. .  | ..    | ..       | ..           | ..              | ..      | 1            | 1      |
| Total .. .. .    | 45    | 23       | 17           | 6               | 14      | 26           | 131    |

The increase in strength was mainly due to births during the year.

(b) *Dairy*.—Particulars of milk yield, etc., for each breed are given below :—

| Breed.          | Average number of cows in the herd. | Average number of cows in milk. | Total milk yield during the period in lbs. | Daily average yield per cow in 1954-55 in lbs. |                       | Daily average yield per cow during 1953-54 in lbs. |                       |
|-----------------|-------------------------------------|---------------------------------|--------------------------------------------|------------------------------------------------|-----------------------|----------------------------------------------------|-----------------------|
|                 |                                     |                                 |                                            | For cows in milk.                              | For cows in the herd. | For cows in milk.                                  | For cows in the herd. |
| (1)             | (2)                                 | (3)                             | (4)                                        | (5)                                            | (6)                   | (7)                                                | (8)                   |
| Murrah .. .. .  | 27.6                                | 17.1                            | 73,554.75                                  | 12.0                                           | 7.5                   | 12.6                                               | 10.1                  |
| Dharwar .. .. . | 4.7                                 | 3.1                             | 11,030.0                                   | 9.9                                            | 6.7                   | 7.6                                                | 3.5                   |
| Scindhi .. .. . | 5.8                                 | 3.5                             | 15,346.0                                   | 11.9                                           | 7.2                   | 10.0                                               | 6.4                   |

(c) *Reasons for variations in milk yield*—(i) *Murrah herd*.—The slight fall in daily average milk yield was due to the fact that there was an outbreak of foot and mouth disease in this herd and due to the extreme drought conditions that prevailed during the latter part of the year.

(ii) *Dharwar Herd*. } The slight increase was due to the fact that the number of cows in milk were more and that they were in peak lactation.

(iii) *Scindhi Herd*. }

(d) Particulars of some of the good performers which completed their lactation periods during the period are as follows in respect of each breed :—

| Breed.          | Cow number. | Milk yield in lbs. | Number of days in milk. | Daily average for the lactation in lbs. |
|-----------------|-------------|--------------------|-------------------------|-----------------------------------------|
| Murrah .. .. .  | 11          | 4,093.5            | 189                     | 21.6                                    |
| Scindhi .. .. . | 521         | 1,378.0            | 68                      | 20.2                                    |
| Dharwar .. .. . | 3           | 2,498.0            | 194                     | 12.8                                    |

43. *District Livestock Farm, Pudukottai*—(a) *Strength*.—The strength on 1st April 1954 was 146. There were 6 receipts, 32 births, 6 deaths, 8 transfers, 3 sales and 13 auctions during the year, thus leaving a balance of 154 on 31st March 1955 as detailed below :—

| Breed.              | Cows. | Heifers. | Young bulls. | Breeding bulls. | Calves. | Work cattle. | Total. |
|---------------------|-------|----------|--------------|-----------------|---------|--------------|--------|
| Scindhi .. .. .     | 13    | 12       | 6            | 3               | 7       | ..           | 41     |
| Kangayam .. .. .    | 26    | 16       | 18           | 5               | 13      | 8            | 86     |
| Sahiwal .. .. .     | 2     | 1        | ..           | ..              | 2       | ..           | 5      |
| Cross-breed .. .. . | 7     | 3        | 2            | ..              | 6       | ..           | 18     |
| Murrah .. .. .      | ..    | ..       | ..           | 4               | ..      | ..           | 4      |
| Total .. .. .       | 48    | 32       | 26           | 12              | 28      | 8            | 154    |

The increase in strength was due to the addition of calves born during the year.

(b) *Culling*.—Systematic culling was adopted in this farm.

(c) *Dairy*.—Particulars of milk yield, etc., for each breed are given below :—

| Breed.         | Average number of cows in the herd. | Average number of cows in milk. | Total milk yield during the period in lbs. | Daily average yield per cow in 1954-55 in lbs. |                       | Daily average yield per cow in 1953-54 in lbs. |                       |
|----------------|-------------------------------------|---------------------------------|--------------------------------------------|------------------------------------------------|-----------------------|------------------------------------------------|-----------------------|
|                |                                     |                                 |                                            | For cows in milk.                              | For cows in the herd. | For cows in milk.                              | For cows in the herd. |
| (1)            | (2)                                 | (3)                             | (4)                                        | (5)                                            | (6)                   | (7)                                            | (8)                   |
| Scindhi ..     | 13.0                                | 8.3                             | 34,150.5                                   | 11.3                                           | 7.2                   | 10.7                                           | 5.1                   |
| Kangayam ..    | 21.7                                | 13.1                            | 31,537.0                                   | 6.6                                            | 4.0                   | 6.4                                            | 3.0                   |
| Sahiwal ..     | 2.0                                 | 0.7                             | 2,637.0                                    | 10.3                                           | 3.6                   | 11.2                                           | 7.9                   |
| Cross breed .. | 6.1                                 | 3.9                             | 16,147.0                                   | 11.3                                           | 7.3                   | 12.8                                           | 9.2                   |

(d) *Reasons for yield variations*.—(i) The increase in milk yield shown against the Scindhi and Kangayam animals was due to the more number of milch cows in the herds during the year as compared with that of last year.

(ii) The decrease in respect of the cross-bred herd was due to the animals having become older and the lack of fresh replacements during the year.

(iii) The decrease in milk yield of the Sahiwal herd was due to the less number of milch cows during the year as compared with that of last year.

(e) Particulars of some of the good performers which completed their lactation periods during the period are given below for each breed :—

| Breed.        | Cow number. | Milk yield in lbs. | Number of days in milk. | Daily average for the lactation in lbs. |
|---------------|-------------|--------------------|-------------------------|-----------------------------------------|
| (1)           | (2)         | (3)                | (4)                     | (5)                                     |
| Scindhi ..    | 528         | 6,483.5            | 374                     | 17.3                                    |
| Do. ..        | 569         | 4,063.0            | 299                     | 13.6                                    |
| Do. ..        | 604         | 4,527.5            | 336                     | 13.5                                    |
| Kangayam ..   | 837         | 3,053.5            | 258                     | 11.8                                    |
| Cross bred .. | 44          | 5,234.5            | 327                     | 16.0                                    |

44. *District Livestock Farm, Orathanad*.—The District Livestock Farm, Orathanad, was taken over by Animal Husbandry Department on 16th June 1954 and declared open on the 25th July 1954 by Sri M. Bhakthavatsalam, Minister for Agriculture, Madras.

(a) *Strength*.—The farm was opened with a stock of 21 animals. There were 14 births, 136 receipts, 3 transfers, 7 deaths and one auction, thus leaving a total of 160 animals on 31st March 1955 as follows :—

Among the 136 receipts, 17 Umblacheri cows, 4 calves, 25 heifers, 2 breeding bulls and 8 work cattle were purchased. Besides, 29 Murrah buffalo cows with 21 calves were purchased from the Hindustan Livestock Agency, Madras. One Scindhi bull was received from Sri Rajarangam Pillai, Sengipatti Tuberculosis Sanatorium. The rest of the animals were received by transfers from the other sections of this department.

| Breed.              | Cows. | Heifers. | Young bulls. | Breeding bulls. | Calves. | Work cattle. | Total. |
|---------------------|-------|----------|--------------|-----------------|---------|--------------|--------|
| (1)                 | (2)   | (3)      | (4)          | (5)             | (6)     | (7)          | (8)    |
| Scindhi ..          | 10    | 5        | 11           | 1               | 4       | ..           | 31     |
| Kangayam ..         | ..    | ..       | ..           | ..              | ..      | 12           | 12     |
| Sahiwal ..          | ..    | ..       | 1            | ..              | ..      | ..           | 1      |
| Umblachery ..       | 16    | 25       | ..           | 1               | 17      | 8            | 67     |
| Murrah buffaloes .. | 29    | ..       | 1            | 1               | 18      | ..           | 49     |
| Total ..            | 55    | 30       | 13           | 3               | 39      | 20           | 160    |

(b) *Culling*.—Since the farm was started only recently and the foundation stock has been received gradually, no culling was taken up during this year.

(c) *Dairy*.—Particulars of milk yield, etc., for each breed are given below :—

| Breed.              | Average number of cows in the herd. | Average number of cows in milk. | Total milk yield during the period in lbs. | Daily average yield per cow in 1954-55 in lbs. |                       | Daily average yield per cow in 1953-54 in lbs. |                       |
|---------------------|-------------------------------------|---------------------------------|--------------------------------------------|------------------------------------------------|-----------------------|------------------------------------------------|-----------------------|
|                     |                                     |                                 |                                            | For cows in milk.                              | For cows in the herd. | For cows in milk.                              | For cows in the herd. |
| (1)                 | (2)                                 | (3)                             | (4)                                        | (5)                                            | (6)                   | (7)                                            | (8)                   |
| Scindhi ..          | 10.5                                | 8.7                             | 24,427.5                                   | 10.3                                           | 8.3                   | ..                                             | ..                    |
| Umblachery ..       | 20.0                                | 6.7                             | 2,506.0                                    | 3.8                                            | 1.0                   | ..                                             | ..                    |
| Murrah buffaloes .. | 17.3                                | 17.3                            | 51,853.5                                   | 16.2                                           | 16.2                  | ..                                             | ..                    |

(d) Particulars of some of the good performers that completed their lactations during the period are given below for each breed :—

| Breed.     | Cow number. | Milk yield in lbs. | Number of days in milk. | Daily average for the lactation. |
|------------|-------------|--------------------|-------------------------|----------------------------------|
|            |             | LB.                |                         | LB.                              |
| Scindhi .. | 599         | 5,402.5            | 417                     | 13.0                             |
| Do. ..     | 559         | 4,506.0            | 332                     | 13.6                             |

45. *General*.—(a) *Dairy*.—Rational system of maintaining averages and the working of the normal average for peak and other periods are already adopted in all the farms except for the new farms the Superintendents of which have already been instructed to follow the system and to work out the averages in their farms.

(b) *Systematised milk recording*.—The method of recording milk yields has been arrived at after a series of experiments in many farms in the country. The conclusion arrived at is that recording at weekly intervals is satisfactory. In the livestock farms once in a week all the milking cows were milked completely and the yields recorded. The weekly totals were calculated on the basis of the full milking day yields of the cows.

46. *Mortality in all farms*.—(a) There was a total mortality of only 74 animals in all the farms during the period under report as against 111 of the previous year. Moreover the mortality figures for this year represent those of 5 farms as against that of 4 farms of last year.

(b) The percentages of mortality in the various farms were as follows :—

|                                                  | 1954-55. | 1953-54. |
|--------------------------------------------------|----------|----------|
| Livestock Research Station, Hosur Cattle Farm .. | 1.6      | 2.5      |
| District Livestock Farm, South Kanara ..         | 9.2      | 13.6     |
| District Livestock Farm, Malabar ..              | ..       | 11.0     |
| District Livestock Farm, Pudukkottai ..          | 3.3      | 2.4      |
| District Livestock Farm, Orathanad ..            | 4.1      | ..       |

(i) The mortality percentage at the Hosur Cattle Farm was normal and less than that of last year.

(ii) In the District Livestock Farm, South Kanara, there was appreciable reduction in the total mortality percentage during the year.

The problem of control of mortality in young stock of buffaloes was studied at the District Livestock Farm, South Kanara, in detail. Buffalo calf mortality is a problem everywhere. This farm presents an additional problem as the climate is of a peculiar nature unnoticed elsewhere. It is gratifying to record that the measures adopted gave encouraging results in that the mortality among young stock of buffaloes was reduced to about 5 per cent of the stock as against 31.6 of the previous year. The studies undertaken so far have revealed certain phenomena that will go a long way in the adoption of prophylactic measures to control buffalo calf mortality in general, even though it is considered too early to draw any definite inference at this stage.

(iii) It is notable that there was no mortality in the District Livestock Farm, Malabar, during the year.

(iv) The mortality percentage was not high in the District Livestock Farm, Pudukkottai. There is only a slight variation when compared to last year.

(v) The mortality percentage was not high in the District Livestock Farm, Orathanad.

#### SEASON AND CROP.

47. *Livestock Research Station, Hosur Cattle Farm*—(i) *Rainfall*.—The total rainfall received during the year was 33.76 distributed over 69 days. The summer showers were not satisfactory. In May there were heavy showers which were of great handicap in preparing the lands for sowing, but the tanks got an appreciable quantity of water. Due to late rains no silage could be made and hay making was started on 5th December 1954.

(ii) *Pasture and cultivation*.—A total of 530.23 acres were reserved for hay making and 414.68 acres were left for grazing. The major portions of the pastures continued to be under spear grass. A total acreage of 108.25 of pasture land was broken up and ragi was sown in this area along with cholam as an experimental measure. Lab lab was also sown in rows along with cholam in three paddocks. Guinea grass, Kolukattai grass, buffalo grass and Rhodes grass were the other important grasses sown in about 29 acres. Cultivation was also undertaken in garden lands. The particulars of area harvested, yield, etc., are given below :—

| Name of crop.    | Area cultivated in acres. | Green fodder straw, etc., in lbs. | Grains, seeds, etc., in lbs. |
|------------------|---------------------------|-----------------------------------|------------------------------|
| Cholam           | 38.62                     | 546,891                           | 11,938                       |
| Ragi             | 115.04                    | 262,173                           | 14,542                       |
| Lab lab          | 7.79                      | 13,278                            | 628                          |
| Guinea grass     | 24.67                     | 420,187                           | 42                           |
| Buffalo grass    | 3.62                      | 121,182                           | ..                           |
| Kolukattai grass | 1.40                      | 5,667                             | ..                           |
|                  | 4.00                      | ..                                | Allowed to seed.             |
| Mixed grass      | 58.00                     | 741,643                           | ..                           |
| Spear grass      | 530.23                    | 740,554                           | ..                           |
| Australian grass | 1.45                      | 18,198                            | 46                           |
| Berseem          | 7.12                      | 191,759                           | 128                          |
| Maize            | 12.11                     | 115,081                           | 8,197                        |
| Teosinte         | 12.81                     | 295,874                           | 1,230                        |
| Napier grass     | 2.90                      | 77,825                            | ..                           |

| Name of crop.                  | Area cultivated in acres. | Green fodder straw etc., in lbs. | Grains, seeds, etc., in lbs. |
|--------------------------------|---------------------------|----------------------------------|------------------------------|
| Rhodes grass                   | 2.97                      | 105,971                          | ..                           |
| Lucerne                        | 6.75                      | 210,368                          | ..                           |
| Sunn hemp                      | 1.00                      | 10,064                           | ..                           |
| Maize (irrigated)              | 3.71                      | 65,358                           | ..                           |
| Sweet potato vines             | 1.00                      | 13,046                           | ..                           |
| Paddy (first and second crops) | 3.50                      | 8,690                            | 13,087                       |
| Wheat and oats                 | 0.40                      | 839                              | 232                          |
| Ragi bhoosa                    | 11.43                     | 3,900                            | ..                           |
| Horsegram bhoosa               | 0.75                      | 536                              | ..                           |
| Dewgram and pillipesara        | 1.00                      | 5,754                            | 26                           |
| Irrigated ragi                 | 1.90                      | ..                               | 6,314                        |
| Greengram                      | 0.75                      | ..                               | 168                          |
| Horsegram                      | 11.11                     | ..                               | 3,297                        |

(iii) *Hay making*.—Due to late rains hay making operations were started on 5th December 1954 and continued till the end of January 1955 and the growth was poor. The number of stacks put up during the year was 11 and 740,554 lb. of hay were realized including loose hay thus giving an yield of 1,397 lb. per acre.

(iv) *Silage making*—(a) *Silage from pastures*.—One silo pit was filled with 12,853 lb. of Guinea grass and the other pit with Guinea grass, Mixed grass, Napier grass and Australian grass, the total quantity ensiled being 105,454 lb. The total quantity ensiled for both the pits was 118,307 lb.

(b) *Silage from garden lands*.—Two silo pits were filled up with Teosinte and cholam the total quantity ensiled being 537,020 lb.

(v) *Fodder position*.—The total quantity of green fodder issued during the year was 4,624,434 lb. As there were good irrigation facilities the green fodder supply was maintained to the milch animals to the end of the year. This farm was self-sufficient with regard to fodder requirements and no fodder was purchased during the year for the animals.

48. *District Livestock Farm, South Kanara*—(i) *Rainfall*.—There was a total rainfall of 181.80 inches spread over 141 days. The south-west monsoon vested, yield, etc., are given below :—

(ii) *Pasture and cultivation*.—The total area under pasture was 437.63 acres and 21.97 acres were under irrigated crops. Particulars of area harvested, yield, etc., are given below :—

| Name of crop. | Area cultivated in acres. | Total yield.                      |                |
|---------------|---------------------------|-----------------------------------|----------------|
|               |                           | Green fodder straw, etc., in lbs. | Grains in lbs. |
| Guinea grass  | 10.63                     | 300,000                           | ..             |
| Sunn hemp     | 3.45                      | 11,640                            | ..             |
| Teosinte      | 2.0                       | 19,240                            | ..             |
| Paddy         | 7.50                      | 13,200                            | 10,990         |
| Horsegram     | 9.0                       | 7,000                             | 421            |
| Buffalo grass | 0.02                      | 400                               | ..             |
| Hay           | 427.0                     | 478,000                           | ..             |

(iii) *Hay making*.—A portion of pasture grass was converted into hay and stacked in 7 stacks estimated to contain a total of 437,748 lb. of hay. Besides 40,652 lb. of loose hay was fed direct to cattle without stacking during hay making operations. The average yield of hay per acre was 1,120 lb.

A.H.A.B.—4-A.

(iv) *Silage making*.—A total of 518,200 lb. of green grass comprising of Napier grass, Guinea grass and pasture grass was ensiled in six silos during the year.

(v) *Fodder position*.—This farm was self-sufficient as far as its fodder requirements were concerned and no fodder was purchased during the year.

49. *District Livestock Farm, Malabar*—(i) *Rainfall*.—There was a total rainfall of 118.46 inches in 142 days. The rainfall was well distributed.

(ii) *Pasture and cultivation*.—The total area under pasture was 80.26 acres of which 50.0 acres were reserved for hay making. The total area under irrigated garden lands was 3.92 acres and the area under non-irrigated garden lands was about 66 acres. Altogether 7.74 acres of land was cleared during the year for future cultivation.

Particulars of crops harvested during the period are as follows:—

| Name of crop                                         | Area cultivated in acres. | Total yield    |       | Grains in lb. |
|------------------------------------------------------|---------------------------|----------------|-------|---------------|
|                                                      |                           | Fodder in lbs. |       |               |
| Guinea grass .. .. .                                 | 14.42                     | 453,382        | ..    |               |
| Elephant grass .. .. .                               | 1.00                      | 45,886         | ..    |               |
| Buffalo grass .. .. .                                | 2.60                      | 101,162        | ..    |               |
| Odion grass .. .. .                                  | 0.70                      | 24,170         | ..    |               |
| Korai grass .. .. .                                  | 0.32                      | 10,639         | ..    |               |
| Koduzuvine .. .. .                                   | 0.05                      | 770            | ..    |               |
| Thin Napier grass .. .. .                            | 0.35                      | 8,590          | ..    |               |
| Ragi .. .. .                                         | 2.00                      | ..             | 305   |               |
| Cholam .. .. .                                       | 8.50                      | 100,148        | ..    |               |
| Teosinte and cowpea .. .. .                          | 20.31                     | 259,930        | ..    |               |
| Teosinte and kolukattai .. .. .                      | 6.00                      | 69,765         | ..    |               |
| Teosinte .. .. .                                     | 5.50                      | ..             | 1,236 |               |
| Guinea grass Koduzuvine and Napier grass from bunds. | ..                        | 166,713        | ..    |               |
| Kolukattai grass .. .. .                             | 8.95                      | 33,278         | ..    |               |
| Spear grass .. .. .                                  | 61.25                     | 184,222        | ..    |               |
| Rhodes grass .. .. .                                 | 0.10                      | 550            | ..    |               |
| Ordinary grass .. .. .                               | ..                        | 173,193        | ..    |               |

(iii) *Hay making*.—A total of 5 hay stacks containing about 150,000 lb. of hay were put up during the year from 50 acres of spear grass pasture. The average yield of hay per acre was 2,909 lb.

(iv) *Silage making*.—An approximate quantity of 327,450 lb. of green fodder was ensiled in 5 pits and it is expected to produce about 200,880 lb. of silage.

(v) *Fodder position*.—No fodder was purchased during the year. The farm was on the border line of self-sufficiency as far as fodder position was concerned.

50. *District Livestock Farm, Pudukkottai*—(i) *Rainfall*.—There was a total rainfall of 43.21 inches, received during 71 rainy days.

(ii) *Pasture and cultivation*.—There was no area under pasture in this farm. The farm has got a total extent of 6.28 acres for fodder production. The following quantities of green fodder were produced during the year:—

| Name of crop.                                                                      | Quantity in lbs. |
|------------------------------------------------------------------------------------|------------------|
| Guinea grass .. .. .                                                               | 2,58,737         |
| Rhodes grass .. .. .                                                               | 54,208           |
| Buffalo grass .. .. .                                                              | 44,025           |
| Napier grass .. .. .                                                               | 7,548            |
| Guinea, Buffalo, and Hariyali grasses harvested from bunds, channels, etc. .. .. . | 40,644           |
| Total .. .. .                                                                      | 4,05,162         |

(iii) *Fodder position*.—The quantity and value of fodder purchased are shown below:—

| Kind of fodder.     | Quantity. | Amount. |       |
|---------------------|-----------|---------|-------|
|                     |           | RS.     | A. P. |
| Paddy straw .. .. . | 2,80,200  | 5,425   | 4 0   |

The farm was not self-sufficient in respect of fodder requirements. This was because the area of the farm was only 9.26 acres, whereas the strength of cattle stationed at the farm was 154.

51. *District Livestock Farm, Orathanad*—(i) *Rainfall*.—The south-west monsoon was normal. The north-east monsoon was also normal, but the rainfall was not properly distributed. The total rainfall was 25.50 inches received in 33 rainy days.

(ii) *Pasture and cultivation*.—An area of 100 acres under the shade of mango trees was used as pasture. The total area used for grazing was 75 acres and 25 acres of scrub jungle are being cleared. The total area under irrigated crops was 77.80 acres and under rain-fed crops 37.50 acres.

The following crops were cultivated during the year and the yields were as shown below:—

| Name of crop.                    | Area in acres. | Yield in lbs. |
|----------------------------------|----------------|---------------|
| Paddy .. .. .                    | 66.5           | 1,21,446      |
| Ragi .. .. .                     | 1.34           | 755           |
| Sweet potato and tapioca .. .. . | 0.3            | ..            |
| Daincha .. .. .                  | 5.0            | ..            |
| Pulses .. .. .                   | 2.50           | ..            |
| Linseed .. .. .                  | 0.5            | 10            |
| Guinea grass .. .. .             | 5.0            | 19,151        |
| Elephant grass .. .. .           | 4.0            | 9,644         |
| Buffalo grass .. .. .            | 0.50           | 2,505         |
| Fodder cholam .. .. .            | 6.9            | 67,686        |
| Maize .. .. .                    | 5.9            | 32,375        |
| Teosinte .. .. .                 | 0.85           | 22,715        |

(iii) *Fodder position*.—A total quantity of 3,03,076 lbs. of fodder was produced in the farm. Altogether 34,650 lbs. of paddy straw was purchased during the year. The farm was in the making during the year and was not in full production.

52. *Receipts and charges.*—(a) The receipts and charges for the year of the Livestock Research Station, Hosur Cattle Farm and the District Livestock Farms are given below :—

|                                                    | Receipts. |    |    | Expenditure. |    |    |
|----------------------------------------------------|-----------|----|----|--------------|----|----|
|                                                    | RS.       | A. | P. | RS.          | A. | P. |
| (i) Livestock Research Station, Hosur Cattle Farm. | 2,54,255  | 4  | 7  | 4,46,924     | 1  | 1  |
| (ii) District Livestock Farm, South Kanara.        | 70,406    | 11 | 9  | 1,30,361     | 10 | 10 |
| (iii) District Livestock Farm, Malabar.            | 29,472    | 8  | 9  | 97,025       | 4  | 3  |
| (iv) District Livestock Farm, Pudukkottai.         | 20,817    | 6  | 0  | 68,118       | 14 | 0  |
| (v) District Livestock Farm, Orathanad.            | 15,863    | 7  | 0  | 1,43,336     | 2  | 0  |
| Total ..                                           | 3,90,815  | 6  | 1  | 8,85,766     | 0  | 2  |

(b) *Reasons for variations.*—(i) The increase in expenditure during the year in the Livestock Research Station, Hosur, was due to the increased activities of the farm. The increase in receipts was mainly due to the sale of a fair number of breeding bulls, and due to the realization of the cost of the breeding bulls, for issue under the male stock distribution scheme.

(ii) Notwithstanding the fact that during the year under report the total strength of livestock maintained in the District Livestock Farm, South Kanara, had increased, the expenditure came down this year. Even though the selling price of milk in force this year was less than that of the previous year the receipts had increased.

(iii) There was a decrease in the expenditure in the District Livestock Farm, Malabar, this year due to the reduced cost of cattle food and the strict economy maintained.

The total receipts were more this year when compared to that of last year mainly due to the amount realized by the auction sale of trees.

(iv) The expenditure was approximately the same as that of last year in the District Livestock Farm, Pudukkottai.

The increase in revenue was due to the increased production of milk during the year and increase in the rate of milk sold to staff.

53. The maintenance of these farms are for (a) production of pure-bred bulls for breeding purposes, (b) conducting research on increasing the milk yield and (c) for the improvement of the cattle wealth of the State by selective breeding.

54. *Livestock Research Station, Hosur Cattle Farm.*—Receipts by sale of cattle and cattle products is Rs. 1,56,720-8-4.

Expenditure on maintenance of cattle, Rs. 2,61,565-11-5.

(i) The chief object of the farm is to raise a pure stock of pedigree stud bulls and make them available for distribution throughout the State to improve the indigenous village stock by grading.

(ii) Out of the total quantity of 3,94,127 lbs. of milk received, a quantity of 1,16,887 lbs. were sold and the balance separated and sold as butter or ghee the skimmed milk being fed to calves.

(iii) The farm issued 110 bulls during the year as against 49 bulls during last year.

(iv) At the close of the year there were 250 young bulls as follows :—

|                |           |
|----------------|-----------|
| Scindhi        | 107       |
| Gir            | 43        |
| Kangayam       | 82        |
| Cross-bred     | 16        |
| Murrah buffalo | 2         |
|                | <hr/> 250 |

These bulls will be distributed to the districts for breeding work, as soon as they are ready for service.

55. *District Livestock Farm, South Kanara.*—Receipts by sale of cattle and cattle products, Rs. 67,961-2-9.

Expenditure on maintenance of cattle, Rs. 78,078-13-4.

(i) The farm is situated at a distance of 38 miles from the Mangalore Railway station and continued to supply milk to the public of Mangalore.

(ii) Murrah buffalo and Scindhi animals were maintained in the farm with the object of stock multiplication for the issue of pedigree stud bulls in the area. Gir cattle were also maintained to a limited extent for studies regarding the suitability of the breed for the area. Dharwar and local cattle were maintained for experimental purposes.

(iii) Out of a total quantity of 2,11,284.5 lbs. of milk received, a quantity of 1,92,112 lbs. were sold and the balance separated, fed to calves, etc.

(iv) The farm issued 18 bulls during the year as against two of last year.

(v) At the close of the year there were 39 young bulls as follows :—

|         |          |
|---------|----------|
| Murrah  | 18       |
| Dharwar | 1        |
| Scindhi | 18       |
| Gir     | 7        |
|         | <hr/> 39 |

56. *District Livestock Farm, Malabar.*—Receipts by sale of cattle and cattle products, Rs. 16,607-5-6.

Expenditure on maintenance of cattle, Rs. 44,866-6-3.

(i) The farm is situated at the foot of the Western Ghats.

(ii) The main object of the farm is to produce pedigree bulls for supply in the districts. The approach road to connect this farm with the main road was constructed by the Public Works Department during this year. The road and bridge were declared open by the Hon'ble Minister for Agriculture, Government of Madras, on 6th January 1955. The officers and staff were not provided with residential accommodation in the farm and the livestock were housed in temporary and semi-permanent sheds. Dharwar, Murrah and Scindhi breeds of cattle were maintained in the farm.

(iii) Out of a total quantity of 1,01,930.75 lbs. of milk received a quantity of 67,900.5 lbs. was sold and the balance separated, fed to calves, etc.

(iv) The farm issued 10 bulls during the year as against 9 bulls of last year.

(v) There were 17 young bulls at the close of the year—

|         |     |     |     |     |     |     |     |    |
|---------|-----|-----|-----|-----|-----|-----|-----|----|
| Murrah  | ... | ... | ... | ... | ... | ... | ... | 15 |
| Scindhi | ... | ... | ... | ... | ... | ... | ... | 2  |
|         |     |     |     |     |     |     |     | 17 |

57. *District Livestock Farm, Pudukkottai.*—Receipts by sale of cattle and cattle products, Rs. 20,113-15-3.

Expenditure on maintenance of cattle, Rs. 43,067-4-7.

The object of the farm is to run a small-scale dairy farm in addition to doing breeding work.

(i) The farm is situated within the limits of Pudukkottai town on a site measuring 9-26 acres.

(ii) As soon as the farm is extended by acquiring the necessary forest area the dry stock will be moved to the forest area and the present town farm will constitute the dairy.

(iii) Out of a total quantity 84,471-5 lb. of milk received 57,088-5 lb. were sold and the balance separated, fed to calves, etc.

(iv) The farm issued 7 bulls during this year as against 1 bull of last year.

(v) There were 26 young bulls at the close of the year as detailed below :—

|            |     |     |     |     |     |     |     |    |
|------------|-----|-----|-----|-----|-----|-----|-----|----|
| Scindhi    | ... | ... | ... | ... | ... | ... | ... | 6  |
| Kangayam   | ... | ... | ... | ... | ... | ... | ... | 18 |
| Cross-bred | ... | ... | ... | ... | ... | ... | ... | 2  |
|            |     |     |     |     |     |     |     | 26 |

58. *District Livestock Farm, Orathanad.*—Receipts by sale of cattle and cattle products, Rs. 10,923-5-6.

Expenditure on maintenance of cattle, Rs. 23,020-6-11.

(i) The farm is situated in the taluk of Orathanad, 14 miles from Tanjore, and was taken over by the department on 16th June 1954. It had previously belonged to the Rajahs Endowment.

(ii) This farm was opened in order to improve the local stock both in respect of breed and milch capacity.

(iii) Out of a total quantity of 78,787 lb. of milk received during the period 60,622 lb. were sold and the balance separated, fed to calves, etc.

(iv) There were 13 young bulls at the close of the year as shown below :—

|         |     |     |     |     |     |     |     |    |
|---------|-----|-----|-----|-----|-----|-----|-----|----|
| Scindhi | ... | ... | ... | ... | ... | ... | ... | 11 |
| Sahiwal | ... | ... | ... | ... | ... | ... | ... | 1  |
| Murrah  | ... | ... | ... | ... | ... | ... | ... | 1  |
|         |     |     |     |     |     |     |     | 13 |

59. *Cattle improvement and development.*—(a) The details of bulls issued from the farm for breeding purposes are given below :—

| Name of the farm.                                 | Number of bulls issued. |
|---------------------------------------------------|-------------------------|
| (i) Livestock Research Station, Hosur Cattle Farm | 110                     |
| (ii) District Livestock Farm, South Kanara        | 18                      |
| (iii) District Livestock Farm, Malabar            | 10                      |
| (iv) District Livestock Farm, Pudukkottai         | 7                       |
| (v) District Livestock Farm, Orathanad            | ..                      |

(b) It is noteworthy that all the farms issued more number of bulls this year compared to last year and as many as 145 bulls were issued during the year.

60. *Kangayam Cattle Improvement Scheme.*—(a) This Indian Council of Agricultural Research Scheme has been functioning at Palayakottai Farm from 31st July 1942 and continued till 31st March 1954 as per the programme. It has been extended for a further period of three years from the latter date and is scheduled to terminate on 31st March 1957 as per the programme. It is now run by the combined efforts of the Indian Council of Agricultural Research and the Madras Government.

(b) The object of the scheme is to improve the milking qualities of the Kangayam cows without impairing the draught qualities of the males by selective breeding, and balanced feeding and management.

(c) *Strength.*—The strength of livestock as on 1st April 1954 and 31st March 1955 is detailed below :—

| Particulars of stocks.           | Strength           |                     |
|----------------------------------|--------------------|---------------------|
|                                  | on 1st April 1954. | on 31st March 1955. |
| Cows in milk                     | 64                 | 67                  |
| Dry and nearing parturition cows | 41                 | 58                  |
| Heifers over one year old        | 60                 | 72                  |
| Bulls over one year old          | 67                 | 78                  |
| Heifer calves below one year old | 34                 | 40                  |
| Bull calves below one year old   | 54                 | 43                  |
| Bullocks                         | 66                 | 75                  |
| Breeding bulls                   | 4                  | 3                   |
| Total                            | 390                | 436                 |

The increase in strength was due to births. No animals were culled out during the year.

(d) *Culling.*—As per the conditions of scheme no female stock should be culled out unless she has completed at least one lactation.

(e) *Milk yield.*—There were on an average 62-3 cows in milk and they yielded 10,377 lbs. of milk with a daily individual average of 5-5 lbs. as against 5 lb. of the previous year. This shows an increase in the daily individual average which was due to favourable conditions.

(f) *Calvings.*—There were 89 births during the year out of which 45 were bull calves and 44 heifer calves. Among these there were 3 deformed bull calves and one still-born heifer calf. The rest of the births were normal.

Particulars of birth weights of calves are given below :—

| Details.                                      | 1954-55.       | 1953-54.       |
|-----------------------------------------------|----------------|----------------|
|                                               | LBS.           | LBS.           |
| Average birth weight of a calf .. .. .        | 44.4           | 43.4           |
| Average birth weight of a bull calf .. .. .   | 46.7           | 44.5           |
| Average birth weight of a heifer calf .. .. . | 45.2           | 42.0           |
| Maximum birth weight of a calf .. .. .        | 57.0<br>(bull) | 55.0<br>(bull) |
| Minimum birth weight of a calf .. .. .        | 32<br>(bull)   | 22<br>(heifer) |

(g) *Experimental work.*—Particulars regarding the milk yield of cows, fat content in milk, and pedigree records were being maintained. Udders of pregnant heifers were massaged about 6 to 8 weeks before calving with a view to stimulate the milk secretion and to ward off the nervousness of the animals when they come into lactation keeping a control for each of the selected animals at the same time. The birth weight of calves was recorded and the calves were also weighed every fortnight with a view to study the rate of growth.

(h) *Testing the animals for draught capacity.*—This item of work was entrusted to a committee of local experts after general discussion with the Animal Husbandry Commissioner with the Government of India. The Committee comprises of the Pattagar of Palayakottai and three non-official members, with the Deputy Director of Animal Husbandry (Livestock) and the Superintendent, Kangayam Cattle Improvement Scheme, as official members. Periodical meetings of the Committee were held and their opinions were recorded regarding the draught capacity of bullocks included in the scheme in respect of ploughing fields, mhothe work, and dragging loads. It was only a rough test and from the observations made so far there was no difference found in the working ability between the bullocks descending from high milk yielding dams and low milk yielding dams. If some mechanical contrivance is made available more authentic information can be collected.

(i) *Fodder grown.*—There are no lands for this purpose but the Pattagar of Palayakottai in whose farm the scheme is being run grows fodder crops such as paddy and the fodder is used as cattle feed. Sufficient number of acres have been allotted under pastures for rotational grazing.

61. *Schemes for the salvage of dry cows.*—(a) The farm is situated at about 54 miles from Madras in Ponneri taluk of Chingleput district. This farm is maintained for the salvage of dry cows from the Madras City. The long-felt need to provide facilities for transporting the calved cows from the farm was fulfilled during the year by way of purchase of a cattle truck for the purpose.

(b) *Strength.*—There were 228 cows on 1st April 1954 and 197 on 31st March 1955. Particulars of cows admitted, etc., are given below :—

| Details.                                              | 1954-55. | 1953-54. |
|-------------------------------------------------------|----------|----------|
|                                                       |          |          |
| Number of cows on hand on 1st April .. .. .           | 228      | 247      |
| Number of cows admitted during the year .. .. .       | 233      | 274      |
| Number of cows returned after calving .. .. .         | 195      | 190      |
| Number of cows returned before calving<br>(pregnant). | 24       | 55       |
| Number of cows returned as unfit for salvage .. .. .  | 36       | 30       |
| Number of cows that died .. .. .                      | 9        | 9        |
| Number of cows on hand at the end of the year .. .. . | 197      | 228      |

The average period of stay of an animal in the Farm was 315 days during the year.

(c) *Breeding bulls.*—There were 4 Ongole, 2 Scindhi and 1 Gir bull at the beginning of the year. During the course of this year 1 Gir bull was transferred to the Farm and it died at the Farm. One Ongole bull and one Scindhi bull were transferred out of the Farm. There were 3 Ongole, 1 Scindhi and 1 Gir bull at the end of the year. The total number of services performed by the bulls during the year was 341.

(d) *Agricultural operations : Pastures, etc.*—(i) *Rainfall.*—There were fairly heavy rains during the year and grazing conditions at the Kancha were satisfactory.

(ii) *Fodder crops.*—Actually only 12.48 acres were available for raising of fodder crops.

| Crops grown.                               | Area in acres. | Yield in |       |
|--------------------------------------------|----------------|----------|-------|
|                                            |                | Tons.    | Lbs.  |
| Australian drought resistant grass .. .. . | 1.90           | 19       | 1,633 |
| Fodder cholam .. .. .                      | 9.58           | 36       | 2,039 |
| Horsegram .. .. .                          | 1.00           | ..       | 212   |

(e) *Silage making.*—A total quantity of 31 tons 316 lbs. of fodder cholam were ensiled during the year.

(f) *Receipts and Expenditure.*—

|                                              | RS.    | A. | P. |
|----------------------------------------------|--------|----|----|
| Total receipts .. .. .                       | 26,446 | 10 | 0  |
| Total expenditure .. .. .                    | 73,224 | 11 | 9  |
| Expenditure on maintenance of cattle .. .. . | 15,793 | 14 | 11 |

62. *Salvage Farms run by Co-operative Unions, etc.*—(a) In Malabar district two Salvage Farms one by the Co-operative Milk Supply Union, Kozhikode at Chathamangalam and the other by the Society for Prevention of Cruelty to Animals, Tellicherry at Ayithera were being maintained.

(i) *Chathamangalam Farm.*—The area of the Farm is 59.42 acres and fodder crops in about 8 acres and paddy in about 4 acres were grown. About 50 animals were maintained in the Farm.

(ii) *Ayithera Farm.*—This farm had acquired a site measuring about 30 acres with a cattle shed for 36 animals besides grazing rights over 22 acres of land in an adjacent plot. About 19 animals were maintained in the Farm.

63. *Artificial Insemination.*—(a) At the beginning of the year 4 Artificial Insemination Centres at Madurai, Coimbatore, Ootacamund and Madras were functioning. A scheme for the cross-breeding of the cattle sponsored by the Indian Council of Agricultural Research was introduced from 20th January 1955 at Ootacamund and the State Artificial Insemination Centre was closed down on 19th January 1955 at Ootacamund and transferred to Tiruchirappalli. It started functioning at Tiruchirappalli from 26th January 1955. Under the scheme of extension of Artificial Insemination 3 more Veterinary and Livestock Inspectors for the Madras Centre and 2 Veterinary and Livestock Inspectors and 2 Van messengers for the Coimbatore Centre were sanctioned and the posts were duly filled up. The post of Stockman Compounder at Coimbatore was converted into that of a Veterinary and Livestock Inspector.

(b) *Buildings.*—(i) The Artificial Insemination Centre, Coimbatore was occupying the new building modified by the conversion of 3 horse stables at the Veterinary Hospital, Coimbatore.

(ii) The Artificial Insemination Centre, Madurai was shifted from the Tallakulam Veterinary Hospital to the new building constructed with the aid of the Local Development Scheme fund of the Collector of Madurai and the donation by the Local Society for the Prevention of Cruelty to Animals, in April 1954.

(iii) The Artificial Insemination Centre, Tiruchirappalli is located in the isolation shed of Veterinary Hospital, Tiruchirappalli.

(iv) The other centres continued in their old places.

(c) The details of bulls maintained and the work turned out at all the artificial insemination centres during 1954-55 are as follows:—

| Name of the centre.                                                                                                     | Number of bulls maintained under each breed. |                                      |                                 |                             |                                    |                   | Number of collections made. |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------|---------------------------------|-----------------------------|------------------------------------|-------------------|-----------------------------|
|                                                                                                                         | Jerry.                                       | Ongole.                              | Schin. l.                       | Kangayam.                   | Murrah.                            | Holstein Fresian. |                             |
| (1)                                                                                                                     | (2)                                          | (3)                                  | (4)                             | (5)                         | (6)                                | (7)               | (8)                         |
| Artificial Insemination Centre, Madras.                                                                                 | ..                                           | 2                                    | 2                               | ..                          | 3                                  | 1                 | 309                         |
| Artificial Insemination Centre, Madurai.                                                                                | ..                                           | ..                                   | 3                               | 1                           | 3                                  | ..                | 310                         |
| Artificial Insemination Centre, Coimbatore.                                                                             | ..                                           | ..                                   | 4                               | 1                           | 1                                  | ..                | 370                         |
| Artificial Insemination Centre, Ootacamund (till 19th January 1955).                                                    | 1                                            | ..                                   | 1                               | ..                          | 1                                  | 1                 | 171                         |
| Artificial Insemination Centre, Tiruchirappalli (transferred from Ootacamund, inseminations started during March 1955). | ..                                           | ..                                   | 2                               | 1                           | 1                                  | ..                | 6                           |
| Total ..                                                                                                                | 1                                            | 1                                    | 1                               | 1                           | 1                                  | 1                 | 1,166                       |
|                                                                                                                         | Number of inseminations carried out.         | Rate of insemination per collection. | Number of pregnancies verified. | Number of calves inspected. | Number of sterility cases handled. | Remarks.          |                             |
| (9)                                                                                                                     | (10)                                         | (11)                                 | (12)                            | (13)                        | (14)                               |                   |                             |
| Artificial Insemination Centre, Madras.                                                                                 | 3,783                                        | 12.37                                | 989                             | 201                         | ..                                 | ..                |                             |
| Artificial Insemination Centre, Madurai.                                                                                | 1,563                                        | 5.04                                 | 640                             | 205                         | 24                                 | ..                |                             |
| Artificial Insemination Centre, Coimbatore.                                                                             | 6,770                                        | 18.29                                | 1,742                           | 1,001                       | 11                                 | ..                |                             |
| Artificial Insemination Centre, Ootacamund (till 19th January 1955).                                                    | 1,223                                        | 7.15                                 | 571                             | 244                         | 62                                 | ..                |                             |
| Artificial Insemination Centre, Tiruchirappalli (Transferred from Ootacamund, inseminations started during March 1955). | 24                                           | 4.00                                 | ..                              | ..                          | ..                                 | ..                |                             |
| Total ..                                                                                                                | 13,368                                       | 11.40                                | 3,942                           | 1,711                       | 97                                 | ..                |                             |

(d) *Re-inseminations.*—About 15 to 30 per cent of the inseminated animals came up for re-insemination at the various centres. Many owners of cows which did not conceive by natural service came forward to have their cows inseminated and many cows were inseminated successfully infusing confidence in the minds of the public.

(e) *Experimental work: Semen studies.*—By the study of a number of samples it was found that the sperms in an average sample of semen preserved with egg yolk citrate dilutor were active till about the fifth day of collection after which they began to decline in motility. It was observed that both the quality and quantity of semen and its keeping qualities, of the Holstein Fresian bull were far from satisfactory. Most of the samples of semen were utilized within 72 hours as a routine at the various centres.

(f) *Sterility cases.*—A routine examination of the cows brought for Artificial Insemination was carried out and it was observed that Granular Vaginitis, Endometritis Pyometra and Cystic Ovaries were mainly responsible for the large percentage of non-conception among the cows. Whenever such cases were met with, the owners were advised to undertake suitable treatment at the nearest Veterinary Institution. The total number of cases of infertility handled during the period was 97.

(g) *General.*—The technique of Artificial Insemination is becoming more and more popular and there is great demand for opening more Centres, in the various districts. Proposals have been submitted to open Artificial Insemination Centres at all District Headquarters and the Government have sanctioned the opening of Centres at Salem, Erode and Malabar during the year 1955-56. The work turned out during the period was quite satisfactory.

64. *Key Village Scheme*—(a) *Key Village Centres.*—There were 7 Key Village Centres at the beginning of the year. Two more centres at Thoppampatti and Chikkanapuram were opened in February 1955. At the end of the year there were 9 centres as detailed below:—

| Name of key village (Artificial Insemination Centre). | Breeding tract.  | Number of key villages attached to the centre. |
|-------------------------------------------------------|------------------|------------------------------------------------|
| (1)                                                   | (2)              | (3)                                            |
| (i) Vellakoil .. .. .                                 | Kangayam .. .. . | 4                                              |
| (ii) Kangayam .. .. .                                 | Kangayam .. .. . | 4                                              |
| (iii) Anamalai (Cinchona) .. .. .                     | Scindhi .. .. .  | 4                                              |
| (iv) Anamalai (Malayandipatnam) .. .. .               | Kangayam .. .. . | 4                                              |
| (v) Livestock Research Station, Hosur Cattle Farm.    | Hallikar .. .. . | 4                                              |
| (vi) Mulanur .. .. .                                  | Kangayam .. .. . | 4                                              |
| (vii) Sankarandampalayam .. .. .                      | Kangayam .. .. . | 4                                              |
| (viii) Thoppampatti .. .. .                           | Kangayam .. .. . | 4                                              |
| (ix) Chikkanapuram .. .. .                            | Kangayam .. .. . | 4                                              |

(b) The following table gives the details of work done at the Key Village Centres:—

| Name of key village (Artificial Insemination Centre). | Number of bulls in the Centre and Key Villages. | Number of semen collections made. | Number of inseminations done. | Number of natural services performed. |
|-------------------------------------------------------|-------------------------------------------------|-----------------------------------|-------------------------------|---------------------------------------|
| (1)                                                   | (2)                                             | (3)                               | (4)                           | (5)                                   |
| (i) Vellakoil .. .. .                                 | 10                                              | 477                               | 3,093                         | 310                                   |
| (ii) Kangayam .. .. .                                 | 7                                               | 391                               | 3,904                         | 193                                   |
|                                                       | 1 Murrah                                        | 136                               | 469                           | ..                                    |
| (iii) Anamalai (Cinchona) .. .. .                     | 11                                              | 183                               | 373                           | 228                                   |
| (iv) Anamalai (Malayandipatnam) .. .. .               | 11                                              | 153                               | 1,064                         | 169                                   |
|                                                       | 1 Murrah                                        | 14                                | 58                            | ..                                    |
| (v) Livestock Research Station-Hosur Cattle Farm.     | 10                                              | 117                               | 510                           | 505                                   |
|                                                       | 2 Murrah                                        | 70                                | 247                           | ..                                    |
| (vi) Mulanur .. .. .                                  | 12                                              | 210                               | 1,233                         | 353                                   |
| (vii) Sankarandampalayam .. .. .                      | 11                                              | 166                               | 1,097                         | 447                                   |
|                                                       | 1 Murrah                                        | 56                                | 71                            | 5                                     |
| (viii) Thoppampatti .. .. .                           | 12                                              | 25                                | 374                           | 23                                    |
|                                                       | 1 Murrah                                        | ..                                | ..                            | ..                                    |
| (ix) Chikkannapuram .. .. .                           | 13                                              | ..                                | ..                            | ..                                    |
|                                                       | 1 Murrah                                        | 18                                | 128                           | 7                                     |

The staff engaged in the Key Village Centres and Key Villages were doing propaganda, house to house survey from time to time and verification of pregnancies of both inseminations and natural services, Preventive inoculations and castrations.

(c) *Sterility work.*—The major portion of infertility among cows were solved by giving them proper servicing by insemination between the 90th and 120th day after calving. It has been practically demonstrated to the public that when animals are inseminated like this, cows calve once in 12 to 14 months and thereby the dry period is reduced and the milking period increased. Besides cases of cystic ovaries and persistent corpus leuteum were also handled.

(d) *General.*—Calf rallies and cattle shows have impressed very much on the ryots the value of Artificial Insemination and the better progeny that are the result of Artificial Insemination and these have gone a long way in educating the ryots.

65. *Key Farm Centres in private institutions.*—(a) The six Key Farm Centres shown below continued to function during the period. The Government have exempted the payment of contribution of 25 per cent recurring charges with effect from 1st May 1954.

(b) Arrangements were made to shift the Key Farm Centre, Palayakottai to Sivagiri and it was shifted on the afternoon of 31st March 1955. The Key Farm Centre, Kilamoongiladi was shifted to Veterinary Dispensary, Chidambaram during August 1954.

(c) The particulars of work done in the above Key Farm Centres are shown below :—

| Name of Key farm Centre<br>(Artificial Insemination<br>Centre.) | Number of bulls<br>stationed at the<br>Centre. | Natural Services. | Number of semen<br>collections made. | Number of insemi-<br>nations done. | Number of pregnan-<br>cies verified. | Number of calves<br>inspected. | Number of sterility<br>cases handled. |
|-----------------------------------------------------------------|------------------------------------------------|-------------------|--------------------------------------|------------------------------------|--------------------------------------|--------------------------------|---------------------------------------|
| i. Neikarapatti ..                                              | 7                                              | 120               | 327                                  | 2,780                              | 1,464                                | 624                            | 17                                    |
| ii. Idayakottai ..                                              | 6                                              | 103               | 120                                  | 1,557                              | 707                                  | 123                            | ..                                    |
| iii. Chidambaram ..                                             | 6                                              | 11                | 203                                  | 960                                | 488                                  | 68                             | ..                                    |
| iv. Valarpuram ..                                               | 6                                              | 6                 | 93                                   | 388                                | 349                                  | 46                             | ..                                    |
| v. Kilacheri ..                                                 | 6                                              | 12                | 200                                  | 805                                | 543                                  | 114                            | 28                                    |
| vi. Palayakottai ..                                             | 6                                              | 620               | 12                                   | 46 *                               | ..                                   | ..                             | ..                                    |

\* The less number of insemination has been compensated by natural services as plenty of bulls are available in the farm. Hence the centre has been shifted to a place where it will be useful.

In addition two first aid centres were functioning at the Key Farm Centres, Idayakottai and Neikarapatti. The staff treated animals at these centres and also during their tours for verification of pregnancies and calves. Preventive inoculations, vaccinations and castrations of scrub bulls were also done by the staff.

(d) *Re-inseminations.*—About 10 to 20 per cent of inseminated animals came up for re-insemination.

(e) One sub-centre to the Key Farm Centre at Kilacheri was started at Pannur with first-aid facilities under the National Extension Service. Another first aid centre was started at Perambakkam. Artificial Insemination work will be started at Perambakkam, also on receipt of Government sanction for the employment of messengers. A sub-centre to the Key Farm Centre, Idayakottai was also functioning at Navalathur.

(f) *Calf subsidy scheme.*—The scheme was sanctioned during March 1955 and the following male calves were selected for the grant, and a subsidy of Rs. 5 per each calf for the month of March was distributed.

| Place.                     | Number of<br>calves<br>selected. | Subsidy<br>granted.<br>RS. |
|----------------------------|----------------------------------|----------------------------|
| <b>Koy Village Scheme—</b> |                                  |                            |
| Vellakoil .. .. .          | 33                               | 165                        |
| Kangayam .. .. .           | 12                               | 60                         |
| Hosur .. .. .              | 25                               | 125                        |
| Total ..                   | 70                               | 350                        |
| <b>Key Farm Centres—</b>   |                                  |                            |
| Idayakottai .. .. .        | 40                               | 200                        |
| Palayakottai .. .. .       | 6                                | 30                         |
| Neikarapatti .. .. .       | 31                               | 155                        |
| Total ..                   | 77                               | 385                        |
| Grand total ..             | 147                              | 735                        |

(g) *General.*—The Key Farm Centres in general are progressing gradually. The progress at the Centres at Neikarapatti and Idayakottai were appreciable.

66. *Cross-breeding Centre, Ootacamund.*—This scheme for cattle at hilly and heavy rainfall areas was implemented in the Ootacamund area on 20th January 1955. The object of the scheme is to improve the milk production of the local non-descript cattle by introducing foreign blood like Jersey by Artificial Insemination. Ootacamund Prospect Estate, Davani, Nanjanad and Thummanhatti have been selected as sub-centres. Even though the State Artificial Insemination Centre was closed down at Ootacamund, Artificial Insemination was being carried on with the semen collected from the bulls stationed at Veterinary Hospital, Ootacamund, to avoid a break in service till such a time when semen becomes available from the Central Artificial Insemination Station at Bangalore. For this work three bulls were utilised and 32 collections were made and 296 inseminations were done. Besides verification of 94 cases of pregnancies and inspection of 57 calves that related to inseminations carried out earlier by the State Artificial Insemination Centre were also done.

67. *Village Livestock Improvement Scheme.*—(a) The main features of the scheme as worked out by this department and through the Co-operative Societies are :—

(i) The castration of all unwanted male stock thus making available only the services of the approved bulls to the cows in the area;

(ii) the protection of all the animals in the area against the various cattle diseases;

(iii) the maintenance of necessary records with regard to breeding, pedigree, production, etc., and tattooing of the cows and the progeny; and

(iv) the provision of subsidy for the payment of Rs. 5 per mensem, for heifer calves born to the cows registered for proper maintenance.

The firkas which were allotted to this department under the scheme were Saliangalam (Tanjore district), Malli (Ramanathapuram district) and Kumbala (South Kanara district).

The Kumbala firka has been subsequently transferred to the Community Project administration.

(b) A summary of work done in the above firkas is shown below :—

(i) *Saliangalam.*—This scheme has been working since 12th March 1951. Altogether three Umblacheri breeding bulls were maintained at this

Centre. They performed 327 services and 63 calves were born to them out of which 44 were inspected by the staff. A total of 130 scrub bulls were castrated, and ten calves were registered for subsidy during this year. The question of paying the subsidy is under examination. Since the inception of the Centre up to date 1,148 services have been performed by the bulls and out of 288 calves born to them 205 have been inspected. Besides 577 castrations have been done and 1,117 cows and 43 calves have been registered. The provisions of the Madras Livestock Improvement Act were in force in the area.

(ii) *Malli*.—This scheme was started on 26th January 1953. The Headquarters of the Touring Veterinary Assistant Surgeon was changed to Malli from Srivilliputtur with effect from 1st April 1954 for proper working of the scheme. There were 2 Kangayam and 1 Murrah buffalo bulls at the end of the year in the Centre.

One Kangayam bull was withdrawn, one Murrah buffalo bull was transferred from the Centre and one Kangayam bull was received during the year. The bulls at the Centre performed 239 services and 61 calves were born to them out of which 38 were inspected by the staff. Further a total of 448 female stock and 10 calves were registered for subsidy. Eighty-eight scrub bulls were castrated and 209 bovines were protected against Black Quarter. Since inception 394 services have been performed by the bulls of the Centre and out of 79 calves born 56 have been inspected. Besides 602 female stock have been registered and 129 castrations have been done. The provisions of the Madras Livestock Improvement Act continued to be in force in this area.

(iii) *Kumbala (Kinnigoli)*.—This scheme was transferred from the control of the Block Development Officer to the Community Project Administration and started functioning from 5th January 1955. Altogether 2 Scindhi bulls and 1 Murrah buffalo bull were stationed at this Centre and they performed 21 services during the period.

68. *Co-operative Cattle Breeding Associations, Societies, etc.*—(i) *Odu-gathur Cattle Breeding Society, North Arcot district*.—This was started in 1949 with 6 Hallikar bulls. At the beginning of the year there were only 2 bulls and of them one died during the year. There was only one bull at the end of the year and this was also kept in a poor condition and it had not yet commenced service.

(ii) *Kalasapakkam Co-operative Cattle Breeding Society, North Arcot district*.—There were two Kangayam bulls of this Society, in the premium Scheme last year. At the end of this year there was only one bull in the premium scheme as the other one was removed from the scheme. The bull in the scheme performed 69 services during the year. Fourteen calves were born to it and 4 calves were inspected.

(iii) *Kannivadi Cattle Breeding Society, Madurai district*.—This Society continued to function during the year. A Stockman Compounder attached to the above Society was maintaining the pedigree records, etc., of the bulls. At the end of the year there were 11 bulls (8 Kangayam and 3 Murrah) included under the premium scheme, belonging to the Society. The bulls owned by the Society performed 711 services during the year and 245 calves were born to them out of which 112 were inspected.

(iv) *Anamalai Hill Cattle Society, Coimbatore district*.—This Society continued to work for the improvement of the Scindhi breed.

(v) *The Livestock Improvement Association, Kottur, Coimbatore district*.—This association has also done good propaganda on Livestock Improvement during the year.

(vi) *Cattle Breeding Society Anchetty, Salem district*.—This Society continued to function during the year. There were 10 Hallikar bulls belonging to the Society at the end of the year and all of them were included in the premium scheme. The bulls owned by the Society performed 286 services during the period and out of 195 calves born to them 126 were inspected.

(vii) *Co-operative Cattle Breeding Society, Mecheri, Salem district*.—There were 8 Hallikar bulls under the Society at the end of the year. A total of 267 services were performed by these bulls and out of 27 calves born 23 were inspected.

(viii) *South Kanara Cattle Improvement Association, South Kanara district*.—Though this association exists it did not function during the year.

69. *Government bulls at stud*.—(a) *Bulls at stud in Veterinary Institutions*.—In all there are 125 breeding bulls stationed at the Veterinary Institutions. They performed 7,343 services during the year. Altogether 3,540 calves were born to them and 2,719 were inspected.

(b) *Bulls under the Malestock Distribution Scheme*.—The total number of bulls and Murrah buffalo bulls sanctioned for distribution during the year was 121 and 30 respectively. At the end of the year there were 229 bulls in the scheme. Altogether 8,196 services were performed by the bulls in the scheme during the year and out of 2,607 calves born to them 1,676 were inspected.

(c) *Bulls at stud in Agricultural Research Station, Koilpatti, and Rice Research Station, Ambasamudram*.—Under the Scheme 3 bulls at the Agricultural Research Station, Koilpatti, and one at the Rice Research Station, Ambasamudram, were being maintained. Altogether 249 services were performed by these bulls during the year.

(d) *Bulls under the premium scheme*.—At the end of the year there were 530 bulls under the premium scheme. They performed 28,740 services and out of 8,916 calves born to them 5,769 were inspected during the year.

(e) *District Board Scheme*.—The total number of bulls in this scheme as on 31st March 1955 was 190. During the year 11,032 services were performed by the bulls and out of 3,403 calves born to them 2,696 were inspected.

70. *Other schemes*—(a) *Toda Welfare*.—There were 6 Jaffarbadhi buffaloes and one calf at the beginning of the year with the Todas. Four calves were received during the year. Thus at the end of the year there were 6 buffaloes and 5 calves in the scheme.

(b) *Local development works*—(i) *Madurai district*.—Three bulls were purchased during the year and they performed 104 services.

(ii) *Salem district*.—Altogether 9 bulls were purchased during the year under this scheme.

(iii) *North Arcot*.—Six bulls were purchased under the scheme during the year.

(c) *Bulls purchased from Common Good Funds of Co-operative Societies*.—From these funds one bull in South Arcot district, one bull in Salem district and 2 in South Kanara district were purchased during the year.

(d) *Bulls purchased from District Planning Committee Funds.*—Altogether 19 bulls were purchased in Tiruchirappalli district during the year with 50 per cent grant from these funds.

(e) *Approved bulls at stud in Madras State.*—The total number of approved bulls in this State and the total number of services performed by them during this year and last year are given below :—

|                   | Number of bulls. | Services performed. |
|-------------------|------------------|---------------------|
| 1954-55—          |                  |                     |
| Bulls .. .. .     | 988              | 47,006              |
| Buffaloes .. .. . | 186              | 9,176               |
| 1953-54—          |                  |                     |
| Bulls .. .. .     | 847              | 54,923              |
| Buffaloes .. .. . | 111              | 6,800               |

71. *Private dairies.*—There were a number of co-operative organizations like milk supply unions in the important towns and cities which collected milk from rural parts and met the requirements of the public in towns. In addition to the above the following were the private dairies that were functioning during the year in the districts mentioned :—

| Districts.              | Particulars of the Dairy.                                                                                                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Madras .. .. .          | Loyola College Dairy Farm.                                                                                                                                                                   |
| Tiruchirappalli .. .. . | St. Joseph's College Dairy Farm.<br>Golden Rock Railway Dairy Farm.<br>Central Jail Dairy Farm.<br>Dalmia Dairy Farm.                                                                        |
| Madurai .. .. .         | Narendra Dairy Farm, Neikarapatti.<br>Dairy Farm, Idayakottai.<br>Dairy Farm, Angu Vilas.                                                                                                    |
| Ramanathapuram .. .. .  | Small Dairy Farm at Singampuneri.                                                                                                                                                            |
| Tirunelveli .. .. .     | Vaniankulam Estate Dairy Farm.<br>A dairy run by the Missionaries of Donavoor.<br>A dairy run by the Agricultural Farms Limited, Ramayampatti.<br>A dairy run by the T. V. S. Farm, Eruvadi. |
| Nilgiris .. .. .        | Municipal Dairy, Ootacamund.                                                                                                                                                                 |
| Coimbatore .. .. .      | A private dairy at Modakurichi.                                                                                                                                                              |
| Malabar .. .. .         | Dairy Farm run by Sri Nambisan at Kalmandapam at Palghat.<br>Vijaya Dairy Farm, Badagara.                                                                                                    |

#### SHEEP AND GOATS.

72. *Sheep Breeding Farm, Ootacamund.*—(a) The object of the farm is to standardize the present woolly sheep in Nilgiris in its wool qualities, to improve its carcass weight, to supply good stud rams to the public, to grade the local sheep and to study the disease problems under farm conditions. The Farm has also undertaken investigation to establish suitable grasses that will withstand the weather conditions of the area.

*Strength.*—The stock position on 1st April 1954, the changes which took place during the year and the stock position on 31st March 1955 are detailed below :—

| Particulars.                 | Rams. | Ewes. | Ram-lambs. | Ewe-lambs. | Total. | Scindhi cows. | Cross-bred bullocks. |
|------------------------------|-------|-------|------------|------------|--------|---------------|----------------------|
| Strength on 1st April 1954.  | 53    | 217   | 61         | 63         | 394    | 2             | 2                    |
| Births .. .. .               | ..    | ..    | 63         | 90         | 153    | ..            | ..                   |
| Deaths .. .. .               | 1     | 10    | 2          | 7          | 20     | ..            | ..                   |
| Transfers (internal).        | + 59  | + 60  | — 59       | — 60       | ..     | ..            | ..                   |
| Transfers (external).        | 8     | ..    | ..         | ..         | 8      | ..            | ..                   |
| Sales .. .. .                | 28    | 10    | 4          | 2          | 44     | ..            | ..                   |
| Strength on 31st March 1955. | 75    | 257   | 59         | 84         | 475    | 2             | 2                    |

(b) *Shearing and wool yield.*—Shearing was done among the sheep once a year but in two batches one in the month of October and the second in the months of February and March. From 342 adults and 62 lambs shorn a total quantity of 437 lbs. 3 ozs. of wool was obtained. The average wool yield for the flock was 1 lb. 1.3ozs.

The highest yield for a ram was 1 lb. 15 oz. and for an ewe 2 lb. 8 oz. and for a lamb 1 lb. 8 oz.

(c) *Season and rainfall.*—The total rainfall during the year was 52.80 inches spread over 104 rainy days.

(d) *Cultivation and pastures.*—About 10.57 acres of land were under cultivation during the year. Various frost-resistant grasses were tried in addition to intensive cultivation of fodder-crops such as Berseem Oats; maize, Italian Rye and Lucerne. It is noteworthy that the farm was made self-sufficient as regards fodder requirements during the year. The fodder problem in the farm and in Ootacamund taluk is acute from November to April as the natural grasses of the area are completely destroyed by frost. Besides the existing pasture grass is very poor in nutritive value. So trials and experiments to improve the existing pastures with frost-resistant variety of good grasses were undertaken. Love grass, festuca, perennial rye and smooth-ploom grass of American origin were grown with encouraging results. Altogether 3.85 acres of land were reclaimed during the year and kept ready for transplantation with frost-resistant grasses.

(e) *Soil conservation.*—The Veterinary Assistant Surgeon in charge of the farm underwent training in soil conservation for six weeks.

(f) *Research.*—The oestrus cycle experiment was continued during the year and observations recorded regularly.

(g) *General.*—Out of the milk obtained from the Scindhi cows 364.75 lbs. were fed to lambs and 273.5 lbs. were sold to the staff of the farm.

(h) *Receipts and expenditure.*—Receipts Rs. 921-0-0. Expenditure Rs. 29,425-4-3. There was an increase in receipts this year due to sale of rams to Block Development Officers for the Community Project Scheme. The expenditure was slightly less this year when compared to last year due to reduction in the cost of feed.

73. *Livestock Research Station, Hosur Cattle Farm.*—(a) Sheep-breeding has been carried out in this farm since 1st April 1938. The Indian Council

of Agricultural Research started a scheme called the Madras Sheep-Breeding Scheme and it was contributing towards the Scheme till 31st March 1952. From 1st April 1952 the Madras Government is financing the whole scheme.

(b) The objects of sheep-breeding in this farm are as follows :—

(i) To evolve white woolly sheep for dual purpose with a foundation stock of Bellary sheep;

(ii) to make available Bikanir rams for introduction among the flocks of woolly sheep in the State in order to improve their wool qualities; and

(iii) to study the suitability of the Nilgiris breed under conditions in the plains and the possibility of improving the indigenous woolly sheep with Nilgiri rams.

NOTE.—The entire stock maintained for the study with regard to object No. 3 was subsequently disposed of.

(c) The breeds of sheep maintained at the farm at the end of the year were as shown below :—

Bellary flock.

Bikanir and Bellary graded flock.

Bikanir flock.

NOTE.—A flock of Mandya sheep was also maintained under the Five-year Plan.

(d) *Strength*.—The following statement gives the stock position as on 1st April 1954, changes during the year and the stock position on 31st March 1955 :—

| Breed.                    | Stock on 1st April 1954. | Receipts. | Births. | Deaths. | Disposals. | Balance on 31st March 1955. |
|---------------------------|--------------------------|-----------|---------|---------|------------|-----------------------------|
| Bellary .. ..             | 21                       | ..        | 9       | 6       | 2          | 22                          |
| Bikanir .. ..             | 144                      | ..        | 44      | 42      | 45         | 101                         |
| Nilgiris .. ..            | 2                        | ..        | ..      | ..      | 2          | ..                          |
| Bikanir × Bellary ..      | 66                       | ..        | 10      | 15      | 31         | 30                          |
| Nilgiris × Bellary ..     | 1                        | ..        | ..      | ..      | 1          | ..                          |
| Total on 31st March 1955. | 234                      | ..        | 63      | 63      | 81         | 153                         |

(e) *Mating*.—Different rams of different breeds were allowed to mate different ewes of different breeds during the two mating seasons and the results of mating are given below :—

| Number and breed of ram used for mating. | First mating—May-June 1954 season. |                        |                       | Second mating—November-December 1954 season. |                        |                       |
|------------------------------------------|------------------------------------|------------------------|-----------------------|----------------------------------------------|------------------------|-----------------------|
|                                          | Number of ewes put                 | Number of ewes served. | Number of ewes lambd. | Number of ewes put.                          | Number of ewes served. | Number of ewes lambd. |
| Bellary .. ..                            | 796                                | 7                      | 7                     | ..                                           | ..                     | ..                    |
| Do. .. ..                                | ..                                 | ..                     | ..                    | 4                                            | 4                      | ..                    |
| Bikanir .. ..                            | 21                                 | 5                      | 1 †                   | ..                                           | ..                     | ..                    |
| Do. .. ..                                | 24                                 | 16                     | 14                    | ..                                           | ..                     | ..                    |
| Do. .. ..                                | 28                                 | 22                     | 21                    | ..                                           | ..                     | ..                    |
| Do. .. ..                                | 15                                 | ..                     | ..                    | 9                                            | 9                      | ..                    |
| Do. .. ..                                | 50                                 | ..                     | ..                    | 21                                           | 19                     | ..                    |
| Do. .. ..                                | 55                                 | ..                     | ..                    | 14                                           | 13                     | ..                    |
| Do. .. ..                                | 56                                 | ..                     | ..                    | 11                                           | 11                     | ..                    |
| (Grading work Bikanir × Bellary—         |                                    |                        |                       |                                              |                        |                       |
| Bikanir .. ..                            | 21                                 | 10                     | 4                     | 2                                            | ..                     | ..                    |
| Do. .. ..                                | 24                                 | 12                     | 12                    | 5                                            | ..                     | ..                    |
| Do. .. ..                                | 15                                 | ..                     | ..                    | 1                                            | 1                      | ..                    |
| Do. .. ..                                | 50                                 | ..                     | ..                    | 1                                            | 1                      | ..                    |
| Do. .. ..                                | 55                                 | ..                     | ..                    | 10                                           | 10                     | ..                    |

\* Ewes are expected to lamb from the end of April 1955 and onwards.

† The remaining 4 ewes were put to other rams with drawing this for want of a separate shed to accommodate this batch of ewes as one of the sheds got damaged on 22nd May 1954.

‡ Excluding 2 still-births.

(f) *Fertility*.—Out of 59 ewes served in the first mating season 33 have conceived giving a fertility percentage of 55.9.

(g) *Shearing*.—The sheep were shorn twice during the year, once in September 1954 and again in March 1955. Lambs below one year were not shorn. All the sheep were washed and dried before shearing. As before improved shears and shearing machines were used. The average number of sheep shorn and the average yield for different flocks are given below :—

| Breed.                          | Average number of sheep shorn during the year. | Total wool yield for both the seasons. |      | Average yield per head over the whole flock. |        |
|---------------------------------|------------------------------------------------|----------------------------------------|------|----------------------------------------------|--------|
|                                 |                                                | LBS.                                   | OZS. | LBS.                                         | OZS.   |
| Bellary .. ..                   | 18                                             | 38                                     | 0    | 2                                            | 1.8 *  |
| Bikanir .. ..                   | 102.5                                          | 273                                    | 5    | 2                                            | 10.6 † |
| Bikanir × Bellary graded flock. | 37.0                                           | 114                                    | 11   | 3                                            | 3.8    |

\* Because of the less number of sheep and old age of the flock the average was reduced.

† There were many old animals in this flock and some of the previous year's best performers have either died or were disposed of, the number of pregnant ewes was less and the number of yearlings shorn was also comparatively less thus accounting for the decrease in average.

(h) *Body weight*.—All the sheep were weighed after shearing and their average body weights are given below :—

| Name of breed.          | Adult. |       | Yearlings. |       |
|-------------------------|--------|-------|------------|-------|
|                         | Rams.  | Ewes. | Rams.      | Ewes. |
|                         | LBS.   | OZS.  | LBS.       | OZS.  |
| Bellary .. ..           | 131    | 0     | 61         | 14.4  |
| Bikanir .. ..           | 71     | 6.8   | 51         | 14    |
| Bikanir × Bellary ewes— |        |       |            |       |
| First cross .. ..       | ..     | ..    | ..         | ..    |
| Second cross .. ..      | 110    | 0     | 63         | 3     |
| Third cross .. ..       | 97     | 0     | 57         | 7     |
| Fourth cross .. ..      | 95     | 0     | 43         | 3     |
|                         |        |       | 59         | 0     |

\* Only one yearling.

(i) *Wool yield*.—The study of wool yield of sheep at different ages was carried out as in the previous year and their performances are noted below :—

| Breed.             | Adults. |       | Yearlings. |       |
|--------------------|---------|-------|------------|-------|
|                    | Rams.   | Ewes. | Rams.      | Ewes. |
|                    | LBS.    | OZS.  | LBS.       | OZS.  |
| Bellary .. ..      | 3       | 0     | 1          | 4     |
| Bikanir .. ..      | 2       | 8     | 2          | 2     |
| Bikanir × Bellary— |         |       |            |       |
| First cross .. ..  | ..      | ..    | ..         | ..    |
| Second cross .. .. | 5       | 2     | 2          | 3     |
| Third cross .. ..  | 3       | 2     | 2          | 1     |
| Fourth cross .. .. | 4       | 4     | 2          | 6     |
|                    |         |       | 1          | 10    |
|                    |         |       |            | 0     |

(j) Some of the best performances for the different breeds are given below :—

| Breed.               | Sex. | Tag number. | Annual yield of wool. |
|----------------------|------|-------------|-----------------------|
|                      |      |             | LBS. OZS.             |
| Bellary .. .. .      | Ram  | 796         | 4 3                   |
|                      | Ewe  | 901         | 1 18                  |
| Bikanir .. .. .      | Ram  | 23          | 4 10                  |
|                      | Ewe  | 19          | 3 ..                  |
| Bikanir x Bellary—   |      |             |                       |
| Second cross .. .. . | Ram  | 585         | 4 10                  |
| Third cross .. .. .  | Ram  | 666         | 5 ..                  |
| Do. .. .. .          | Ewe  | 648         | 2 15                  |
| Fourth cross .. .. . | Ram  | 661         | 4 8                   |
| Do. .. .. .          | Ewe  | 656         | 3 1                   |

(k) *Wool grading.*—The wool was graded and sorted according to the regions of the body, colour, age, breed and quality. The wool clipped in September 1954 was auctioned off.

(l) *Research.*—Two lambing pens were used during the lambing seasons as in the previous year and this has considerably reduced mortality among young lambs.

74. *Mandya flock.*—The maintenance of this flock comes under the Five-Year Plan. The object of the scheme is to make available Mandya rams for introduction among the flocks of hairy sheep in the State in order to improve their mutton qualities.

| Stock position.             |         |        |            |                              |
|-----------------------------|---------|--------|------------|------------------------------|
| Strength on 1st April 1954. | Births. | Deaths | Disposals. | Strength on 31st March 1955. |
| 142                         | 53      | 9      | 38         | 148                          |

(a) *Matings.*—There were 2 mating seasons one in May-June and the second in October-November. Thirty-seven ewes in the first season and 38 ewes in the second season were mated. Thirty ewes of the first season lambed. Ewes of the second season are expected to lamb from the third week of April 1955.

(b) *Fertility.*—The fertility percentage for the first mating season worked out to 83.8.

(c) *Birth weight of lambs.*—The average birth weights of lambs were as follows :—

| Lambing season.                   | Average birth weight. |
|-----------------------------------|-----------------------|
|                                   | LBS. OZS.             |
| April 1954 .. .. .                | 5 10                  |
| September to October 1954 .. .. . | 5 2.7                 |

(d) *Shearing.*—A total of 127 sheep (81 adults and 16 yearlings during September 1954 and 30 yearlings in March 1955) were shorn during the year. As before the sheep were clipped only once in the year. Altogether 80 lbs. 4 ozs. of hair were obtained. The average yield worked out to 10.1 ozs. per animal.

75. *Mortality in sheep farms.*—The following table gives the comparative figures of mortality in the two farms for this year and the previous year :—

| Name of the farm.                              | During year. |          |
|------------------------------------------------|--------------|----------|
|                                                | 1954-55.     | 1953-54. |
| Sheep Farm, Ootacamund .. .. .                 | 20           | 29       |
| Livestock Research Station, Hosur Cattle Farm. | 72           | 69       |

NOTE.—It is noteworthy that there is a marked reduction in the rate of mortality in the Sheep Farm, Ootacamund. It is hoped that with the preventive steps taken and suggestion of the Investigation Officer carried out scrupulously mortality among sheep may show a downward trend in the Livestock Research Station, Hosur Cattle Farm.

The deaths were due to the following causes :—

| Disease.                                 | Sheep Farm, Ootacamund. | Livestock Research Station, Hosur Cattle Farm. |
|------------------------------------------|-------------------------|------------------------------------------------|
| Enteritis .. .. .                        | 3                       | 4                                              |
| Intususception .. .. .                   | ..                      | 5                                              |
| Twist of intestines .. .. .              | ..                      | 1                                              |
| Verminous Toxæmia .. .. .                | ..                      | 9                                              |
| Pneumonia .. .. .                        | 3                       | ..                                             |
| Broncho Pneumonia .. .. .                | ..                      | 2                                              |
| Oedema of lungs .. .. .                  | ..                      | 3                                              |
| Gangrenous Pneumonia and Empyema .. .. . | ..                      | 1                                              |
| Multiple abscess of lung .. .. .         | ..                      | 7                                              |
| Chronic Pleurisy .. .. .                 | ..                      | 1                                              |
| Endocarditis .. .. .                     | 1                       | ..                                             |
| Hepatitis .. .. .                        | ..                      | 1                                              |
| Joint-ill and Septicæmia .. .. .         | ..                      | 1                                              |
| Antipartum paralysis .. .. .             | 3                       | ..                                             |
| Anæmia and Debility .. .. .              | 4                       | 18                                             |
| Born weak .. .. .                        | 2                       | 17                                             |
| Born weak and Meningitis .. .. .         | ..                      | 1                                              |
| Born weak and Abscess lung .. .. .       | ..                      | 1                                              |
| Accident .. .. .                         | 2                       | ..                                             |
| Other causes .. .. .                     | 2                       | ..                                             |
| Total .. .. .                            | 20                      | 72                                             |

#### SHEEP AND GOAT DEVELOPMENT.

76. *Sheep Shearing and Demonstration Units.*—The three sheep shearing and demonstration units at Coimbatore, Madurai and Cuddalore continued to function during the year. These units conducted intensive propaganda and visual demonstrations on, better production and clean harvesting of wool, using improved shears, grading of wool, deworming and deticking. These units also trained workers on all the above subjects. Propaganda was also done on all aspects of sheep and goats husbandry such as improving the breed by selective breeding, castration of scrub males, adjusting the mating season in such a way as to get lambs in favourable seasons, advance protective inoculations against contagious diseases and better housing and feeding. For these purposes breeding calendars have been drawn up for each region. The work done by the units is given below :—

|                                                          |       |
|----------------------------------------------------------|-------|
| (i) Number of villages visited .. .. .                   | 492   |
| (ii) Number of shearing demonstrations conducted .. .. . | 108   |
| (iii) Number of sheep washed .. .. .                     | 8,666 |

|                                                      |        |
|------------------------------------------------------|--------|
| (iv) Number of shepherds trained .. .. .             | 196    |
| (v) Number of castrations done .. .. .               | 918    |
| (vi) Number of rams and bucks inspected .. .. .      | 124    |
| (vii) Number of sheep shorn .. .. .                  | 5,299  |
| (viii) Number of sheep dewormed .. .. .              | 4,388  |
| (ix) Number of sheep deticked .. .. .                | 20,270 |
| (x) Number of shows and exhibitions attended .. .. . | 41     |

The Sheep Demonstration Units, Cuddalore, Madurai and Coimbatore, were closed for a period of about 2 months, 3 months and 5 months respectively due to shortage of Veterinary Assistant Surgeons, in the department.

77. *Grading Scheme for Mutton Sheep.*—(a) This scheme continued during the year. Altogether 55 rams have been distributed in about 12 villages in addition to the rams distributed last year. Systematic castration of scrub rams deworming and deticking were undertaken in these villages. The villagers have begun to appreciate the advantages of controlled mating and grading with superior rams after seeing the progenies of the graded stock.

The work done in the grading scheme during the period was as follows :—

|                                                                    |       |
|--------------------------------------------------------------------|-------|
| Number of sheep dewormed .. .. .                                   | 1,483 |
| Number of sheep deticked .. .. .                                   | 2,709 |
| Number of sheep washed and shorn .. .. .                           | 1,049 |
| Number of rams castrated .. .. .                                   | 530   |
| Number of lambs born to approved rams inspected.                   | 585   |
| Number of persons trained in shearing with improved shears .. .. . | 31    |

78. *Goat rearing.*—(a) The breeding of Malabar goats was continued at the District Livestock Farm, Thiruvazhamkunnu. The object of this section is to study and improve the Malabar goats.

(b) *Stock position.*—The strength on 1st April 1954 was 67. There were 61 births, 1 receipt, 15 auctions, 13 sales and 8 deaths during the year. The balance at the close of the year was 93.

(c) *Dairy.*—Out of 23.5 animals in the herd 17.8 animals remained in milk and they yielded 12,026.25 lbs. of milk with an individual average of 1.8 lbs. of milk over the milking herd and 1.4 lbs. over the herd as a whole as against 2.4 and 1.4 lbs. of last year respectively. The slight fall in average milk yield was due to the fact that most of the animals were in their first lactation during the year. Goat No. 12 gave a total yield of 182 lbs. up to 31st March 1955 with a daily average of 3.4 lbs. for 52 days in milk and goat No. 17 gave a total yield of 301 lbs. up to 31st March 1955 with a daily average of 3.1 lbs. for 91 days in milk.

(d) *Mortality.*—There were only 8 deaths during the year as compared with 18 of last year thus showing a marked reduction in mortality.

79. *Scheme for the improvement of milch goats in South Kanara.*—(a) The object of the scheme is to improve the milk yield of the goats to augment the milk supply of the West Coast and it has been in operation since March 1951. On a preliminary survey it has been found that progenies that have been born to the distributed bucks have given more milk than their rams.

(b) On 1st April 1954 there were 15 bucks in the scheme. Ownership was declared in respect of six bucks during the year. There were no casualties during the year. The number of bucks in the scheme on 31st March 1955 was nine and they performed 365 services and 207 kids were born to them.

(c) *Bucks at stud in Veterinary Institutions—Coimbatore district.*—One Jamnapuri buck at Veterinary Hospital, Ootacamund, and one Tellicherry buck at Veterinary Hospital, Coimbatore, were stationed during the year. They performed 218 services and all the 95 kids born to them were inspected.

*South Kanara district.*—Two Tellicherry bucks were stationed at the Veterinary Hospital, Mangalore, from February 1955 and they performed five services during the year.

*Malabar district.*—Two Jamnapuri bucks were maintained in the Veterinary Hospital, Kozhikode. They performed 208 services during the year. Altogether 302 kids were born to them during the year and 133 were inspected.

(d) *Male-stock Distribution Scheme.*—Altogether 30 rams of Mandya, Bikanir, Bikanir-Bellary cross and Nilgiris breeds have been distributed during the year under the Scheme.

*Malabar district.*—There was one buck in the scheme and it has performed 250 services, and out of 230 kids born to it and 70 were inspected.

80. *Wool Analysis Laboratory, Ootacamund.*—Fifty-four samples of wool from sheep and 37 samples from the farm stud rams shorn during the period were homogenised by subjecting them to the necessary preliminary treatment. Representative samples from these homogenised main samples were obtained and were scoured in batches with cold soap solution in the covering tray. Stretched fibre length measurement were taken for 27 samples which were washed during the period and the "Burns Taut Method" was employed for the stretched fibre length measurements. The mean length and the coefficient of variation of the samples were derived after the necessary statistical calculations. Besides the wool analysis work, 7 charts pertaining to wool science and technology of education interest, were also prepared for the wool analysis laboratory. For want of a trained Veterinary Assistant Surgeon the laboratory was kept closed from 12th May 1954. A Veterinary Assistant Surgeon was sent for training to Livestock Research Station, Hissar, United Provinces, and he is expected to join duty during the next year.

## CHAPTER VI.

### POULTRY, ETC.

81. *Livestock Research Station, Hosur Cattle Farm.*—(a) The following breeds were maintained in the farm.

(i) White Leghorn, (ii) Black Minorca and (iii) Rhode Island Red.

(b) *Strength.*—The flock consisted of 1,178 birds at the beginning of the year. A total of 1,739 chicks were received by hatch, 783 birds were sold for breeding, 760 were culled out, 101 were transferred, 42 were destroyed and 756 birds died thus leaving a closing balance of 475 birds as detailed below :—

| Breed.                   | Cocks. | Hens. | Chicks. | Total. |
|--------------------------|--------|-------|---------|--------|
| White Leghorn .. .. .    | 8      | 35    | 109     | 152    |
| Rhode Island Red .. .. . | 8      | 38    | 191     | 237    |
| Black Minorca .. .. .    | 5      | 19    | 62      | 86     |
| Total .. .. .            | 21     | 92    | 362     | 475    |

There was a decrease in strength mainly due to the number of birds culled out to control Avian Leucosis complex and due to the large number of birds sold.

(c) *Egg production.*—The opening balance on 1st April 1954 was 41. The receipts, disposals, etc., during the year are given below :—

Balance on 1st April 1954 .. .. . 41

*Receipts during the year.*

Collections .. .. . 17,515

Total .. 17,556

*Disposals—*

Kept for hatching .. .. . 4,107

Sold for hatching .. .. . 2,325

Sold for table .. .. . 7,061

Transfers .. .. . 3,088

Broken and fed to chicks .. .. . 782

Total .. 17,363

Balance on 31st March 1955 .. .. . 193

(d) *Performance of birds.*—(i) On an average there were 51.5 White Leghorn, 66.5 Rhode Island Red and 19.2 Black Minorca laying hens and they yielded 6,24,78,936 and 2,339 eggs respectively during the year.

(ii) The number of pullets that completed their first year of laying during the year, the total number of eggs laid by them and the average egg yield for each breed are given below :—

| Breed.              | Number of pullets that completed their 1st year of laying. | Number of eggs laid in pullet year. | Average egg yield. |
|---------------------|------------------------------------------------------------|-------------------------------------|--------------------|
| White Leghorn ..    | 10                                                         | 1,861                               | 186.1              |
| Rhode Island Red .. | 22                                                         | 4,110                               | 186.8              |
| Black Minorca ..    | 4                                                          | 575                                 | 143.8              |

The performance of some of the high yielding pullets which completed their first year laying (pullet year) during the year are given below :—

|                                        | Number of eggs laid. |
|----------------------------------------|----------------------|
| (i) Rhode Island Red Pullet No. 618 .. | 239                  |
| (ii) Do. No. 691 ..                    | 238                  |
| (iii) White Leghorn Pullet No. 655 ..  | 227                  |

(e) *Percentage of hatchability.*—The overall percentage of hatchability for 4,107 eggs set for hatching was 41.2.

92. *Poultry Research Station, Madras.*—(a) The breeds maintained in the station were White Leghorn, Rhode Island Red, Black Minorca, Light Sussex and indigenous birds.

(b) *Strength.*—The stock on 1st April 1954 was 758. (Seven hundred and fifty-four chicken and 4 geese.) A total of 1,050 chicken were received by hatch, 1,748 were received from outside, 1,037 were sold for breeding, 30 were transferred, 972 were sold for table and 369 either died or were destroyed during the year. Besides 3 geese were received by hatch and 2 were sold for breeding. Thus at the end of the year the strength was 1,149 consisting of 1,144 chicken and 5 geese.

The details of stock position on 31st March 1955 are shown below :—

| Breed.<br>(1)            | Cooks.<br>(2) | Hens.<br>(3) | Chicken.<br>(4) | Total.<br>(5) |
|--------------------------|---------------|--------------|-----------------|---------------|
| White Leghorn .. .. .    | 3             | 14           | 454             | 471           |
| Rhode Island Red .. .. . | 7             | 16           | 381             | 404           |
| Black Minorca .. .. .    | 3             | 7            | 33              | 43            |
| Light Sussex .. .. .     | 1             | 2            | 84              | 87            |
| Brown Leghorns .. .. .   | ..            | 1            | 67              | 68            |
| Indigenous .. .. .       | 3             | 19           | 49              | 71            |
| Total .. .. .            | 17            | 59           | 1,068           | 1,144         |
| Geese .. .. .            | ..            | ..           | ..              | 5             |
| Total .. .. .            | ..            | ..           | ..              | 1,149         |

The egg yields of all the breeds has increased considerably except the United Kingdom and the Hassargatta Farm :—

| Breed.                   | Chicks received from United Kingdom. | Chicks received from Hassargatta Farm. |
|--------------------------|--------------------------------------|----------------------------------------|
| Rhode Island Red .. .. . | 371                                  | 102                                    |
| Light Sussex .. .. .     | 148                                  | 70                                     |
| White Leghorn .. .. .    | 298                                  | 700                                    |
| Brown Leghorn .. .. .    | ..                                   | 91                                     |

Besides 256 White Leghorn, 89 Rhode Island Red, 47 Light Sussex and 76 Brown Leghorn chicks were hatched at the farm from the eggs received from the Hassargatta Farm.

(c) *Egg production.*—The details of receipts and disposals of eggs are given below :—

|                                      |       |
|--------------------------------------|-------|
| Balance on 31st March 1954 .. .. .   | 124   |
| Receipts—                            |       |
| Collections .. .. .                  | 4,760 |
| Receipts from other stations .. .. . | 3,532 |
| Total .. .. .                        | 8,416 |

|                                  |       |
|----------------------------------|-------|
| Disposals—                       |       |
| Kept for hatching .. .. .        | 3,037 |
| Sold for hatching .. .. .        | 1,715 |
| Broken and fed to chicks .. .. . | 346   |
| Transfers .. .. .                | 457   |
| Exhibition supply .. .. .        | 120   |
| Sold for table .. .. .           | 2,641 |
| Total .. .. .                    | 8,316 |

Balance on 31st March 1955 .. .. . 100

NOTE.—Severe culling was adopted and many morphologically unfit eggs were rejected to improve the quality of the stock.

(d) *Performance of birds.*—(i) Trap-nesting was done for all laying birds at the farm. There were on an average of 12 White Leghorn, 12 Rhode Island Red, 11 Black Minorca, 4 Light Sussex and 13 indigenous laying hens during the year and they yielded 1,272, 1,251, 691, 418 and 1,128 eggs respectively.

(ii) The number of pullets that completed their first year of laying during the year, the total number of eggs laid by them and the average egg yield for each breed are given below :—

| Breed.              | Number of pullets that completed their first year of laying. | Number of eggs laid in pullet year. | Average egg yield. |
|---------------------|--------------------------------------------------------------|-------------------------------------|--------------------|
| White Leghorn ..    | 7                                                            | 1,018                               | 145.4              |
| Rhode Island Red .. | 15                                                           | 2,232                               | 148.8              |
| Black Minorca ..    | 3                                                            | 470                                 | 156.7              |
| Indigenous ..       | 10                                                           | 994                                 | 99.4               |

(e) *Body weight.*—Comparative figures of body weight of the different breeds of birds are as follows :—

| Breed.                   | 1954-55. | 1953-54. |
|--------------------------|----------|----------|
|                          | LB. OZ.  | LB. OZ.  |
| White Leghorn .. .. .    | 3 10     | 3 9      |
| Rhode Island Red .. .. . | 5 5      | 5 5      |
| Black Minorca .. .. .    | 3 12     | 3 12     |
| Light Sussex .. .. .     | 5 6      | 5 6      |
| Indigenous .. .. .       | 3 14     | 3 14     |

(f) *Percentage of hatchability.*—Out of 3,037 eggs set at the farm, 1,050 chicks were hatched out. A total of 1,211 eggs were infertile thus showing a percentage of 57.0 to fertile and 34.0 to the total eggs kept.

There was not much variation in the percentage of hatchability for the total number of eggs kept and for the fertile eggs compared to last year. A large number of eggs were received from outside stations and hatchability was slightly affected for reasons attributed to various causes in the transit of eggs.

(g) *Investigation and research.*—(i) *Selective breeding among indigenous breeds of poultry.*—The work has been in progress for the past several years and was taken up with groups of local birds from Kalahasti and Visakhapatnam. Selective breeding was done with the object of increasing the size of eggs and egg yield and lowering the period of broodiness and achieving comparatively early maturity and growth. The results as per the performance of the birds were satisfactory.

(ii) *Sexual maturity among country hens.*—The average number of days taken for maturity in respect of hens that began their first laying during the year was only 220 as compared to 230 days of last year.

(iii) *Broodiness in country hens.*—Attempts to break down broodiness were continued during the period also, with no marked improvement. The birds in nature are intensively broody for prolonged periods and to get over this hereditary character it may take many more generations of selective breeding among them. In general it can be stated that a strain of indigenous birds have been evolved that show an alround improvement but it requires further breeding to fix these desirable characters.

(h) *Disease position.*—(i) *Contagious Coryza.*—All birds were periodically tested and those showing the slightest symptoms of cold were discarded and disposed of for table. The periodical testing and culling of birds, helped in maintaining the birds free from this ailment.

(ii) *Avian Leucosis complex.*—Birds showing the slightest symptoms of this disease were immediately culled out and sold for table purposes. The Veterinary Disease Investigation Officer, Poultry, has also tested blood smears periodically and those showing positive results were discarded. No bird died of the disease during the year.

83. *District Livestock Farm, South Kanara.*—(a) The following breeds were kept in the farm.

(i) White Leghorn, (ii) Rhode Island Red, (iii) Desi and (iv) Rhode Island Red and Desi cross.

(b) *Strength.*—At the beginning of the year the flock consisted of 250 birds in all. Altogether 1,741 chicken were received by hatch, 783 birds were sold for breeding, 1 bird was transferred, 327 birds were sold for table, 149 died and 8 were destroyed thus leaving a balance of 723 birds at the close of the year as detailed below :—

| Breed.                         | Cocks. | Hens. | Chicken. | Total. |
|--------------------------------|--------|-------|----------|--------|
| Rhode Island Red ..            | 7      | 54    | 483      | 544    |
| White Leghorn .. ..            | 5      | 25    | 110      | 140    |
| Desi .. .. .                   | ..     | 7     | ..       | 7      |
| Rhode Island Red-Desi cross .. | ..     | 18    | 14       | 32     |
| Total ..                       | 12     | 104   | 607      | 723    |

(c) *Egg production.*—Particulars of receipts and disposals of eggs are shown below :—

|                                   |        |
|-----------------------------------|--------|
| Balance on 1st April 1954 .. .. . | 280    |
| Receipts—Collections .. .. .      | 9,860  |
| Total ..                          | 10,140 |

**Disposals—**

|                                  |       |
|----------------------------------|-------|
| Kept for hatching .. .. .        | 4,318 |
| Sold for hatching .. .. .        | 888   |
| Sold for table .. .. .           | 3,847 |
| Transfers .. .. .                | 86    |
| Broken and fed to chicks .. .. . | 699   |
| Total ..                         | 9,838 |

Balance on 31st March 1955 .. .. . 302

(d) *Performance of birds.*—(i) There were on an average 25 White Leghorn, 46.8 Rhode Island Red, 7.5 Desi and 6.5 Rhode Island Red-Desi cross laying hens during the year and 2,739, 5,714, 611 and 796 eggs were collected from them respectively.

(ii) The number of pullets that completed their first year of laying during the year, the total number of eggs laid by them and the average egg yield for each breed are given below :—

| Breed.                       | Number of pullets that completed their first year of laying. | Number of eggs laid in pullet year. | Average egg yield. |
|------------------------------|--------------------------------------------------------------|-------------------------------------|--------------------|
| White Leghorn ..             | 4                                                            | 487                                 | 121.8              |
| Rhode Island Red ..          | 10                                                           | 1,484                               | 148.4              |
| Rhode Island Red-Desi cross. | 1                                                            | 105                                 | 105.0              |

As a special feature in this farm it was noticed that the flock average instead of depreciating has appreciated from year to year. The accepted standard of negative difference is about 20 to 30 per cent between the I and II years and 40 to 50 per cent between the II and the III years while the birds under reference have given a positive difference year after year and a typical illustration of a negative phase of acclimatization and recovery consequent on the change of environments.

The egg yields of two of the outstanding hens that completed their pullet year during the year are given below :—

|                          |     |     |           |
|--------------------------|-----|-----|-----------|
| Rhode Island Red No. 257 | ... | ... | 186 eggs. |
| Rhode Island Red No. 247 | ... | ... | 174 eggs. |

The egg yields of all the breeds has increased considerably except the Desi. The decline in the egg yield of Desi was due to the fact that all the hens in the flock were old and they were exploited more intensely this year as sitters.

(e) *Percentage of hatchability.*—Out of a total of \* 3,833 eggs set for hatching, 1,741 chicks were hatched out thus giving a percentage of 45.4 over the total number of eggs kept. Altogether 1,088 eggs were infertile and the percentage of hatchability over fertile eggs works out to 63.4. The percentage of hatchability obtained this year was higher than that of last year, notwithstanding the fact that hatching was undertaken during all the 12 months.

\*NOTE.—Under the eggs set for hatching the eggs loaded in March 1954 but hatched out in April 1954 have been included and those set in March 1955 but not hatched out during the month have not been included.

(f) *Research and experiments.*—(i) Observations on Desi birds and experiments on cross-breeding and grading Desi with Rhode Island Red were continued during the year.

(ii) Observations on incubation during different parts of the year were continued.

(iii) The study of prophylactic measures to ward off the ill-effects of high rainfall and severe summer conditions were undertaken during the year.

84. *District Poultry Farm, Cannanore.*—(a) The farm maintained White Leghorn and Rhode Island Red birds.

The boundary fencing of this farm was undertaken by the Public Works Department during the year.

(b) *Strength.*—The flock strength at the beginning of the year was 575 and at the end of the year was 382 as shown below :—

| Breed.           | Cooks. | Hens. | Chicks. | Total. |
|------------------|--------|-------|---------|--------|
| White Leghorn    | 6      | 69    | 210     | 285    |
| Rhode Island Red | 2      | 22    | 73      | 97     |
| Total            | 8      | 91    | 283     | 382    |

During the year there were 694 chicks received by hatch and 266 birds died.

(c) *Egg production.*—

Particulars of receipts and disposals of eggs are given below—

|                           |    |    |    |    |       |
|---------------------------|----|----|----|----|-------|
| Balance on 1st April 1954 | .. | .. | .. | .. | 7     |
| Receipts—Collections      | .. | .. | .. | .. | 8,619 |
| Total                     | .. | .. | .. | .. | 8,626 |

Disposals—

|                                 |    |    |    |    |       |
|---------------------------------|----|----|----|----|-------|
| Number kept of hatching         | .. | .. | .. | .. | 2,636 |
| Number sold for setting         | .. | .. | .. | .. | 2,279 |
| Number transferred for setting  | .. | .. | .. | .. | 2,013 |
| Number sold for table           | .. | .. | .. | .. | 1,088 |
| Number broken and fed to chicks | .. | .. | .. | .. | 462   |
| Number transferred for table    | .. | .. | .. | .. | 79    |
| Total                           | .. | .. | .. | .. | 8,557 |

Closing balance on 31st March 1955 .. .. . 69

(d) *Performance of birds.*—(i) There were on an average 69 White Leghorn and 22 Rhode Island Red laying hens during the year and 6,732 and 1,897 eggs were collected from them respectively.

(ii) The number of hens that completed their pullet year of laying during the year the total number of eggs laid and the average egg yield, for each breed are given below :—

| Breed.           | Number of pullets that completed their pullet year of laying. | Number of eggs laid by them. | Average egg yield. |
|------------------|---------------------------------------------------------------|------------------------------|--------------------|
| White Leghorn    | 42                                                            | 6,064                        | 144.4              |
| Rhode Island Red | 12                                                            | 1,226                        | 102.1              |

(iii) The most outstanding hen among White Leghorns was hen No. 101 which gave 216 eggs in its first year of laying and among Rhode Island Reds hen No. 33 which gave 192 eggs, also during its first year of laying.

(e) *Percentage of hatchability.*—Out of a total of 2,636 eggs set for hatching 694 chicks were hatched out thus giving a percentage of 26.3 over the total number of eggs kept. Altogether 737 eggs were infertile thus giving a percentage of hatchability of 36.5 over the fertile eggs. There was an increase in the percentage of hatchability compared to that of last year, but however steps are being taken to further improve the hatchability.

85. *Receipts and Expenditure.*—The receipts and the cost of management of Poultry Research Station, Madras and District Poultry Farm, Cannanore are given below :—

| Farm.                                   | Receipts. |     |                                        | Expenditure. |     |                |
|-----------------------------------------|-----------|-----|----------------------------------------|--------------|-----|----------------|
|                                         | Realized. |     | Value of birds eggs, etc. transferred. | Recurring.   |     | Non-recurring. |
|                                         | (2)       | (3) |                                        | (4)          | (5) |                |
| (1)                                     | RS.       | A.  | P.                                     | RS.          | A.  | P.             |
| (a) Poultry Research Station, Madras .. | 4,129     | 5   | 0                                      | 147          | 2   | 0              |
| (b) District Poultry Farm, Cannanore.   | 1,958     | 4   | 6                                      | 786          | 7   | 3              |
|                                         |           |     |                                        | 3,501        | 13  | 3              |
|                                         |           |     |                                        |              |     | 51,289 2 0     |

(i) The expenditure was less this year compared to that of last in the Poultry Research Station, Madras. The receipts were more as a large number of birds were sold during the year.

(ii) The expenditure is less this year when compared to the previous year due to the reduction in the stock during the year. The decrease in receipt was due to the less number of birds, sold this year for want of birds.

86. *Mortality in Poultry Farms.*—The following table gives the details regarding the mortality in Poultry Farms during the year.

| Farm.                                              | Deaths. | Per-centage of mortality. |
|----------------------------------------------------|---------|---------------------------|
| (i) Livestock Research Station, Hosur Cattle Farm. | 756     | 25.9                      |
| (ii) Poultry Research Station, Madras              | 313     | 8.8                       |
| (iii) District Livestock Farm, South Kanara        | 149     | 7.5                       |
| (iv) District Poultry Farm, Cannanore              | 266     | 20.8                      |

Remarks.—(i) There was not much variation in the mortality percentage compared to that of last year. The large number of deaths was due to the disease Avian Leucosis complex although this problem was tackled with

severe culling and blood testing. To reduce the incidence of the above disease only older cocks were used for breeding.

(ii) The mortality percentage was lower during the current year as compared to that of last year.

(iii) Mortality during the year was much limited. Special precautions by way of improved accommodation, etc., to ward off the ill-effects of extremes of climate were provided for during the year.

(iv) The increase in mortality during the year compared to the previous year was due to paralysis among chicks. Proper steps were taken to control the disease and the chicks are healthier now.

87. *Poultry Units in Veterinary Institutions.*—(a) Out of the 22 Poultry Demonstration Units in Veterinary Institutions the one at Tiruchirappalli continued to remain closed during the year. The Unit at Salem was also closed in the month of August 1954.

(b) The statement showing the receipts and disposal of eggs and birds in these Units are annexed.

(c) During December 1954 one experimental Poultry Unit was started with a foundation stock of 12 Rhode Island Reds in the Androth Island in charge of the Medical Officer of the Island. The birds had not yet commenced laying.

88. *Poultry Unit at Central Jail, Tiruchirappalli.*—The unit was maintaining 4 cockerels, 16 hens and 14 chicks at the end of the period. A total of 512 eggs for hatching and 9 cockerels were sold during the year.

89. A review on the working of the Poultry Farms and the Demonstration Units in Veterinary Institutions reveals that a total of 74,694 eggs were produced of which 44,313 eggs were either sold or set for hatching. About 60 per cent of the eggs have been utilized for hatching which is satisfactory. In addition 4,164 birds were sold for breeding purposes in the districts.

Among the poultry farms, the Livestock Research Station, Hosur, had sold 2,325 eggs, the largest number for hatching besides hatching 1,739 chicks.

As per the number of chicks hatched, District Livestock Farm, South Kanara, stands foremost with a total of 1,741 chicks. The District Poultry Farm, Cannanore, had also a good record for sale of hatching eggs.

In respect of the Poultry Demonstration Units in Veterinary Institutions the Unit of Dharapuram deserves special mention for having produced over 5,000 eggs during the year. The Unit at Tallakulam sold as many as 1,921 eggs for hatching purposes. Besides these five other units produced more than 2,000 eggs during the year and eight other units had sale records of more than 1,000 eggs during the year.

It is noteworthy that the Unit at Erode hatched 713 chicks, during this year. In addition four other Units have also hatched more than 100 chicks during the period.

90. *Poultry Rearing in private farms.*—(a) *Chingleput district.*—The Poultry Farm, Thimmavaram, maintained by Sri Lakshmiipathi Reddiar continued during the year. There were about 19 White Leghorn, 100 Rhode Island Red and 100 indigenous birds and about 50 chicks of White Leghorn and Rhode Island Red breeds in the farm. The departmental staff inspected the farm periodically and gave necessary technical advice whenever required.

Another Poultry Farm at Mathivakam with about 200 birds of Rhode Island Red, White Leghorn, Black Minorca and Light Sussex breeds in addition to country hens was maintained by a private individual.

(b) *North Arcot district—The American Arcot Mission, Katpadi.*—Sanction was accorded for the continuance of the scheme run by the American Arcot Mission at Katpadi with Government assistance and the continuance of the 12 Model Village Poultry Farms attached to it for a further period of three years from 1st April 1954. The continuance of the Sub-Farm at Arni was sanctioned for a period of only one year with effect from 1st July 1954.

The following are details of work turned out by the 12 model units and Sub-Farm, Arni, during the year 1954-55 :—

|                                                       | Twelve units. Sub-Farm, Arni |       |
|-------------------------------------------------------|------------------------------|-------|
| Pure bred cockerels supplied at concessional rates .. | 200                          | 12    |
| Number of eggs collected .. ..                        | 29,134                       | 2,198 |
| Number of eggs sold for table .. ..                   | 22,102                       | 1,203 |
| Number of eggs sold for hatching purposes .. ..       | 7,032                        | 995   |
| Number of demonstrations conducted .. ..              | 10                           | 9     |
| Number of exhibitions conducted .. ..                 | 8                            | 1     |

(c) *South Arcot.*—The following work was turned out at the Poultry Unit at Muttathur belonging to the American Arcot Mission, Katpadi :—

|                                                |       |
|------------------------------------------------|-------|
| Number of birds sold for breeding purposes ... | 43    |
| Number of eggs collected ... ..                | 2,015 |
| Number of eggs sold for table ... ..           | 892   |
| Number of eggs sold for hatching ... ..        | 966   |
| Number of eggs set for hatching ... ..         | 167   |

A sum of Rs. 702-9-6 was paid during the year as a subsidy for the Unit.

Besides one small Poultry Farm at Appampet, Kandan Poultry Farm at Valavanur, and one small Poultry Unit at Kutteripattu also existed during the period.

(d) *Tiruchirappalli district.*—There were 51 Poultry Units with private parties. The number of exotic birds in the district was 960. A total number of 19,850 eggs were produced and 2,350 eggs were set for hatching.

There were 55 backyard Poultry Units in the district. Altogether 140 eggs were set for hatching by incubation by two private bodies under the guidance of the departmental staff and 84 chicks were hatched out. A sum of Rs. 703-12-0 was granted as 50 per cent grant to seven Poultry enthusiasts from the District Planning Committee funds.

(e) *Madurai district.*—There were four Poultry Units maintained by private individuals, two at Chokkikulam, one at Perichipalayam and one at Bodinayakanur with exotic breeds of birds.

(f) *Ramanathapuram district.*—There were 13 poultry units maintained by private individuals and 53 cocks, 331 hens and 380 chicks in the breeds of White Leghorn, Rhode Island Red and Black Minorca were reared.

(g) *Salem district.*—There was one Poultry Farm maintained at Mallur by Sri Ramaswamy Gounder and one Model Poultry Farm at Chinnabellagondapalli by Sri Linga Reddy and his brothers with exotic breeds of poultry. There were 39 cocks, 176 hens and 90 chicks in the former and 20 cocks, 70 hens and 70 chicks in the latter at the end of the year.

91. *Firka Development Scheme.*—The three Centres at Saliamangalam (Tanjore district), T. Kallupatti (Madurai district) and Malli (Ramanathapuram district) continued to function during the year. The fourth Centre at

Kinnigoli (South Kanara district) was transferred to the Community Project Administration during the year.

(a) *Poultry Production Centre, Saliangalam.*—A total number of 3 cocks, 13 hens, and 53 chicks of the White Leghorn breed, 7 hens and 17 chicks of the Desi breed and a flock graded birds were maintained in the Centre at the end of the year. Altogether 1,845 eggs were collected during the year out of which 240 were set for hatching and 1,128 were sold for table. Besides 5 cocks, 5 hens and 35 chicks were sold for breeding purposes.

(b) *Poultry Farm at the Tamil Nad. Grama Sevak Vidyalyam, T. Kallupatti.*—At the end of the year there were 3 cocks, 16 hens and 35 chicks of the Rhode Island Red breed in the farm. During the year 2,048 eggs were collected out of which 652 were sold for hatching, 671 were sold for table, 688 were set for hatching at the Unit and 291 were broken and fed to chicks. During the year 289 chicks were received by hatch and 116 chicks, 6 cocks and 2 hens were sold to grade up the local fowls.

(c) *Poultry Production Centre, Malli.*—At the close of the year 10 cocks, 26 hens and 110 chicks of the White Leghorn breed and 66 hens and 120 chicks of the graded variety, besides ten Desi hens were maintained at the Centre. A total number of 5,016 eggs were collected out of which 2,447 eggs were sold for hatching purposes in the National Extension Service Area.

92. *Horses and Pony Breeding.*—The stallions stationed at the Veterinary Institutions, Pollachi, Erode and Tirupur continued to be at stud during the year. Besides these 3 stallions, 1 mare and 2 fillies were maintained at the Hosur Cattle Farm. The number of services performed by the stallions were as follows:—

| Place.                   | Number of services. |
|--------------------------|---------------------|
| Pollachi ... ..          | 50                  |
| Erode ... ..             | 50                  |
| Tirupur ... ..           | 53                  |
| Hosur Cattle Farm ... .. | 43                  |

It is also proposed to station some more stallions in other Headquarters Institutions to improve horses and pony-breeding.

93. *Pig rearing*—(a) *Chingleput district.*—At Pudupakam village there were about 50 pigs including Berkshire pigs belonging to Mrs. R. M. Buck.

(b) *Tiruchirappalli district.*—Foreign breeds of pigs are being reared in the following institutions in Tiruchirappalli district:—

| Name of institution or individual.       | Number of pigs. |
|------------------------------------------|-----------------|
| St. Joseph's College ... ..              | 200             |
| Dr. Rajan's Farm, Thiruvengimalai ... .. | 50              |
| St. Paul's Seminary ... ..               | 10              |
| Sri Thangarajan, Amoor ... ..            | 5               |

The greatest hindrance to pig rearing evinced in Tiruchirappalli district was that there was no steady market at the Headquarters for Pork and to convey the pigs to other stations is a difficult and costly problem.

94. *Cattle Shows, Sheep and goat shows and exhibitions*—(a) *One Day Cattle Shows.*—Altogether 94 one day cattle shows were conducted during the year, out of which 25 were held in connexion with the Gosamvardhana day celebrations and 20 in the National Extension Service and Community Project areas.

A sum of Rs. 12,000 was sanctioned for the one day cattle shows and Rs. 4,000 for the shows held in connexion with the Gosamvardhana day celebrations.

One district two days cattle show at Tiruppur for which a sum of Rs. 500 was sanctioned and one cattle show in North Arcot district with the contribution from Collector's discretionary grant were also held during the year.

(b) *Private Cattle Shows.*—Sixteen private cattle shows were held during the year and a total grant of Rs. 765 was sanctioned for twelve shows.

(c) *Calf rallies.*—Altogether 13 calf rallies were held during the year in the Key Farm and Key Village areas.

(d) *Sheep Shows.*—The Government granted sanction for conducting 10 sheep and goat shows in important breeding tracts to introduce greater interest among breeders of these animals. An amount of Rs. 2,000 was sanctioned for the purpose. These shows organized in the different parts of the State attracted a larger number of entries in some cases as many as 1,500 and were very popular. One more sheep show was conducted at Chinnabelagondapalli along with a cattle show. More than 300 animals took part in the show. The village rolling shield was awarded to the Achettipalli village of the grading scheme for having participated in the show with the most number of exhibits.

(e) *Exhibitions.*—This department participated in the exhibition enumerated below during the year:—

- (i) The Congress Exhibition, Madras.
- (ii) The All-India Swadeshi Agricultural and Industrial Exhibition, Tiruvannamalai.
- (iii) The 17th Rural Fair Exhibition, Katpadi.
- (iv) The exhibition held in connexion with the inauguration of the Mandakolathur block at Polur.
- (v) The exhibition held in connexion with the Tamil Nad Conference of the Co-operative Societies, Vellore.
- (vi) The Arts Exhibition, Tanjore.
- (vii) The exhibition at Mayuram.
- (viii) The Masimaham Exhibition at Kumbakonam.
- (ix) The Fifth All-India Khadi, Swadeshi and Industrial Exhibition, Tiruchirappalli.
- (x) The exhibition held in connexion with Silver Jubilee Celebration of the Annamalai University, Chidambaram.
- (xi) The exhibition at Arts College held during the Red-Cross Week at Coimbatore.
- (xii) The 14th All-India Khadi, Swadeshi and Industrial Exhibition, Salem.
- (xiii) The Health Education and Industrial Exhibition, Kozhikode.

A certificate of gold medal was awarded to this department by the exhibition committee of the All-India Khadi, Swadeshi and Industrial Exhibition, Salem.

The Prime Minister of India declared open the exhibition conducted in connexion with the Golden Jubilee Celebrations of the Madras Veterinary College in January 1955. The exhibition was of educative and instructive value and was kept open to the public for a period of four days.

95. *Trade in Livestock and Livestock Products.*—(a) *Trade in livestock* is generally carried on in the State through weekly cattle shandies and annual cattle fairs. There are a number of such weekly shandies and cattle fairs in almost all the districts. There is a daily cattle market at Tiruvottiyur in

Chingleput district managed by the Tiruvottiyur Cattle-Breeding and Marketing Society. The number of cows and buffaloes brought into the City of Madras by rail and road for purpose of milk from the Andhra State during the year is given hereunder :—

|           |     |     |     |     |     |     |        |
|-----------|-----|-----|-----|-----|-----|-----|--------|
| Cows      | ... | ... | ... | ... | ... | ... | 5,453  |
| Buffaloes | ... | ... | ... | ... | ... | ... | 6,916  |
| Total     |     |     |     |     |     |     | 12,369 |

The Tirunelveli district is peculiar in having as many as 14 cattle fairs in a year from October to February, each of which has a duration of 15 days. In the Ramanathapuram district, sheep and goats were exported from the ports of Kilakarai and Tondi to Kats in Ceylon. Cattle were brought into the South Kanara district from the neighbouring districts of the Mysore and Bombay States. Cattle and ponies from Kolar in Mysore State were also brought into the shandi at Tiruvannamalai in North Arcot district.

The prices of work-bullocks, she-buffaloes and sheep prevailing at the important cattle market were reported to the Director of Statistics, Madras.

(b) A statement showing the export and import of livestock and livestock products during the year as furnished by the Assistant Collector of Customs is given below :—

#### Exports.

|                                       | Quantity.       | Value.      |
|---------------------------------------|-----------------|-------------|
|                                       | CWT.            | RS.         |
| Raw goat skins .. ..                  | 20,620          | 66,70,844   |
| Raw sheep skins .. ..                 | 7               | 6,329       |
| Raw cuttings of hides and skins.      | 28,754          | 3,29,408    |
| Raw cow-calf skins .. ..              | ..              | ..          |
| Raw buffalo hides .. ..               | ..              | ..          |
| Raw cow hides .. ..                   | ..              | ..          |
| Tanned cow-calf skins .. ..           | 19,341          | 75,10,475   |
| Tanned buffalo-calf skins .. ..       | 16,847          | 50,67,060   |
| Tanned buffalo hides .. ..            | 15,543          | 32,68,715   |
| Tanned goat skins .. ..               | 83,006          | 6,10,93,401 |
| Tanned sheep skins .. ..              | 54,442          | 5,17,23,585 |
| Tanned other skins .. ..              | 2               | 2,870       |
| Horn tips and pieces of horns.        | 14,926          | 6,16,472    |
| Ivory, manufactured .. ..             | ..              | ..          |
| Bone meal .. ..                       | ..              | ..          |
| Horn meal .. ..                       | ..              | ..          |
| Bones for manurial purposes.          | ..              | ..          |
| Bones for manufacturing purposes.     | 7,885 tons.     | 40,05,351   |
| Animals, living—                      |                 |             |
| (a) Cattle excepting sheep and goats. | 54 Nos.         | 55,985      |
| (b) Sheep and goats .. ..             | 48,673 ..       | 25,59,806   |
| (c) Other kinds .. ..                 | 1,821 ..        | 1,56,391    |
| Leather, unwrought .. ..              | 2,272           | 17,24,657   |
| Hair—Goat hair (other than Angora).   | 52,359,570 lbs. | 18,81,081   |
| Other kinds of hair .. ..             | 84,892 ..       | 2,36,963    |

#### Imports.

|                                                       | Quantity. | Value.      |
|-------------------------------------------------------|-----------|-------------|
|                                                       | CWT.      | RS.         |
| Leather-unwrought .. ..                               | 20,891    | 3,40,255    |
| Roller skins .. ..                                    | 35        | 1,07,873    |
| Hides, raw .. ..                                      | 5,238     | 5,71,792    |
| Skins, tanned .. ..                                   | ..        | ..          |
| Skins, raw .. ..                                      | 3,880     | 4,41,067    |
| Hides, tanned .. ..                                   | ..        | ..          |
| Bacon and ham .. ..                                   | 132       | 36,131      |
| Milk food for infants and invalids.                   | 19,133    | 41,92,748   |
| Whole milk including cream (evaporated or condensed). | 25,163    | 26,02,997   |
| * Dried skimmed milk .. ..                            | ..        | ..          |
| Animals, living horse .. ..                           | 52 Nos.   | 1,78,193    |
| Other kinds .. ..                                     | 6,282 ..  | 67,688      |
| Dried milk or powder, whole.                          | 2,213     | 3,51,900    |
| Dried milk or powder skimmed.                         | 1,86,576  | 1,23,66,012 |
| * Dried milk condensed or powder—                     |           |             |
| Butter .. ..                                          | 506       | 1,38,474    |
| Ghee .. ..                                            | 5 lb.     | 19          |

\* No separate head as detailed is maintained.

(c) The details of export and import of livestock from the Madras State and the average prices for the year for hides and skins in Madras City and Dindigul as furnished by the State Marketing Officer are given below :—

#### Exports and imports of livestock.

##### Exports by rail.

| To.          | Cattle. | Sheep and goats. | Horse.  |
|--------------|---------|------------------|---------|
|              | NUMBER. | NUMBER.          | NUMBER. |
| Bombay .. .. | 7       | 62               | ..      |
| Mysore .. .. | 105     | 190              | 25      |
| Total .. ..  | 112     | 252              | 25      |

##### Imports by rail.

| From                 | Cattle. | Horses, ponies and mules. | Sheep and goats. | Other animal. |
|----------------------|---------|---------------------------|------------------|---------------|
|                      | NUMBER. | NUMBER.                   | NUMBER.          | NUMBER.       |
| Mysore .. ..         | 2,350   | ..                        | 206              | 200           |
| Bombay .. ..         | 6       | 217                       | 3                | ..            |
| Punjab .. ..         | 24      | ..                        | ..               | ..            |
| Madya Pradesh .. ..  | ..      | 10                        | ..               | ..            |
| Uttara Pradesh .. .. | 8       | ..                        | ..               | ..            |
| Total .. ..          | 2,388   | 227                       | 209              | 200           |

96. *State Livestock Improvement Board*.—The 32nd and 33rd meetings of the Livestock Improvement Board were held at Hosur Cattle Farm on 20th June 1954 and at Idayakottai on 2nd February 1955, respectively and the following are some of the subjects discussed in the meetings :—

(a) *Thirty-second meeting*.—(i) Distribution of Kangayam cows to private cattle breeders.

(ii) A pilot plan for cross-breeding of cattle in hilly and heavy rainfall areas of Madras State.

(iii) Development of the Umblachery breed in Tanjore district.

(iv) Transfer of control over the artificial insemination centres in key farms in districts to the Special Officer for Artificial Insemination.

(v) Performance of calves produced by artificial insemination.

(vi) Distribution of sheep and goats to private owners on loan.

(vii) A scheme for bristle trade.

(viii) Celebration of Gosamvardhana week in the districts in the Sankaranthi week every year instead of in November.

(ix) Starting of Gosadan Centres in the State.

(b) *Thirty-third meeting*.—(i) Development of public pastures and grazing grounds.

(ii) Provision of buildings, roads and a motor van to the Livestock Farm at Thiruvazhamkunnu.

(iii) Introduction of artificial insemination of cattle in Malabar and South Kanara districts.

(iv) Introduction of artificial insemination of cattle in all the district headquarters.

(v) Opening of a Veterinary dispensary where there is large cattle population.

(vi) Provision of pasteurisation plants in the major milk supply anions.

(vii) Starting of dairy-cum-breeding farms.

(viii) Opening of a Livestock Farm in Coimbatore district to develop the Bhurghur breed of cattle.

(ix) Free distribution of exotic cockerels to villagers to encourage upgrading of desi fowls.

(x) Reducing the sale price of stud bulls in Government farms and introducing a slab system of price based on age.

(xi) Allotment of grazing grounds for sheep and goats in forest areas.

(xii) Concession in land revenue to private breeders for lands used exclusively as grazing grounds by the cattle farms in Madras State.

(xiii) Scheme for the encouragement of breeding asses and donkeys in South Kanara district.

97. *Collector's Discretionary grant*.—(a) *North Arcot district*.—In connexion with 3 one-day cattle show, a sum of Rs. 200-4-0 was sanctioned by the Collector.

(b) *South Arcot district*.—A sum of Rs. 170 was sanctioned by the Collector for award of prizes to ryots who were interested in livestock improvement. Apart from this cockerels worth Rs. 50 were also supplied to an individual for the interest shown in Agriculture and Livestock Improvement.

(c) *Tiruchirappalli district*.—An amount of Rs. 100 was awarded to five poultry enthusiasts.

A sum of Rs. 200 was awarded as cash prizes to seven enthusiastic custodians for their good livestock work.

(d) *Madurai district*.—A sum of Rs. 100 was granted out of which Rs. 50 was awarded to the exhibitors of good cattle in the Athicombai cattle fair and the rest Rs. 50 was awarded to the owners of good cattle at the cattle fair held at Vadamathurai.

(e) *Ramanathapuram*.—A sum of Rs. 170 was sanctioned to the Co-operative Milk Supply Society, Virudhunagar.

(f) *Tirunelveli*.—A sum of Rs. 500 was granted towards five cattle shows to make the shows a grand success.

(g) *Coimbatore West*.—Altogether 5 white leghorn and 9 Rhode Island red cockerels have been purchased with the Collector's discretionary grant and distributed in the National Extension Service area.

A total number of 2 Mandya rams were purchased and located in a village of the National Extension Service area.

(h) *Coimbatore East*.—An amount of Rs. 50 was sanctioned by the Collector in connection with a cattle show.

In the National Extension Service area, cockerels were distributed with the aid of Collector's discretionary grant.

(i) *Salem*.—In connection with cattle shows a sum of Rs. 100 was sanctioned. A sum of Rs. 450 was also sanctioned for the improvement of 2 poultry units.

(j) *South Kanara*.—A sum of Rs. 150 was sanctioned for award of prizes at Rs. 50 each for 3 cattle shows.

98. *Agriculture*.—(a) *Livestock Research Station, Hosur Cattle Farm*.—During the year, three bee colonies were hived out, in addition to the existing three hives of the previous year. Two hives were deserted by the bees and four were working throughout the year. A total quantity of 6 lbs. 4 ozs. of honey was extracted and sold during the year.

(b) *District Livestock Farm, South Kanara*.—Altogether 4 bee colonies were maintained during the year and 4½ lbs. of honey was extracted.

(c) *District Livestock Farm, Pudukottai*.—Altogether 3 bee hives were kept during the year. A total quantity of 18½ lbs. of honey was extracted and sold.

(d) *District Livestock Farm, Orathanad*.—A total of 20 bee hive boxes were made during the year and 5 wild bee colonies were hived but 2 of them deserted. The remaining 3 bee-hives were working satisfactorily.

99. *Pisciculture*.—(a) *Livestock Research Station, Hosur Cattle Farm*.—The right of fishing in the farm tanks was given in a contract for a period of three years. During the year 20 dozens of fingerlings of the new variety called "Etroplus" were sown in the Jeegur tank of the farm.

(b) *District Livestock Farm, Orathanad*.—Varieties of fish such as Gowrami, Labia and two kinds of fingerlings were let into the ponds in the farm premises.

## CHAPTER VII.

### VETERINARY HEALTH SERVICE.

100. *Veterinary Institutions*.—The following new Veterinary Institutions were opened during the year :—

(i) Veterinary Dispensary at Ponneri in Chingleput district.

(ii) Veterinary Dispensary at Tiruppattur in North Arcot district.

| To.                       | Foreign exports (by sea). |        |                  |           |         |          |
|---------------------------|---------------------------|--------|------------------|-----------|---------|----------|
|                           | Cattle.                   |        | Sheep and goats. |           | Others. |          |
|                           | Number.                   | Value. | Number.          | Value.    | Number. | Value.   |
|                           |                           | RS.    |                  | RS.       |         | RS.      |
| Ceylon .. ..              | 54                        | 55,985 | 41,862           | 19,96,761 | 169     | 1,12,499 |
| United Kingdom ..         | ..                        | ..     | ..               | ..        | 1       | 45       |
| Germany .. ..             | ..                        | ..     | ..               | ..        | 13      | 17,673   |
| United States of America. | ..                        | ..     | ..               | ..        | 4       | 22,530   |
| Total ..                  | 54                        | 55,985 | 41,862           | 19,96,761 | 187     | 1,52,747 |

| From              | Foreign imports (by sea). |          |              |        |
|-------------------|---------------------------|----------|--------------|--------|
|                   | Horses.                   |          | Other kinds. |        |
|                   | Number.                   | Value.   | Number.      | Value. |
|                   |                           | RS.      |              | RS.    |
| United Kingdom .. | 52                        | 1,78,193 | 5,282        | 67,688 |
| Total ..          | 52                        | 1,78,193 | 5,282        | 67,688 |

| To                | Coastal exports (by sea). |        |         |        |
|-------------------|---------------------------|--------|---------|--------|
|                   | Sheep and goats.          |        | Others. |        |
|                   | Number.                   | Value. | Number. | Value. |
|                   |                           | RS.    |         | RS.    |
| West Bengal .. .. | 63                        | 2,495  | 15      | 97,000 |
| Total ..          | 63                        | 2,495  | 15      | 97,000 |

| <i>Coastal imports (by sea).</i> |       |    |         |        |
|----------------------------------|-------|----|---------|--------|
| From.                            |       |    | Others. | Value. |
|                                  |       |    |         | RS.    |
| South Bengal and Cutch           | ..    | .. | 21      | 2,000  |
|                                  |       |    | <hr/>   | <hr/>  |
|                                  | Total | .. | 21      | 2,000  |
|                                  |       |    | <hr/>   | <hr/>  |

Statement showing average wholesale prices of livestock products at the Madras City during 1954-55

| Month.            | Cow hide                |        |                    |        | Goat skin. |        |        | Sheep skin. |         |  |
|-------------------|-------------------------|--------|--------------------|--------|------------|--------|--------|-------------|---------|--|
|                   | Up Country, 8 to 8½ lb. |        | Coast, 8 to 8½ lb. |        | Good.      |        | Fair.  |             | Common. |  |
|                   | (2)                     | (3)    | (4)                | (5)    | (6)        | (7)    | (8)    | (9)         | (10)    |  |
| April 1954 ..     | 2 0 0                   | 1 15 0 | 1 15 0             | 5 7 0  | 5 5 0      | 5 3 0  | 5 14 0 | 5 11 0      | 5 9 0   |  |
| May 1954 ..       | 2 0 0                   | 2 0 0  | 2 0 0              | 5 6 0  | 5 3 0      | 4 13 6 | 5 5 0  | 5 3 6       | 5 2 0   |  |
| June 1954 ..      | 1 15 9                  | 1 15 9 | 1 15 9             | 5 2 0  | 5 0 0      | 4 12 0 | 5 3 0  | 5 1 0       | 4 15 6  |  |
| July 1954 ..      | 1 15 9                  | 1 15 9 | 1 15 9             | 4 15 0 | 4 13 0     | 4 11 0 | 5 2 0  | 5 0 0       | 4 12 3  |  |
| August 1954 ..    | 1 15 9                  | 1 15 9 | 1 15 9             | 5 0 0  | 4 14 0     | 4 12 0 | 5 1 0  | 4 15 0      | 4 13 0  |  |
| September 1954 .. | 2 0 0                   | 2 0 0  | 2 0 0              | 4 13 6 | 4 11 3     | 4 9 9  | 5 0 3  | 4 15 0      | 4 14 3  |  |
| October 1954 ..   | 1 14 9                  | 1 14 9 | 1 14 9             | 4 10 6 | 4 9 0      | 4 8 0  | 4 11 9 | 4 10 6      | 4 9 6   |  |
| November 1954 ..  | 2 0 6                   | 2 1 0  | 2 1 0              | 4 10 9 | 4 9 6      | 4 8 6  | 4 10 9 | 4 8 9       | 4 7 6   |  |
| December 1954 ..  | 2 3 0                   | 2 1 6  | 2 1 6              | 5 1 0  | 4 15 0     | 4 13 0 | 5 3 0  | 5 1 0       | 4 15 0  |  |
| January 1955 ..   | 2 3 6                   | 2 3 6  | 2 3 6              | 5 4 0  | 5 2 0      | 5 0 0  | 5 6 0  | 5 4 0       | 5 2 0   |  |
| February 1955 ..  | 2 3 6                   | 2 3 6  | 2 3 6              | 5 5 0  | 5 3 0      | 5 1 0  | 5 5 0  | 5 3 0       | 5 1 0   |  |
| March 1955 ..     | 2 7 0                   | 2 5 0  | 2 4 0              | 5 6 0  | 5 4 0      | 5 2 0  | 5 8 0  | 5 5 6       | 5 3 6   |  |

Statement showing average wholesale prices of livestock products in Dindigul Market during 1954-55.

| Month.            | Cow hide. |          |           | Goat skin.                 |                            |                            | Sheep skin.                |                            |     |
|-------------------|-----------|----------|-----------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-----|
|                   | Superior. | Average. | Inferior. | A. Quality.                |                            | Decan quality.             | Superior.                  | Inferior.                  |     |
|                   |           |          |           | (5)                        | (6)                        |                            |                            |                            | (7) |
| (1)               | (2)       | (3)      | (4)       | Price per lb.<br>RS. A. P. | Price per lb.<br>RS. A. P. | Price per lb.<br>RS. A. P. | Price per lb.<br>RS. A. P. | Price per lb.<br>RS. A. P. |     |
| April 1954 ..     | 0 11 6    | 0 10 6   | 0 9 6     | 1 6 11                     | 1 3 8                      | 1 7 7                      | 1 7 7                      | 1 0 6                      |     |
| May 1954 ..       | 0 11 6    | 0 10 6   | 0 9 6     | 1 5 0                      | 1 2 3                      | 1 6 7                      | 1 6 7                      | 0 15 11                    |     |
| June 1954 ..      | 0 11 6    | 0 10 6   | 0 9 6     | 1 4 3                      | 1 1 6                      | 1 4 9                      | 1 4 9                      | 0 15 2                     |     |
| July 1954 ..      | 0 11 6    | 0 10 6   | 0 9 6     | 1 3 3                      | 0 15 6                     | 1 3 9                      | 1 3 9                      | 0 14 7                     |     |
| August 1954 ..    | 0 11 6    | 0 10 6   | 0 9 6     | 1 3 9                      | 0 15 0                     | 1 3 9                      | 1 3 9                      | 0 14 3                     |     |
| September 1954 .. | 0 11 3    | 0 10 0   | 0 9 3     | 1 4 0                      | 0 14 6                     | 1 3 6                      | 1 3 6                      | 0 13 0                     |     |
| October 1954 ..   | 0 11 6    | 0 10 6   | 0 9 6     | 1 5 0                      | 0 15 0                     | 0 13 0                     | 0 13 0                     | 0 13 0                     |     |
| November 1954 ..  | 0 11 0    | 0 10 3   | 0 9 0     | 1 5 9                      | 0 15 9                     | 1 3 3                      | 1 3 3                      | 0 12 9                     |     |
| December 1954 ..  | 0 11 0    | 0 10 3   | 0 9 0     | 1 6 9                      | 1 0 9                      | 1 4 0                      | 1 4 0                      | 0 14 3                     |     |
| January 1955 ..   | 0 11 0    | 0 10 0   | 0 9 0     | 1 6 9                      | 1 0 9                      | 1 5 9                      | 1 5 9                      | 0 15 3                     |     |
| February 1955 ..  | 0 12 0    | 0 11 0   | 0 10 0    | 1 6 6                      | 1 0 9                      | 1 5 6                      | 1 5 6                      | 0 15 3                     |     |
| 1956..            | 0 13 0    | 1 12 0   | 0 11 0    | 1 7 3                      | 1 1 3                      | 1 6 3                      | 1 6 3                      | 1 0 6                      |     |

- (iii) Veterinary Dispensary at Koradacheri in Tanjore district.
- (iv) Veterinary Dispensary at Sholavandan in Madurai district.
- (v) Veterinary Dispensary at Kadayanallur in Tirunelveli district.
- (vi) Veterinary Dispensary at Malayandipatnam in Coimbatore district.
- (vii) Veterinary Dispensary at Kanhangad in South Kanara district.

The Veterinary Dispensary, Dharmathupatty, was handed over to the Community Project Administration during the year.

The number of Veterinary Institutions in this State at the end of the year excluding the Minor Veterinary Dispensaries was 94, consisting of 36 Veterinary hospitals and 58 Veterinary dispensaries. In addition, 4 Veterinary dispensaries were being maintained by the Corporation of Madras in the City of Madras and 11 Veterinary institutions were run by the Community Project Administration.

During the year under report, 2,51,568 cases, both in and out-patients, were treated and 43,134 castration were done in the institutions maintained by this department as against 2,32,423 cases treated and 40,734 castrations done during the previous year.

The following table gives the number of cases treated in some of the more important Veterinary institutions in this State :—

| Serial number and name of Veterinary Institution.                  | Number of cases treated. |
|--------------------------------------------------------------------|--------------------------|
| (i) Veterinary Hospital attached to the Madras Veterinary College. | 13,783                   |
| (ii) Veterinary Hospital, Saidapet .. ..                           | 7,663                    |
| (iii) Veterinary Hospital, Vettaikaranpudur .. ..                  | 7,427                    |
| (iv) Veterinary Hospital, Coimbatore .. ..                         | 7,211                    |
| (v) Veterinary Hospital, Salem .. ..                               | 5,735                    |
| (vi) Veterinary Dispensary, Madurai City .. ..                     | 5,619                    |
| (vii) Veterinary Hospital, Tiruchirappalli .. ..                   | 5,001                    |

Of the 94 Institutions in the State, 42 were located in Government buildings. Out of these only 15 were electrified. The remaining institutions were either accommodated in rented or donated buildings. On the whole, 30 institutions were equipped with microscopes and 18 institutions were supplied with refrigerators.

101. *Contributions.*—The policy of obtaining contribution from the public and local bodies towards the maintenance of the Veterinary institutions and minor Veterinary dispensaries was continued during the year and the response was quite satisfactory.

The names of the individual donors and the local bodies which are contributing towards the maintenance of the Veterinary institutions in their respective places in the various districts, are furnished below :—

*Chingleput district.*—The District Board, Chingleput, is contributing a total sum not exceeding Rs. 2,000 being 50 per cent of the expenditure incurred towards the maintenance of the Veterinary dispensary, Kaliyampundi. The Panchayat Board, Ponneri, is to contribute a sum of Rs. 125 per annum towards the maintenance of the Institution at Ponneri.

*North Arcot district.*—The Tiruppattur Municipality meets half of the recurring and non-recurring expenditure incurred towards the maintenance of the Veterinary Dispensary, Tiruppattur.

*Tanjore district.*—The District Board, Tanjore, and His Holiness the Pandara Sannathi, Tirupanandal, continued to contribute the prescribed amounts towards the maintenance of the Veterinary Institutions at Tiruturaipoondi, Shirkali, Papanasam, Arantangi, Pattukkottai and Tirupanandal.

Sri M. A. Ramanujam Pillai, has agreed to endow a sum of Rs. 1,000 annually towards the expenditure incurred in the running of the Veterinary Dispensary, Koradacheri.

*Tiruchirappalli district.*—The District Board, Tiruchirappalli, meets half the recurring expenditure incurred in running the Veterinary Dispensary at Manapalai.

*Madurai district.*—The District Board, Madurai, and the Panchayat Board, Thirumangalam, meet half the recurring expenditure incurred in the running of the Veterinary Dispensary, Thirumangalam.

The Bodinayakkanur Municipality meets half the recurring expenditure incurred in the running of the Veterinary Dispensary, Bodinayakkanur.

The Palni Municipality and Sri Dhandayuthapaniswami Devasthanam, Palni, each meet one-third of half of the recurring expenditure incurred towards the running of the Veterinary Dispensary at Palni.

The Panchayat Board, Sholavandan, and the District Board, Madurai, have agreed to contribute each 25 per cent of the recurring and non-recurring charges towards the running of the Veterinary Dispensary at Sholavandan. The Panchayat Board, Cumbum, has agreed to pay a lump-sum contribution of Rs. 1,000 per annum towards the running of the Veterinary Dispensary at Cumbum.

*Ramanathapuram district.*—The Karaikudi Municipality has agreed to contribute a sum of Rs. 1,000 or the amount other than the pay and allowances of the Veterinary Assistant Surgeon incurred towards the maintenance of the Veterinary Dispensary, Karaikudi, every year.

*Tirunelveli district.*—The District Board, Tirunelveli, has been contributing 50 per cent of the expenditure incurred in running the Veterinary Dispensaries, Tenkasi and Sivagiri.

The Panchayat Board, Kadayanallur, has agreed to contribute 50 per cent of the recurring expenditure up to a maximum of Rs. 1,500 each year towards running of the Veterinary Dispensary, Kadayanallur.

*Coimbatore district (West).*—The District Board, Coimbatore, is contributing 50 per cent of the expenditure incurred towards the running of the Veterinary Hospital, Vettaikaranpudur, and the Veterinary Dispensaries, Ramachandrapuram and Annur. The Panchayat Boards, Singanallur and Uppilpalayam, are contributing 25 per cent each of the expenditure incurred in the maintenance of the Veterinary Dispensary, Singanallur.

The Mettupalayam Municipality is contributing 50 per cent of the expenditure incurred in the running of the Veterinary Dispensary, Mettupalayam.

The District Board, Coimbatore, has offered to share 50 per cent of the recurring and non-recurring charges towards the maintenance of the Veterinary Dispensary, Malayandipatnam.

*Coimbatore district (East).*—The Veterinary Dispensary, Nathakadayur, is located in a rent-free building given by the Pattagar of Palayakottai.

The Veterinary Hospital, Tirupur, was electrified by the public of Tirupur town.

*South Kanara district.*—The Panchayat Board, Kanhangad, has agreed to contribute 50 per cent of the recurring and non-recurring expenditure incurred towards the maintenance of the Veterinary Dispensary, Kanhangad.

102. *Veterinary dispensaries maintained by the Madras Corporation.*—One more dispensary at the Cattle Depot H was opened during the year. At the end of the year four dispensaries at the Corporation Cattle Depots B, D, F and H were being run by the Corporation. All the four veterinary dispensaries received an annual grant of Rs. 800 each from the Government. The work done in these dispensaries is detailed below :—

| Place of location. | Number of out-patients treated. | Number of castrations done. |
|--------------------|---------------------------------|-----------------------------|
| B Depot .. .. .    | 13,517                          | ..                          |
| D Depot .. .. .    | 13,474                          | 2                           |
| F Depot .. .. .    | 15,364                          | 14                          |
| H Depot .. .. .    | 2,120                           | ..                          |

## CHAPTER VIII.

### ITINERATING STAFF.

103. *Touring billets and minor veterinary dispensaries.*—The following new touring billets and minor veterinary dispensaries were opened during the year :—

- (i) Touring Billet, Needamangalam, Tanjore district.
- (ii) Touring Billet, Dindigul, Madurai district.
- (iii) Touring Billet, Tiruchendur, Tirunelveli district.
- (iv) Minor Veterinary Dispensary, Cheyyur, Chingleput.
- (v) Minor Veterinary Dispensary, Walajah, North Arcot district.
- (vi) Minor Veterinary Dispensary, Ambur, North Arcot district.
- (vii) Minor Veterinary Dispensary, Mudukulathur, Ramanathapuram district.

The headquarters of the Touring Billets, Dindigul and Srivilliputtur, were shifted from Dindigul to Vedaundur and Srivilliputtur to Malli, respectively. The headquarters of the Minor Veterinary Dispensaries, Cumbum and Tirupattur, were shifted from Cumbum to Chinnamannur and Tirupattur to Vaniyambadi, respectively, consequent on the opening of Veterinary Dispensaries at Cumbum and Tirupattur.

The Minor Veterinary Dispensary, Malayandipatnam, was closed during the year consequent on the opening of a veterinary dispensary in its stead.

The Minor Veterinary Dispensary, Karkal, was up-graded into a veterinary dispensary under the Community Project Administration. At the end of the year there were 23 touring billets and 67 minor veterinary dispensaries in the State.

A total of 1,38,252 cases were treated and 37,301 castrations were done by the staff of the touring billets and minor veterinary dispensaries during the year, as against 1,11,114 cases treated and 38,639 castrations during the previous year. The following table gives the number of cases treated and

the castrations done by the staff of some of the more important touring billets and minor veterinary dispensaries :—

| Serial number | Name of touring billets or minor veterinary dispensary. | Number of cases treated. | Number of castrations done. | Total number of cases treated and castrations done. |
|---------------|---------------------------------------------------------|--------------------------|-----------------------------|-----------------------------------------------------|
| (i)           | Touring Billet, Kollegal .. .. .                        | 4,970                    | 806                         | 5,776                                               |
| (ii)          | Minor Veterinary Dispensary, Malayandipatnam.           | 9,625                    | 733                         | 10,358                                              |
| (iii)         | Minor Veterinary Dispensary, Aruppukottai.              | 3,950                    | 1,632                       | 5,582                                               |
| (iv)          | Minor Veterinary Dispensary, Nilakottai ..              | 4,795                    | 659                         | 5,454                                               |

Out of 67 minor veterinary dispensaries in this State only 6 were provided with Government buildings and 2 minor veterinary dispensaries were supplied with refrigerators.

104. *First-aid centres.*—There were 108 first-aid centres in the State of Madras excluding those in the Community Project and National Extension Service areas at the end of the year. These centres were opened in order to extend veterinary aid to the ryots in the interior villages.

105. *Special touring billets.*—Two special touring billets, one in the Salem district and the other in the South Kanara district, sanctioned in the year 1951 were continued during the year. These billets were opened with the object of having an effective check on the ingress of cattle diseases particularly Rinderpest from the neighbouring States of Mysore and Bombay. The Veterinary Assistant Surgeons in-charge of these billets protected 21,286 heads of cattle during the year, in an attempt to create an immune belt at the border areas.

106. *Pilot Scheme for eradication of Rinderpest.*—In accordance with this scheme 20 quarantine stations in the districts of Chingleput, North Arcot, Coimbatore, Salem and South Kanara, were opened during the year on the important cattle routes leading into this State from the neighbouring States. The staff in these quarantine stations have protected 69,219 heads of cattle against Rinderpest by using freeze dried vaccine. Animals so protected were also branded with a standard "O" mark. The staff in their quarantine stations also undertook mass preventive vaccinations in the border areas. With the aid of these quarantine stations it is hoped that an immune belt against Rinderpest will be created around this State during the course of years and thereby keep the State completely free from Rinderpest for ever.

107. *Contributions.*—The name of the individual donors and local bodies that are contributing towards the maintenance of the touring billets and minor veterinary dispensaries in the various districts are furnished below :—

*North Arcot district.*—The Panchayat Board, Cheyyar, continued to lend its choultry free of rent during this year also for the location of the Minor Veterinary Dispensary, Cheyyar.

*Tanjore district.*—The Panchayat Board, Tirukattupalli, is contributing Rs. 200 annually towards the medicine charges incurred in running the Camp Dispensary at Tirukattupalli.

*Madurai district.*—The Panchayat Board, Chinnamannur, has agreed to contribute Rs. 750 per annum towards the maintenance of the Minor Veterinary Dispensary, Chinnamannur, and also to construct a building under the Local Development works.

*Ramanathapuram district.*—The Minor Veterinary Dispensary, Sivakasi, is located in a building donated by the Sivakasi Municipality, which also contributes a sum of Rs. 750 per annum towards the maintenance of the minor veterinary dispensary.

The Tirupattur Panchayat Board contributes a sum of Rs. 240 per annum towards the rent of the building in which the Minor Veterinary Dispensary, Tirupattur, is located.

*Tirunelveli district.*—The rent for the buildings in which the Minor Veterinary Dispensaries, Koilpatti and Valliyur, are located are being paid by Sri A. Ramaswami Doss, M.L.A., and the Panchayat Board, Valliyur, respectively.

The Ambasamudram Panchayat is contributing 25 per cent of the expenditure incurred towards the maintenance of the Minor Veterinary Dispensary, Ambasamudram.

*Coimbatore district (West).*—The Minor Veterinary Dispensary, Kurichikottai, is located in a rent-free building provided by Sri G. Ramaswami Naidu, Director, Tirumurti Mills, Udumalpet.

The Rural Veterinary Dispensary, Andhiyur, is located in a building, the rent of which is being paid by the Panchayat Board, Andhiyur.

The Panchayat Boards, Kodumudi, Punjaipuliampatti and Palladam, contribute towards the expenditure incurred in running the minor veterinary dispensaries located in their respective places.

*Malabar district.*—The Panchayat Board, Chowghat, is contributing a sum of Rs. 600 per annum towards the running of the Minor Veterinary Dispensary, Chowghat.

## CHAPTER IX.

108. *Diseases among livestock.*—During the year under report, 3,156 outbreak reports of contagious diseases, mostly of Black-quarter, were received and as many as 9,63,613 preventive inoculations and vaccinations were conducted by the staff in both the affected and disease-free areas as against 5,31,218 inoculations and vaccinations conducted during the previous year. The statistics of mortality among livestock in this State and the number of preventive inoculations and vaccinations conducted are furnished in Tables I and II appended.

109. *Reporting of outbreaks.*—The reporting of outbreaks by the village officials may be said to have improved on the whole. In some cases reports were also received direct from the ryots. The discrepancies between the mortality figures furnished by the Revenue authorities and this departmental staff continued to exist and the staff of this department rectified the discrepancies at the Taluk offices as far as possible once in a month.

110. *Mortality.*—The total number of deaths from Rinderpest, Hæmorrhagic Septicæmia, Black-quarter, Anthrax and Foot and Mouth during the year was 10,546 as against 6,427 of the previous year. The average mortality figures per outbreak due to these contagious diseases was only 3.96 as against 4.88 of the previous year. The reduction in the mortality

per outbreak is in no small measure due to the timely action taken by this departmental staff. The number of attacks and deaths during the year from these diseases are given below :—

|                                | Attacks. | Deaths. |
|--------------------------------|----------|---------|
| Rinderpest .. .. .             | 14       | 9       |
| Hæmorrhagic Septicæmia .. .. . | 3,505    | 3,291   |
| Black-quarter .. .. .          | 6,648    | 6,390   |
| Anthrax .. .. .                | 830      | 789     |
| Foot and mouth .. .. .         | 14,081   | 67      |
| Total ..                       | 25,078   | 10,546  |

## CATTLE DISEASES.

111. *Contagious and Infectious Diseases*—(a) *Rinderpest.*—It is noteworthy that there was only one Outbreak Report of this disease during the year in this State and this was perhaps due to the purchase of animals from the Andhra State and the movement of trade cattle. The outbreak occurred in the district of Chingleput and there were nine deaths. With the establishment of the Quarantine Stations under the Pilot Scheme for the Eradication of Rinderpest and with the systematic mass inoculation campaign especially in the border area, it is hoped that this disease will be effectively checked and completely wiped out from this State. The number of animals protected against the disease by the various methods during the year and mortality among the inoculated ones are given below :—

| Method of inoculation.        | In outbreak areas. |              | In clean areas.    |              | Total.             |              |
|-------------------------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|
|                               | Number inoculated. | Number died. | Number inoculated. | Number died. | Number inoculated. | Number died. |
| S. S. with goat virus .. .. . | ..                 | ..           | 12,868             | ..           | 12,868             | ..           |
| Serum alone .. .. .           | ..                 | ..           | 14                 | ..           | 14                 | ..           |
| Freeze dried vaccine .. .. .  | 1,716              | ..           | 1,22,730           | ..           | 1,24,446           | ..           |
| Total ..                      | 1,716              | ..           | 1,35,612           | ..           | 1,37,328           | ..           |

On the whole 1,37,328 inoculations and vaccinations were done during the year as against 1,04,612 of the previous year.

(b) *Hæmorrhagic Septicæmia.*—This disease was prevalent throughout the State and was rather severe in the districts of Chingleput and Tanjore. There were 698 outbreak reports with 3,291 deaths received during the year as against 458 outbreak reports with 2,248 deaths recorded during the previous year. This increased incidence is perhaps due to the unprecedented rains during the year, but the disease was rapidly brought under control by prompt preventive vaccinations. A total of 1,38,034 animals were protected in the outbreak areas in addition to 28,083 protected in disease free areas during the year. During the previous year 93,485 animals in the affected areas and 13,395 in the free areas were given protection.

(c) *Black-quarter.*—The disease was prevalent all over the State during the year there being 1,505 outbreak reports with 6,390 deaths and the incidence was heavy in the districts of Chingleput, North Arcot, South Arcot and Salem. During the previous year there were 644 outbreak reports recording 2,736 deaths. A total of 3,63,312 animals in the affected areas and 61,445 animals in the free areas were vaccinated against the disease during the year as against 1,63,221 animals in the affected areas and 19,558 animals in the free areas protected during the preceding year.

(d) *Anthrax*.—The disease was prevalent in a mild form in all districts except Madras, Madurai and Tirunelveli. There were 72 outbreaks with 262 deaths recorded during the year as against 71 outbreaks with 392 deaths recorded during the previous year. A total of 11,027 vaccinations in the affected areas and 3,042 vaccinations in the free areas were conducted with the Spore Vaccine during the year as against 11,584 Spore vaccinations in the affected areas and 3,601 Spore vaccinations in the clean areas done during the previous year.

(e) *Foot and Mouth*.—The disease was prevalent in all the districts and the incidence was more in the districts of Madurai and Coimbatore. There were 342 outbreaks with 62 deaths during the year. Last year there were 64 outbreaks with 25 deaths. The necessary preventive measures were taken.

(f) *Surra* (*Trypanosomiasis in cattle*).—The disease occurred in all the districts except Madras, Coimbatore, Tanjore, South Kanara and Malabar. There were 247 outbreaks with 906 deaths during the year and the incidence was rather heavy in the North Arcot and Madurai districts. There were 105 outbreaks with 331 deaths during the previous year. A total of 6,082 animals were given protection against the disease as against 829 animals protected during the previous year.

(g) *Nasal Schistosomiasis*.—One thousand four hundred and fifty-eight animals underwent treatment for this affection during the year. Of these 214 were confirmed.

(h) *Johne's Disease*.—Only two cases were met with during the year.

(i) *Brucellosis*.—Out of twelve cases suspected for this disease one was confirmed.

(j) *Bovine Lymphangitis*.—Eighty-seven cases were met with during the year and out of these six were confirmed. Besides 82 animals were vaccinated against the disease in free areas.

(k) *Coccidiosis*.—Among the 660 cases that were treated for this disease, 280 were confirmed.

(l) *Strongylosis*.—Out of 2,104 cases treated for this affection 614 were confirmed.

(m) *Rabies*.—Twenty cases were suspected for this disease and eleven were confirmed. A total of 380 animals were given protection against the disease.

(n) *Ephemeral Fever*.—Seven hundred and seventy-nine cases were treated for this affection.

(o) *Piroplasmosis*.—Out of 199 cases treated for this condition 50 were confirmed.

(p) *Theileriasis*.—Among the 108 cases that were treated for this affection 30 were confirmed.

(q) *Mange*.—Six hundred and seventy-five cases were treated for this disease and 23 cases were confirmed.

(r) *Cancer*.—Three hundred and ninety-nine cases of cancer of horn and eye were attended to during the year.

(s) *Mastitis*.—Seven hundred and twenty-seven cases were treated for this affection during the year.

112. *Non-contagious diseases*—(a) *Rheumatic Arthritis*.—Two hundred and forty-seven cases were treated for this affection.

(b) *Urethral Calculi*.—Only four cases were met with during the year.

(c) *Chronic luxation of patella*.—A total of 4,464 cases were treated successfully during the year.

(d) *Hæmaturia*.—One hundred and fifteen cases were met with and treated during the year.

(e) *Sterility*.—Three hundred and sixty cases underwent treatment for this condition during the year.

#### DISEASES AMONG SHEEP AND GOATS.

113. *Infectious and Contagious diseases*.—The following table gives the number of Outbreak Reports received, the number of deaths and the number of animals given protection against the various disease among sheep and goats during the year:—

| Name of disease.                   | Number of Outbreak Reports received. | Number of deaths. | Number of animals protected. |                |        |
|------------------------------------|--------------------------------------|-------------------|------------------------------|----------------|--------|
|                                    |                                      |                   | In affected areas.           | In free areas. | Total. |
| (a) <i>Hæmorrhagic septicaemia</i> | ..                                   | ..                | 39                           | 1,030          | 1,069  |
| (b) <i>Anthrax</i>                 | ..                                   | 527               | 7,410                        | 342            | 7,752  |
| (c) <i>Sheep pox</i>               | ..                                   | 822               | 37,586                       | 1,259          | 38,845 |
| (d) <i>Enterotoxaemia</i>          | ..                                   | 1,223             | 11,383                       | 3,102          | 14,485 |
| (e) <i>Foot and Mouth</i>          | ..                                   | 5                 | ..                           | ..             | ..     |
| (f) <i>Helminthiasis</i>           | ..                                   | 2                 | 82                           | ..             | 82     |
|                                    |                                      |                   | (dewormed.)                  | (dewormed.)    |        |
| (g) <i>Goat pox</i>                | ..                                   | 26                | 161                          | ..             | 161    |

#### DISEASES AMONG OTHER ANIMALS.

114. *Contagious and Infectious diseases*—(a) *Equines*—*Surra*.—Fifteen cases were met with and nine were treated and cured. The necessary preventive measures like testing the blood from the equines in the area were adopted.

(b) *Canines*—(i) *Rabies*.—Out of 110 cases suspected for this disease 55 were confirmed and 561 dogs were given anti-rabic treatment.

(ii) *Distemper*.—Altogether 203 cases were treated for this affection.

(c) *Poultry*—(i) *Ranikhet*.—There were 51 outbreaks with 833 deaths. A total of 17,415 birds were protected in the affected areas and as many as 1,42,174 in the clean areas.

(ii) *Fowl pox*.—A total of twelve Outbreak Reports with 67 deaths were received during the year and 1,408 birds in the affected areas and 2,908 in the clean areas were given protection during the year.

iii) *Fowl Cholera*.—There were two outbreaks of this disease with four deaths and 45 birds were protected in the affected areas.

## CHAPTER X.

### INVESTIGATION AND RESEARCH.

115. *Madras Veterinary College*.—The several departments of the college engaged themselves in research work as shown hereunder during the year:—

(a) *Anatomy Department*.—The dissection of an elephant foetus was in progress. The dissection of the fore and hind limbs of the foetus was completed. The material for publication of five papers in the next five issues of the Indian Veterinary Journal was ready. The first article was under print.

(b) *Animal Genetics Section*.—Inherited immunity against Avian Leucosis Complex in poultry was being investigated, for which materials were being gathered from the districts.

(c) *Bacteriology Department—Mastitis*.—Milk samples from cases of mastitis of both cows and she-buffaloes were examined to ascertain the various bacteria that were responsible for this condition, in Madras City.

*Bovine Lymphangitis*.—The bacterium responsible for this condition was isolated in pure cultures from clinical cases and a study of the cultural and other characters of this organism was under progress.

(d) *Biology Department*.—The investigation work using anura as test animals was continued. Male toads were used as experimental animals. The effect of various vegetable extracts and bone-meal extracts were already published. The work is carried on after hypophysectionizing the male toads. Investigation on bone-meal extracts and hypophysectionized male toads were over and the result was published in the "Current Science". The investigation with other materials was in progress.

(e) *Hygiene Department*.—The work on optimum requirements of temperature, humidity, aeration, etc., for successful incubation of eggs was in progress.

The studies on variations in fertility and hatchability rates with seasonal changes were in progress.

(f) *Parasitology Department*.—On the spot investigation about Parafilariasis of elephants was made and the filarid worm responsible for the hæmorrhagic nodular condition of the skin was recovered. The investigation yielded knowledge about the extent of the incidence and other cognate factors.

A survey of the parasitic fauna of domestic cats in Madras was undertaken.

The studies on the viability of *Trypanosoma evansi* in Vitro and Vivo were pursued.

The attempts at attenuation of *Trypanosoma evansi* by culturing the flagellate in the different species of poultry was continued.

The investigations into parafilariasis of bovines and on the incidence of *Tabanus* flies in Madras State were taken up.

(g) *Pathology Department*.—Further work on the *Cirrhosis* of the liver in dogs has been undertaken which includes, besides grading the degree of liver injury and application of special staining techniques on diseased tissues the study of the vascular pattern of the cirrhotic liver removed at autopsy. For purposes of comparison, the same study was undertaken in normal livers also.

Research work on the hæmatological and bio-chemical aspects of the disease is contemplated.

(h) *Physiology Department*.—As in the previous years, a number of apparatus and appliances required for teaching and for routine work in the department were designed and built in the department itself. Of these, special mention may be made of an apparatus for coronary perfusion of the mammalian heart, in which the factors necessary for the successful perfusion are automatically controlled, and a constant temperature water circulating assembly for use with various appliances used in Experimental Physiology.

116. *Disease investigation staff*.—The Veterinary Disease Investigation Officer (Cattle), Ranipet, conducted investigation on the various cattle diseases detailed below during the year :—

(a) *Anthrax*.—(i) The disease was investigated at 63 centres in 10 districts as against investigations carried out in 110 centres of last year. Out of the above 63 centres, 34 were actual scenes of outbreaks, 7 were free areas, 21 were areas once endemic now rendered free by repeated spore vaccinations and 1 was a vaccinated area where the disease recurred again. Out of the 34 fresh outbreaks, Salem had the highest number of 8 reports, followed by North Arcot with 7, and Chingleput with 5. In the remaining districts, the number of reports varied from one to four.

The highest mortality in a single village occurred at Kattamur of North Arcot district when there were 46 deaths. Next in order were Huthur in Coimbatore district and Kottaiyur in Salem district, with 12 deaths each. Excepting in one centre where the disease was prevalent both among cattle and buffaloes, in all the remaining villages, it was confined to cattle.

(ii) *Confirmation*.—The disease was confirmed microscopically in 8 villages and Bio-logically in 9 villages.

(iii) *Vaccinations conducted*.—In all the above centres, a total of 10,360 animals (9,576 cattle, 750 buffaloes, 1 elephant, and 33 sheep and goats) were spore vaccinated. The entire vaccinations were carried out with the product supplied by the Institute of Veterinary Preventive Medicine, Ranipet.

(iv) *Results*.—In all the above centres, 172 animals were attacked and 159 died of the disease. After vaccination, there was only 1 death among the vaccinated and 5 deaths among the unvaccinated animals. From the enquiries conducted it appears that the vaccine produced at the Institute of Veterinary Preventive Medicine, Ranipet, while it appears to be free from any ill-effects like local or thermal reactions, has immunological properties which seem to compare favourably with those of the Mukteswar Vaccine. Further work was in progress to confirm this finding.

(b) *Brucellosis*.—(i) A Scheme for the control and eradication, and research on contagious abortion in livestock was sanctioned in March 1954 and has been in force in Coimbatore district since December 1954. One Veterinary Assistant Surgeon and one Veterinary and Livestock Inspector have been posted for this work.

This disease was investigated by the Veterinary Disease Investigation Officer (Cattle) and the Veterinary Assistant Surgeon, Brucella Eradication Scheme, Coimbatore, in 56 villages in the districts of Coimbatore, Madurai, Ramanathapuram and Tirunelveli. A total of 262 samples of sera were tested of which 77 proved positive. In all the villages investigated, either abortion or synovitis or both were present to an appreciable percentage, ranging from 5 to 15 per cent.

(iii) *Vaccinations*.—A total of 2,680 calves were vaccinated against the disease at ages ranging from 6 months to 2½ years. In view of the occurrence of the disease in the male stock as well, bull calves were also vaccinated. All the calves were tattooed serially in the left ear.

(iii) *Results*.—Enquiries conducted at the old centres where vaccinations have been in progress for the past some years, have revealed that the disease has been controlled to a considerable extent. In villages where the abortion and synovitis rate used to be 20 to 40 per cent, it is very encouraging to note that as a result of the protective vaccinations the same has been reduced to 2 to 3 per cent.

(c) *Tuberculosis*.—This disease was investigated at the District Livestock Farms of Malabar and Tanjore districts. A total of 134 animals (27 cattle and 107 buffaloes) were tested by the double intra-dermal method which included animals presented by the Hindustan Livestock Agency for purchase. Two buffaloes were positive reactors and 3 buffaloes and 1 cow were suspicious reactors for the test. In the rest, the results were negative. Necessary instructions were issued for the disposal of the above animals.

(d) *Johne's disease*.—This disease was investigated at the District Livestock Farms at Tanjore and South Kanara. A total of 236 animals (109 cattle and 127 buffaloes) were tested by the double intra-dermal method including those presented by the Hindustan Livestock Agency for purchase. Five buffaloes proved positive reactors and 6 buffaloes and 1 cow proved suspicious reactors to the test. Necessary instructions were given regarding disposal of animals.

(e) *Survey on calf-mortality*.—This was conducted in 23 milk unions in the districts of Ramanathapuram, Coimbatore, Tirunelveli, Tiruchirappalli, South Arcot, Madurai and South Kanara. The total number of animals studied were 1,005 buffaloes and 1,863 cows. The number of deaths among buffalo calves was 203 and among cow calves 109—the percentage being respectively 20.22 and 5.8. The above data relates only to district centres where milk unions are located at taluk district head-quarter stations. The survey was also conducted in two milk unions in the City of Madras. A total of 100 buffaloes and 341 cows were studied. The mortality among buffalo calves was 80 and among cow calves 211—the percentage being respectively 80 and 61.7. This was really alarming! But when the cause of mortality was closely enquired into, it was found that the high mortality was more due to wanton starvation and neglect than due to any specific bacterial, protozoan or helminthic cause, the main concern of the City milkmen being milk as it is uneconomical to maintain a calf on milk, especially in a City like Madras where milk fetches a good price. Cultural and microscopical examinations of materials have not revealed anything of special significance.

(f) *Trypanosomiasis and its treatment and control with Antrycide*.—The disease was investigated in 19 centres of 5 districts. One hundred and fourteen animals were attacked by the disease and 86 died of the disease. Surra was confirmed in 9 villages by microscopical examination. A total of 1,076 animals (1,016 cattle and 60 buffaloes) were protected with the pro-salt. Eight animals (7 cattle and 1 pony) were treated with Methyl sulphate.

(i) *Prosalt*.—This was tried in 4 to 8 cc. doses for adults and 2 to 4 cc. for calves. In all the centres, most of the animals protected had a local swelling persisting for a month. In a few centres, a small percentage, say, 2 to 4, showed slight shock. But no mortality occurred in any of the villages. The outbreaks were controlled and there was no recurrence of the disease for about four months.

(ii) *Methyl sulphate*.—The drug was tried in 5 to 7½ grains doses. In only one cattle and one pony slight shock was noticed. In the rest, the drug was well tolerated, there being neither local nor general reaction of any kind. Out of the above 8 animals treated, 5 cattle recovered.

(g) "*Abortion*" among cows at the District Livestock Farm, Pudukkottai. —Recently, there were 7 abortions among cows in the above farm. Serum testing of all the animals was negative for Brucellosis, and microscopical and cultural examinations were negative for Trichomoniasis and Vibrio foetus infection. But when there was an opportunity of examining

the foetal heart smears, it was very interesting to note that the smears revealed Trypanosomes. The matter was under further investigation as this was a rare finding.

(h) *Specimens examined*.—A total number of 617 specimens received from the field staff were examined by the Veterinary Disease Investigation Officer (Cattle) during the year.

Besides 438 specimens were collected and were examined by the Veterinary Disease Investigation Officer (Cattle) and the Veterinary Assistant Surgeon in-charge, Brucella Eradication Scheme, Coimbatore, during the year.

117. *The Veterinary Disease Investigation Officer (Sheep and Goats), Ranipet, investigated on the following diseases during the year*—(a) *Anthrax*.—The disease prevailed in the districts of Ramanathapuram, Tirunelveli, Madurai, Tiruchirappalli, Salem and Chingleput. It has been occurring among sheep and goats in an hyperacute form only. No subacute type of Anthrax as in the case of cattle was met with. As observed in the previous years, whenever outbreaks occurred in sheep and goats, the incontact cattle were not found affected except in rare instances.

The disease has been endemic almost throughout the Ramanathapuram district, particularly in the taluks of Tirupattur, Thiruvannamalai, Sivaganga and Ramanathapuram. The disease was commonly prevalent in the adjoining taluk of Melur in Madurai district also. There has been seen the outbreaks of the disease tend to occur more commonly during the months from November to March.

Sporadic deaths from Anthrax at varying intervals of time is the feature in endemic areas. Recurrence of an outbreak has been reported after an interval of fourteen months at a place. Frequent vaccinations is the only way by which the incidence of the disease can be controlled under the prevailing customs and practices of the people who maintain sheep and goats. Anthrax Spore Vaccine has been used in the face of outbreaks and in advance of the incidence of the disease with the help of the field staff. A total of 7,812 sheep and 1,326 goats have been protected with the Anthrax Spore Vaccine.

Anthrax Spore Vaccine was formerly being obtained from the Indian Veterinary Research Institute, Mukteswar, for protection of sheep and goats. The vaccine was producing a mild to severe reaction at the site of vaccination. It manifested in the form of an oedema which in many cases subsided without causing death. But in a small percentage of vaccinated animals the reaction resulted in extensive oedema and death. Such a reaction manifests from within 2 or 3 days of vaccination usually. Anthrax Spore Vaccine was prepared during the year at the Institute of Veterinary Preventive Medicine, Ranipet, and issued for trial in our State.

(b) *Sheep-pox*.—(i) The disease occurred in the districts of Madurai, Tiruchirappalli, Coimbatore, Ramanathapuram, South Arcot, Salem, Tanjore, Chingleput, North Arcot and Tirunelveli. The disease was confined to only sheep in natural outbreaks. The goats in close contact with the affected sheep did not suffer from the disease. The outbreaks of the disease were met with throughout the year, but it was more widely prevalent in the months from November to March.

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The whole syndrome of symptoms were such that the disease did not conform to the orthodox description of genuine pox. But it looked like a typical form of pox or stone-pox.

*Nature of the virus.*—The hard nodules, or the skin scabs when they peeled off were capable of proving infective to experimental susceptible sheep. But it was found that the natural virus did not produce infection in each and every experimental sheep. The non-reactors were also not naturally immune, as some of them were found to pick up the infection on a subsequent occasion.

The field materials from different outbreaks in our Province produced one type of clinical manifestation of the disease. Materials from sheep-pox suspected cases from the neighbouring States of Mysore also proved to be clinically and immunologically the same. The Indian Veterinary Research Institute, Izatnagar, however, declared some specimens as positive for sheep-pox and a few for sheep dermatitis as belonging to two different viruses. Cross-infection experiments were conducted during the year with the Madras and Mysore sheep-pox viruses and with the Mukteswar sheep-dermatitis virus. The sum total of evidence indicates that all these are immunologically of one type.

(ii) *Prevention.*—There is as yet no satisfactory vaccine available. The field virus is passed on to experimental sheep and the resulting lesions are harvested in an aseptic manner and suitably emulsified and freeze-dried. It is, in the freeze-dried form that the product has been supplied by the Institute of Veterinary Preventive Medicine, Ranipet, for reconstitution and vaccination of sheep. A total of 30,145 sheep had been vaccinated with the product during the year by the field staff.

The vaccine is either scarified in the ear or in the tail. No clear reaction was produced in a majority of sheep. A small percentage of sheep vaccinated revealed visible reaction in the ear erythema and nodules, in the tail. A proportion of such vaccinated ones developed generalised eruption of the disease also. Those which showed clear takes remained immune in the face of outbreaks and to an artificial challenge, while the non-reactors were still susceptible to the disease.

(c) *Goat-pox.*—The disease was met with in Polur taluk of North Arcot district. Outbreaks of goat-pox are rare. The lesions in the skin resembled the hard plaques observed in the case of sheep-pox in sheep. But the disease was not prevalent among the incontact sheep. The hard eruptions were collected, for study at the laboratory. The materials however did not prove infective to the experimental kids. A study of the causal agent will be made from materials collected in future.

(d) *Enterotoxaemia.*—The disease was met with almost throughout the State except for Malabar and South Kanara where the population of sheep is next to nothing. The seasonal incidence of the disease is from June to January.

The disease occurred in sheep only in the natural outbreaks. The course of the disease was anything from a few minutes to a few hours. Very rarely cases have lived longer. The morbidity percentage goes up to 5 to 10 of a flock and mortality is cent per cent.

The intestinal contents were collected from a few cases and the seitz filtrates of the intestinal contents were tested for toxicity. Some of the filtrates revealed no toxicity at the time of collection itself, a few lost their toxicity shortly after collection and some retained their toxicity for some time after filtration. The filtrates were first tested for their lethal quality

by intravenous inoculation of rabbits. They were later neutralised with a standard anti-toxic sera of C1. Welchii types A, B, C and D. During the course of the experiment, the standard sera of type 'A' was found to be very weak. The test filtrate was neutralized by the standard sera of types 'C' and 'D'. It was, therefore, concluded that the suspect fluid contained toxic factors of 'A' type, viz., essentially alphatoxin.

In this connection, it is important to mention that all the world over, the opinion held hitherto is that C1 Welchii types 'B', 'C', and 'D' are the types most concerned in the causation of diseases or mortality in sheep and that type 'A' is a significant organism in the case of gas gangrene affections in humans only.

The results of neutralization tests with the filtrates of intestinal contents of carcasses suspected for Enterotoxaemia in this State, and the standard sera of clostridium Welchii types 'A', 'B', 'C' and 'D' have revealed that the suspect filtrate contained toxic factors pertaining to clostridium Welchii type 'A', i.e., alphatoxin.

Intestinal contents from a number of cases were sent to the Indian Veterinary Research Institute, Mukteswar. They have isolated from a number of samples sent, C1. Welchii type 'A' and in isolated instances type 'D' also.

The findings of the Indian Veterinary Research Institute lead to the surmise that either type 'A' and 'D' are responsible for the disease in Madras or much reliance cannot be placed on type specificity in C1. Welchii, that C1. Welchii in general may be capable of elaborating various toxic fractions, one or all hitherto attributed to the several types, depending on factors not yet clearly understood. The filtrates of the intestinal contents proving positive for C1. Welchii type 'A' may perhaps be explained as due to the fact that the alphatoxin being the earliest of the toxic fractions produced by any C1. Welchii is capable of causing death of the animal by itself. The absence of epsilon factor in the intestinal contents may also be due to the fact, that C1. Welchii takes time to produce epsilon factor in any concentration, and even before epsilon factor is elaborated, the death of the subject is being brought about by the alphatoxin. Altogether 14,030 sheep were vaccinated during the year under report with the anaculture of clostridium Welchii in the endemic areas.

(e) *Specimens examined.*—A total number of 114 specimens received from the field staff were examined by the Veterinary Disease Investigation Officer (Sheep and Goats) during the year.

In addition, specimens were also collected and examined by the Veterinary Disease Investigation Officer (Sheep and Goats) in the course of his tours.

118. *The Veterinary Disease Investigation Officer, Poultry, Ranipet,* investigated the undermentioned important poultry diseases during the year and adopted the necessary curative and preventive measures to control their spread.

(a) *Ranikhet Diseases.*—(i) The incidence of this disease was recorded in the districts of Coimbatore, Chingleput, Erode, Madurai, Malabar, North

Arcot, Salem, South Kanara and Tiruchirappalli affecting birds of all ages and breeds, both indigenous and exotic; no seasonal variation was noticed with reference to the incidence of the disease during the period under report.

The following table gives the summary of the reaction statements received from the field staff during the year :—

| Exotic birds.              |                                      |                          |                           |                          |                          |                          |    |
|----------------------------|--------------------------------------|--------------------------|---------------------------|--------------------------|--------------------------|--------------------------|----|
| Name of district.          | Total number of<br>birds vaccinated. |                          | Reaction noticed.         |                          |                          |                          |    |
|                            |                                      |                          | Drowsiness<br>percentage. |                          | Diarrhoea<br>percentage. |                          |    |
|                            | Free<br>area.<br>(2)                 | Affected<br>area.<br>(3) | Free<br>rea.<br>(4)       | Affected<br>area.<br>(5) | Free<br>area.<br>(6)     | Affected<br>area.<br>(7) |    |
| (1)                        |                                      |                          |                           |                          |                          |                          |    |
| Chingleput .. .. .         | 41                                   | ..                       | ..                        | ..                       | ..                       | ..                       | .. |
| North Arcot .. .. .        | 1,700                                | 365                      | 25.3                      | 15.3                     | 12.7                     | 12.6                     |    |
| Tiruchirappalli .. .. .    | 2,110                                | 145                      | 42.0                      | 24.3                     | 7.7                      | 2.7                      |    |
| Madurai .. .. .            | 412                                  | 20                       | 3.0                       | ..                       | 0.7                      | ..                       |    |
| Coimbatore (West) .. .. .  | 1,300                                | ..                       | 7.8                       | ..                       | 2.8                      | ..                       |    |
| Coimbatore (East) .. .. .  | 4,534                                | ..                       | 6.4                       | ..                       | 0.9                      | ..                       |    |
| Salem .. .. .              | 286                                  | ..                       | 93.0                      | ..                       | 0.7                      | ..                       |    |
| South Kanara .. .. .       | 63                                   | ..                       | ..                        | ..                       | 1.6                      | ..                       |    |
| Malabar .. .. .            | 316                                  | 150                      | 4.0                       | ..                       | 4.0                      | ..                       |    |
| Total .. .. .              | 10,762                               | 680                      | 181.5                     | 39.6                     | 31.1                     | 15.3                     |    |
| Average percentage .. .. . | ..                                   | ..                       | 25.9                      | 19.8                     | 3.9                      | 7.6                      |    |

| Name of district.          | Reaction noticed—cont. |                       |                          |                        |                       |                        |                           |                        |
|----------------------------|------------------------|-----------------------|--------------------------|------------------------|-----------------------|------------------------|---------------------------|------------------------|
|                            | Paralysis percentage.  |                       | Egg stoppage percentage. |                        | Mortality percentage. |                        | Reaction, mild or severe. |                        |
|                            | Free area.<br>(8)      | Affected area.<br>(9) | Free area.<br>(10)       | Affected area.<br>(11) | Free area.<br>(12)    | Affected area.<br>(13) | Free area.<br>(14)        | Affected area.<br>(15) |
| Chingleput .. .. .         | ..                     | ..                    | ..                       | ..                     | ..                    | ..                     | M                         | ..                     |
| North Arcot .. .. .        | 0.6                    | 1.9                   | 14.5                     | 1.9                    | ..                    | 12.1                   | M                         | MS                     |
| Tiruchirappalli .. .. .    | 2.0                    | ..                    | 11.7                     | ..                     | 1.0                   | ..                     | M                         | M                      |
| Madurai .. .. .            | ..                     | ..                    | ..                       | ..                     | 0.7                   | ..                     | M                         | M                      |
| Coimbatore (West) .. .. .  | 0.8                    | ..                    | 7.4                      | ..                     | ..                    | ..                     | M                         | ..                     |
| Coimbatore (East) .. .. .  | 0.07                   | ..                    | 1.0                      | ..                     | 0.1                   | ..                     | M                         | ..                     |
| Salem .. .. .              | ..                     | ..                    | ..                       | ..                     | ..                    | ..                     | M                         | ..                     |
| South Kanara .. .. .       | ..                     | ..                    | 1.6                      | ..                     | ..                    | ..                     | M                         | ..                     |
| Malabar .. .. .            | ..                     | ..                    | ..                       | ..                     | ..                    | ..                     | M                         | M                      |
| Total .. .. .              | 3.47                   | 1.9                   | 36.2                     | 1.9                    | 1.8                   | 12.1                   |                           |                        |
| Average percentage .. .. . | 0.86                   | 1.9                   | 7.2                      | 1.9                    | 0.6                   | 12.1                   |                           |                        |

## Indigenous birds.

| Name of district.          | Total number of birds vaccinated. |                       | Reaction noticed.      |                       |                       |                       |
|----------------------------|-----------------------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|
|                            |                                   |                       | Drowsiness percentage. |                       | Diarrhoea percentage. |                       |
|                            | Free area.<br>(2)                 | Affected area.<br>(3) | Free area.<br>(4)      | Affected area.<br>(5) | Free area.<br>(6)     | Affected area.<br>(7) |
| (1)                        |                                   |                       |                        |                       |                       |                       |
| Chingleput .. .. .         | 54                                | ..                    | 3.7                    | ..                    | 1.8                   | ..                    |
| North Arcot .. .. .        | 2,818                             | 1,194                 | 21.0                   | 5.5                   | 7.3                   | 1.1                   |
| Tiruchirappalli .. .. .    | 1,679                             | 661                   | 6.6                    | 4.8                   | 2.0                   | 0.9                   |
| Madurai .. .. .            | 471                               | 75                    | 1.7                    | ..                    | 0.2                   | ..                    |
| Coimbatore (West) .. .. .  | 2,179                             | ..                    | 15.1                   | ..                    | 7.6                   | ..                    |
| Coimbatore (East) .. .. .  | 11,136                            | ..                    | 1.8                    | ..                    | 1.6                   | ..                    |
| Salem .. .. .              | ..                                | ..                    | ..                     | ..                    | ..                    | ..                    |
| South Kanara .. .. .       | 63                                | ..                    | ..                     | ..                    | ..                    | ..                    |
| Malabar .. .. .            | 294                               | 896                   | 4.0                    | ..                    | ..                    | ..                    |
| Total .. .. .              | 18,694                            | 2,826                 | 53.9                   | 10.3                  | 20.5                  | 2.0                   |
| Average percentage .. .. . | ..                                | ..                    | 7.7                    | 5.2                   | 3.4                   | 1.0                   |

| Name of district.          | Reaction noticed—cont. |                       |                          |                        | Mortality percentage. |                        | Reaction, mild or severe. |                        |
|----------------------------|------------------------|-----------------------|--------------------------|------------------------|-----------------------|------------------------|---------------------------|------------------------|
|                            | Paralysis percentage.  |                       | Egg stoppage percentage. |                        |                       |                        |                           |                        |
|                            | Free area.<br>(8)      | Affected area.<br>(9) | Free area.<br>(10)       | Affected area.<br>(11) | Free area.<br>(12)    | Affected area.<br>(13) | Free area.<br>(14)        | Affected area.<br>(15) |
| Chingleput .. .. .         | ..                     | ..                    | 5.6                      | ..                     | ..                    | ..                     | M                         | ..                     |
| North Arcot .. .. .        | ..                     | 0.6                   | 7.8                      | 6.0                    | ..                    | 0.5                    | M                         | M                      |
| Tiruchirappalli .. .. .    | 1.1                    | ..                    | 3.0                      | 1.5                    | ..                    | ..                     | M                         | M                      |
| Madurai .. .. .            | 0.2                    | ..                    | ..                       | 0.4                    | ..                    | ..                     | M                         | M                      |
| Coimbatore (West) .. .. .  | ..                     | ..                    | 10.9                     | ..                     | ..                    | ..                     | M                         | ..                     |
| Coimbatore (East) .. .. .  | 0.1                    | ..                    | 2.3                      | ..                     | ..                    | ..                     | M                         | ..                     |
| Salem .. .. .              | ..                     | ..                    | ..                       | ..                     | ..                    | ..                     | M                         | ..                     |
| South Kanara .. .. .       | ..                     | ..                    | ..                       | ..                     | ..                    | ..                     | M                         | ..                     |
| Malabar .. .. .            | ..                     | ..                    | 1.0                      | ..                     | ..                    | ..                     | M                         | M                      |
| Total .. .. .              | 1.4                    | 0.6                   | 30.6                     | 7.5                    | 0.4                   | 0.5                    |                           |                        |
| Average percentage .. .. . | 0.46                   | 0.6                   | 5.1                      | 3.7                    | 0.4                   | 0.5                    |                           |                        |

(ii) The Veterinary Disease Investigation Officer (Poultry) had protected 1,727 birds during the period against the disease with the Komorove strain of Ranikhet disease vaccine and the statement of reactions observed is given below :—

| Total number of vaccinations done (by Komorove strain). | Type of reaction observed. |            |            |            |
|---------------------------------------------------------|----------------------------|------------|------------|------------|
|                                                         | Drowsiness.                | Diarrhoea. | Paralysis. | Mortality. |
|                                                         | (2)                        | (3)        | (4)        | (5)        |
| (1)                                                     | PER CENT.                  | PER CENT.  | PER CENT.  | PER CENT.  |
| 1,727 .. .. .                                           | 4.4                        | ..         | 0.2        | ..         |

Of the chicks immunized against Ranikhet disease with the Komorove strain of Ranikhet disease vaccine, 6 chicks selected at random were subjected to Haemagglutination tests 4 weeks after vaccination and it was recorded that the serum of such selected chicks gave positive inhibition titre to Ranikhet virus, thus proving that the vaccine had immunized the chicks against Ranikhet disease.

The Komorove strain of Ranikhet disease vaccine has been in use from 27th May 1953 and the duration of immunity conferred by the vaccine

so far as per tests conducted has been for one year and six months. Further tests to determine any longer duration of immunity conferred by the vaccine will be done in the coming year.

(iii) The experiments to ascertain the lasting immunity conferred by this vaccine by periodically testing the baby chicks vaccinated at different age levels, viz., 9 days, 12 days, 15 days, 18 days and 21 days were continued during this year and the following observation were recorded.

In the batch of 9 days old chicks, there was a mortality of 50 per cent consequent on Ranikhet disease vaccination, and similarly a mortality of 17 per cent in 6, 12 days old chicks was recorded. But no mortality was recorded in 6 chicks that were 15 days old, 6 chicks that were 18 days old and 8 chicks that were 21 days old.

The surviving chicks were challenged with a known potent Ranikhet virus maintaining suitable controls on the 12th April 1954, 20th April 1954 and again on 17th September 1954, when finally the chicks were 6 months old. The surviving chicks though they withstood the challenge, exhibited stunted growth staggering gait and very poor health from the date of vaccination. The growth rate was appreciably inhibited.

It has been therefore gathered that chicks of the age levels mentioned above cannot be safely vaccinated against Ranikhet disease.

(iv) It has been proved through experiments conducted last year that 6-day old chicks born to immune birds when infected with a dose of 0.5 c.c. of 1:20 dilution of Ranikhet disease virus, did survive for about 15 days while the controls died proving thus they had a passive immunity. Later, the above chicks developed paralysis of neck and limbs and the serum of such affected chicks gave inhibition titre to the Ranikhet virus. Due to the paralytic attack, the chicks were unable to feed themselves and died through emaciation.

Ten-day old chicks born to non-immune birds succumbed to a test dose of 0.5 c.c. of 1:20 dilution of Ranikhet disease virus, showing positive lesions of Ranikhet disease. It was recorded, therefore, that no immunity was possessed by chicks born to non-immune birds.

(v) As an experimental measure in Mallur village of Salem district, 17 exotic birds over 8 weeks old were vaccinated with the mixture of the reconstituted vaccines of both Ranikhet and the chick-embryo fowl-pox vaccines on 30th May 1954. The method of vaccination was by a single prick method in the web.

The chicks so vaccinated showed satisfactory takes from the 10th day of vaccination.

On 29th June 1954, the serum obtained from the abovesaid 17 exotic chicks gave positive inhibition titre to Ranikhet virus on test thus proving that they were immune to Ranikhet disease.

The duration of immunity conferred has not been so far ascertained. Some more experiments should be conducted to ascertain definitely if a satisfactory duration of immunity is conferred for both the diseases before any conclusion is drawn in this direction.

(b) *Fowl-pox*.—During the period under report, the Disease Investigation Officer, Poultry, vaccinated 2,046 chicks of 6 to 16 weeks old and in a limited number, birds less than 6 weeks of age. All of them had manifested satisfactory takes.

On two occasions the vaccinated chicks manifested a few generalized lesions on their beaks and at the angles of the mouth caused by the vaccine strain, due to the chicks rubbing their beaks on the site of vaccination.

Such lesions produced by the vaccine strain had no tendency to infect unvaccinated chicks although the unvaccinated chicks were retained in close quarters. The percentage of such affected chicks was as low as 5 to 6 per cent. The affected chicks were otherwise normal and no mortality was recorded as due to fowl-pox vaccination.

The following table gives the reactions observed in chicks below 6 weeks of age in which fowl-pox vaccination was done.

| Date of vaccination. |        | Place.                         | Number vaccinated. | Age of the birds vac-<br>cinated. | Type of reactions observed. |     |                                          |                                   |                                                                      | Remarks. |
|----------------------|--------|--------------------------------|--------------------|-----------------------------------|-----------------------------|-----|------------------------------------------|-----------------------------------|----------------------------------------------------------------------|----------|
| (1)                  | (2)    |                                |                    |                                   | (3)                         | (4) | Number of birds<br>that showed<br>takes. | Number of birds<br>observed dull. | Number of birds<br>that developed<br>pox in a genera-<br>lised form. |          |
| 30th May<br>1954.    | May    | Mallur of dis-<br>Salem trict. | 21<br>exo-<br>tic. | 2 weeks.                          | 21                          | 21  | ..                                       | ..                                | ..                                                                   |          |
| 29th June<br>1954.   | June   | Do.                            | 40                 | 3 weeks.                          | 40                          | 20  | ..                                       | ..                                | ..                                                                   |          |
|                      | Do.    | Do.                            | 6                  | 1 week.                           | 6                           | 6   | 6                                        | 6                                 | ..                                                                   |          |
| 28th July<br>1954.   | July   | Do.                            | 20                 | 4 weeks.                          | 20                          | 10  | ..                                       | ..                                | ..                                                                   |          |
| 27th August<br>1954. | August | Do.                            | 12                 | 2 weeks.                          | 12                          | 12  | ..                                       | ..                                | ..                                                                   |          |

It has been recorded that all the one week old chicks on vaccination with the chick embryo fowl-pox vaccine developed pox in a generalised form and died while among chicks of age 2 weeks and above though no mortality was recorded the chicks remained drowsy and their condition was not so very satisfactory. But chicks of 6 weeks and above in age vaccinated with this fowl-pox vaccine remained quite healthy and their condition also was good. It has been therefore advocated that chicks of 6 weeks and above may be vaccinated with this chick embryo fowl-pox vaccine in all free areas.

The Disease Investigation Officer, Poultry, was advised that the use of the chick embryo fowl-pox vaccine apart from its use in Government Farms and units should be restricted to only two districts, viz., Salem and North Arcot for a period of 6 months as recommended by him to study the type of reactions produced by the vaccine.

The Touring Veterinary Assistant Surgeon, Salem, conducted fowl-pox vaccinations on 52 exotic chicks and 16 indigenous chicks of over 8 weeks old and the Veterinary Assistant Surgeon in-charge, Minor Veterinary Dispensary, Gudiyatham, vaccinated 180 chicks of over 8 weeks old with the chick embryo fowl-pox vaccine during the year. As per the reaction statements received from them, the post vaccination reaction has been fairly mild.

In view of the above facts mentioned, it is opined that chicks of 6 weeks and above can safely be protected in free areas with the chick embryo fowl-pox vaccine.

Regarding the efficacy of the freeze dried chick embryo pigeon pox vaccine the observations made by the Veterinary Disease Investigation Officer (Poultry), are tabulated below:—

*Statement showing vaccinations done with the freeze dried chick embryo Pigeon Pox Vaccine in free areas.*

| Date of vaccination.                | Place.                              | Number of chicks vaccinated. | Age at which vaccinated. | Nature of reaction observed.      | Mortality. | Remarks.                       |
|-------------------------------------|-------------------------------------|------------------------------|--------------------------|-----------------------------------|------------|--------------------------------|
| 27th August 1954 ..                 | Mallur, Salem ..                    | 10 exotic.                   | 2 days.                  | No systemic disturbance observed. | ..         | The chicks were quite healthy. |
| Do.                                 | Do.                                 | 14                           | 1 week.                  | Do.                               | ..         | Do.                            |
| 30th September 1954.                | Poultry Research Station, Tenampet. | 174 exotic.                  | 5 weeks                  | Do.                               | ..         | Do.                            |
| 17th October 1954 ..                | Do.                                 | 600                          | 3 ..                     | Do.                               | ..         | Do.                            |
| 18th October 1954 ..                | Do.                                 | 507                          | 3 ..                     | Do.                               | ..         | Do.                            |
| 30th October 1954 ..                | Livestock Research Station Hosur.   | 82 exotic.                   | 2 to 4 weeks.            | Do.                               | ..         | Do.                            |
| 25th November 1954.                 | Do.                                 | 104                          | 3 ..                     | Do.                               | ..         | Do.                            |
| 7th December 1954 ..                | Poultry Research Station, Tenampet. | 64                           | 2 ..                     | Do.                               | ..         | Do.                            |
| 24th December 1954 ..               | Do.                                 | 78                           | 10 days.                 | Do.                               | ..         | Do.                            |
| Total number of Chicks, vaccinated. |                                     | 1,033                        |                          |                                   |            |                                |

*Statement showing the vaccinations done with the freeze dried chick Embryo Pigeon pox Vaccine in actual outbreaks of fowl-pox.*

| Date of vaccination.                 | Place.                            | Number of chicks vaccinated. | Age at which vaccinated. | Nature of reaction observed.                     | Mortality. | Remarks.                                        |
|--------------------------------------|-----------------------------------|------------------------------|--------------------------|--------------------------------------------------|------------|-------------------------------------------------|
| (1)                                  | (2)                               | (3)                          | (4)                      | (5)                                              | (6)        | (7)                                             |
| 8th October 1954.                    | D'Velois' Poultry Farm, Katpalil. | 30                           | 1 week.                  | Two chicks developed generalised lesions of pox. | 2          | The rest of the chicks were seen quite healthy. |
| 23rd October 1954.                   | Do.                               | 20                           | 1 week.                  | Nil.                                             | Nil.       | All remained healthy.                           |
| Total number of chicks vaccinated .. |                                   | 50                           |                          |                                                  |            |                                                 |

From the statements reviewed above, it can be gathered that the chick embryo pigeon pox vaccine does not set up any systemic disturbance and that it can be safely used for protecting chicks up to 5 weeks of age in free areas and for protecting birds of all ages including baby chicks and adults in actual outbreaks of pox.

Since the season from December to March appears to be more favourable for pox to flare up and vaccination affords no protection for a period of 3 to 4 weeks after vaccination, the incidence of an outbreak of fowl-pox has been reported in chicks vaccinated either with pigeon-pox or fowl-pox vaccine and in un-vaccinated chicks during the period from 28th December 1954 to March 1955 in the Livestock Research Station, Hosur.

On investigation it was recorded that the mortality among the vaccinated was significantly low as compared to the un-vaccinated from December 1954 to March 1955 and the scabs collected from the affected chicks on inoculation in the embryonating eggs gave rise to an extensive thick oedema in the membrane significant of a field virus. It was evident therefore that there had been an outbreak of pox soon after vaccinations were conducted.

It is very necessary therefore during the negative phase in such unfavourable seasons to retain under strict isolation the vaccinated chicks attended to by separate attendants and the chicks should preferably be housed under mosquito proof houses.

It was observed that by immunising chicks promptly against fowl-pox with the chick embryo fowl-pox vaccine the incidence of Contagious Coryza following an outbreak of fowl-pox was brought under control.

It was recorded that birds immunised with this chick embryo fowl-pox vaccine one year and four months back, remained unaffected during subsequent outbreaks of fowl-pox and also resisted a challenging dose of fowl-pox virus. The duration of immunity conferred by this chick embryo fowl-pox vaccine, so far recorded, has been for one year and four months.

(c) *Contagious Coryza*.—(i) The incidence of the disease was noticed in the Livestock Research Station, Hosur. They manifested swollen eyelids containing mucous deposits. The head also became swollen with accumulation of mucous or pus under the eyelids.

Again the incidence of the disease was seen in the Poultry unit attached to the Institute of Veterinary Preventive Medicine, Ranipet, affecting adult birds. The so affected birds manifested foetid dirty coloured nasal discharge. when slight pressure was applied to the nostrils. The exudate later became cheesy occupying the nasal cavities causing difficulty in respiration. Such birds exhibited laboured breathing and died. In less severe cases, the birds turned out to be carriers, often transmitting the disease to healthy ones. The vitality in them was lowered affecting egg production.

(ii) *Preventive and control measures adopted for eradication of the disease*.—Culling of affected birds and selling them for table, transfer of the remaining birds to un-infected areas and disinfection of poultry houses, runs and utensils were advised.

A bacteriological examination was made on the abovesaid exudates of the affected chicks and the adults. The pathogen Coryni bacterium in type was isolated as on former occasions and it was responsible for production of the disease.

A skilled vaccine prepared from the abovesaid organism standardized to S.O. 20 was evolved and 102 birds (71 chicks and 31 adult birds) were vaccinated with the vaccine on 18th December 1954 in the Institute of Veterinary Preventive Medicine, Ranipet. The incidence of the disease was gradually brought under control.

The duration of immunity conferred by this vaccine has not been definitely ascertained. It is under trial.

(d) *Avian Tuberculosis*.—As a routine measure to spot out the incidence of Avian Tuberculosis, 15 old birds debilitated and suspected for Tuberculosis were tested with Avian Tuberculin at the Poultry Research Station, Teynampet, Madras. The result in all the birds was negative.

(e) *Coccidiosis*.—(i) The incidence of the disease was noticed in the Poultry unit attached to the Veterinary Hospital, Erode, the Poultry Research Station, Teynampet, Madras, and in the Livestock Research Station, Hosur. The affected chicks 2 to 4 weeks old, were drowsy, had an inclination to gather round the source of heat as if chilled, had ruffled feathers and loss of appetite suggestive of Coccidial infection.

The disease was just in its initial stage in the Poultry unit attached to the Veterinary Hospital, Erode, while in the Poultry Research Station, Teynampet, and in the Livestock Research Station, Hosur, the infection was severe causing a mortality of 10 chicks in the former and 10 in the latter.

The post-mortem examination conducted on the dead chicks revealed hæmorrhagic cæca and the scrapings revealed on microscopical examination, numerous broad ovoid oocysts of coccidia belonging to the species *Eimeria Tenella*. The faecal samples collected from such dead chicks were sent to the Protozoologist, Indian Veterinary Research Institute, Mukteswar, for examination and report and the results communicated revealed that the species *Eimeria Tenella* and *Mitis* were responsible for the greater percentage of mortality, as compared to the mortality caused by *Eimeria Acervulina*.

(ii) *Control measures adopted*.—Due care was taken to maintain the Coccidial infection at a minimum through proper sanitation so that chicks by their continuous ingestion of small numbers of oocysts may acquire natural resistance or immunity against the disease.

The following hygienic and preventive measures were advised: Daily cleaning and frequent removal of droppings containing the infectious material so that the organisms which are being passed in the droppings may be prevented from developing into a stage which is infective.

Spraying of strong cresol solution, as a disinfectant for poultry houses, application of a layer of slaked lime to the ground, putting feed hoppers and drinking vessels in boiling water at frequent intervals and burning the dead chicks and connected litter or other refuse.

Sulphamezathine Sodium (I.C.I.) and Embasin (M & B) were tried and found to be of immense value in the successful treatment of Coccidiosis.

Advice was also given to provide good nutritious food, plenty of greens, and cod liver oil and calcium to increase the vitality in chicks.

(f) *Avian Leucosis Complex*.—(i) The incidence of the disease was noticed in the Livestock Research Station, Hosur, Poultry Research Station, Teynampet, and in Poultry units attached to the Veterinary Hospitals, Salem, Kanchipuram, Kalyampundi and Erode and in the Institute of Veterinary Preventive Medicine, Ranipet. The birds affected were wholly exotic and the age at which the birds manifested symptoms of the disease was from 12 to 24 weeks. The affected birds manifested poor weight and were light when handled. Besides they manifested general weakness, emaciation and abnormal paleness of comb and wattles resulting from anæmia. Systematic weighing of birds was undertaken every month in the Livestock Research Station, Hosur, to spot out those that weighed far below the average weight and hæmatological examination revealing the presence of immature lymphoid cells highly suggestive of the disease was also done on birds to identify birds affected with blood leukemia suggestive of the disease. Pullets generally at prime of age died suddenly manifesting the typical post-mortem lesions of enlarged liver, spleen and kidney.

(ii) *Control measures adopted*.—Since no vaccine or any curative agent is available towards the control of Avian Leucosis complex, the only possible method to tackle the problem was to systematically weigh the birds and conduct blood examination for spotting and culling the suspicious birds for table purposes in the initial stage of the disease.

Thus during the period under report, 453 birds of 12 to 24 weeks old have been actually weighed of which 30 were advised to be culled out as suspicious.

A total of 702 birds were hæmatologically examined of which 69 revealed in their blood pictures numerous lymphoid cells suggestive of the disease. Advice was given to cull such affected birds as well.

The officers-in-charge of the farms and units were advised to follow very strictly the following measures:—

To maintain a continuous practice of culling out suspicious birds showing any form of fowl paralysis, such as leg or wing lameness, diseases of eyes including grey irises of any kind, irregular pupils and bulging of eyeballs, tumours of skin, emaciation and dropsical abdomen.

To build up a new strain through genetical approach, viz., to breed through the healthy survivors of the old stock that have been surviving in actual outbreaks of Fowl-paralysis.

Eight specimens of liver, spleen and kidneys were sent to the Indian Veterinary Research Institute, Mukteswar, for histopathological examination of which 6 proved positive for the disease.

(g) *Parasitic infestations*.—It was recorded that by burning the whole pen yard or run with dried leaves or straw once a fortnight, the ova of round worms and the intermediary hosts of tape worms are destroyed and the life cycles of both the worms are broken with the result that the infestation of the internal parasites is kept under control.

The officers-in-charge of the Poultry farms and units were advised to adopt the abovesaid measure.

Towards the effective control of external parasites the use of sodium flouride or gammaxane once a fortnight has been found to be quite satisfactory.

(h) *Salmonella pullorum and Gallinerum infection in poultry*.—With a view to eliminate the above infection in poultry, 144 birds were tested by the rapid whole blood stain antigen method. The results were negative in all cases.

The incidence of the following diseases, viz., fowl cholera, fowl typhoid, Trichomoniasis, and *Aegyptinella pullorum* infection were not met with during the period under report.

(i) *Specimens examined*.—(1) One hundred and forty-one specimens received from the field staff were examined and reported upon by the Veterinary Disease Investigation Officer (Poultry), during the year.

(2) Eighty-seven specimens of internal organs received from the field staff and suspected for Ranikhet disease were tested biologically on fowls of which one proved positive for Ranikhet disease.

(3) Nine hundred and sixty-seven specimens were collected and examined in the course of his tours of by the Veterinary Disease Investigation Officer (Poultry), during the period.

## CHAPTER XI.

### COMMUNITY PROJECTS AND NATIONAL EXTENSION SERVICE.

119. The work done in the Community Project and National Extension Service areas are given below districtwar:—

(a) *Community Projects*.—(i) *Chingleput district*.—The scheme was working in the Tirukalikundram area and 112 villages were included in the Community Project Scheme.

The villages were periodically visited and the ryots were educated in the improvement of their stock through pure bred bulls. Three Scindhi breeding bulls were at stud in the area. Stud facilities were provided and

an Artificial Insemination Centre was opened in a Veterinary Institution in the area. Two sub-breeding units with one bull in each were also started.

Forty-four Nellore rams were at stud in the area and one sheep and goat show was also held.

There were one Veterinary dispensary and two first-aid centres and 1,285 cases were treated and 82 castrations were performed in the area. In addition 3,389 inoculations and vaccinations were also conducted. Twenty-four village meetings were held in the area.

(ii) *South Arcot district*.—The Sethiathope Community Development area was the only one in this district.

Three Scindhi, three Kangayam and four Murrah buffalo bulls under the various schemes were stationed in the area. They performed 125 services and 21 calves born to them were inspected. The Livestock Improvement Act was in force in six villages, and artificial insemination work was in operation in the above six villages. One cattle show was conducted.

Sixty-five Cockerels of an exotic breed were distributed in the area.

Twenty-two cents of land were planted with Guinea grass.

Six thousand nine hundred and eleven cases were treated and 2,271 castrations were performed in the area. Besides 30,773 preventive inoculations and vaccinations were conducted and 1,159 sheep were dewormed.

Fifty-four village meetings were conducted and departmental leaflets were distributed in the area.

(iii) *Madurai district*.—The scheme was in operation in 3 blocks in the Periyar Community Project area at Madurai, Melur and Nilakottai and in the Athoor Community Development block.

Twenty-two Kangayam and 8 Murrah buffalo bulls were maintained in the area and they performed 565 services. Two cattle shows were also held. Arrangements were in progress for the opening of an Artificial Insemination Centre at Vadipatti in the Nilakottai block.

Fifteen graded, 4 cross bred, 10 Bikanir and 12 Bikanir X Bellary rams were distributed in the area.

One hundred and four chicks and 642 eggs of exotic breeds were distributed to the ryots in the area. Arrangements were in progress for the opening of two poultry units and the Government have permitted the purchase of day old chicks for these units from Marthandam in Travancore State.

There were 8 Veterinary dispensaries and 8 first-aid centres in the area. A total of 17,240 cases were treated. Three thousand eight hundred and twenty-seven castrations were done and 8,819 preventive inoculations and vaccinations were conducted during the year.

(iv) *Tirunelveli district*.—The Cheranmahadevi area was under the Community Project Administration.

Two Kangayam, 5 Scindhi and 2 Murrah buffalo bulls were at stud in the area and they performed 190 services during the year. The staff sanctioned for the opening of an Artificial Insemination Centre have been posted and work will be started as soon as the bulls sanctioned for the centre are purchased.

There were one Veterinary dispensary and 2 first-aid centres in the area. Two thousand one hundred and seventy-seven cases were treated, 327 castrations were performed and 2,216 preventive inoculations and vaccinations were done during the year.

(v) *Coimbatore district (East)*.—The Community Project Scheme was in operation in the Lower Bhavani Project area.

Artificial Insemination Centres are proposed to be opened in 2 Veterinary dispensaries in the area.

Stud rams were distributed to grade up the local stock in the area.

One poultry unit was raised during the year and two more poultry units are proposed to be opened during the next year in 2 Veterinary dispensaries.

A grass farm of half an acre extent was also in operation during the year.

There were 2 Veterinary dispensaries and 6 first-aid centres functioning in the area. Five thousand and seventy-two cases were treated, 935 castrations were done and 38,903 preventive inoculations and vaccinations were conducted.

(vi) *South Kanara district*.—The Scheme was in operation in three blocks.

There were 12 Scindhi and four Murrah buffalo bulls at stud in this area and they performed 604 services. The work in connection with the Artificial Insemination Centre attached to the Veterinary Hospital, Mangalore, was in progress during the year. For this purpose 3 Scindhi bulls were stationed at the Veterinary hospital and the necessary equipment were supplied.

The number of bucks in the area was three and 123 services were performed by them.

A Poultry farm at Kinnigoli maintained 12 cocks, 16 hens and 20 chicks of the Rhode Island Red breed. A total of 913 eggs were collected during the year, out of which 240 were sold for hatching, 230 were set at the unit and 403 were sold for table.

There were 4 Veterinary dispensaries and 6 first aid centres in the area. Altogether 6,554 cases were treated, 3,233 castrations were done, and 5,435 preventive inoculations and vaccinations were conducted during the year.

Departmental leaflets were distributed in the area.

(vii) *Malabar district*.—The scheme extends over the whole of Palghat taluk, and was divided into three blocks.

Twelve Scindhi and 2 Murrah buffalo bulls were stationed in the area. One Artificial Insemination Centre was opened at Palghat at the end of the year. A cattle show was conducted in the area.

Three hundred and ninety-seven hatching eggs and 6 birds of exotic breeds were sold to the public for rearing exotic birds and grading the local stock. A private individual had opened a Poultry farm with 25 indigenous birds for doing grading work with Rhode Island Red cocks. There were also a number of small poultry units opened by private individuals with exotic birds. The percentage of exotic birds had increased from 10 per cent to 25 per cent during the year.

There were 4 first aid centres in the area. A total of 4,421 cases were treated, 1,155 castrations were done and 18,685 preventive inoculations and vaccinations were conducted during the year.

Lectures were delivered to the trainees of the Gramasevak Training Centre by the departmental staff and departmental leaflets were distributed in the area.

(b) *National Extension Service*.—(i) *Chingleput district*.—There were three blocks at Kadambathur, Tiruvallur and Uttukottai.

Sixteen breeding bulls of Scindhi and Murrah breeds were at stud in the area. Two Artificial Insemination sub-centres attached to the Key Farm Centre, Kilacheri, were opened during the year. One cattle show was held and 2 milk recording centres were started.

One hundred and twenty Nellore rams were distributed in the area.

Thirteen poultry units and one poultry production centre were started and 200 pedigree birds were supplied to the public.

One Farm Youth Club at Pattaraiperampudur was started through which calf-rearing, sheep and goat-rearing and poultry keeping will be done. A total of 3,500 guinea grass slips were distributed in the area and 2 acres were planted with guinea grass. In addition 5,517 lbs. of Churn flour were sold to ryots at concessional rates.

There was one first aid centre in the area. Two thousand three hundred and twenty-four cases were treated and 658 castrations were done. In addition 13,113 preventive inoculations and vaccinations were conducted.

(ii) *North Arcot district*.—There were three blocks in the district at Tiruvannamalai, Kalasapakam and Mandakolathur.

One Scindhi, 1 Murrah and 12 Kangayam bulls were stationed in the area and they performed 348 services during the year. Sixty calves were born to them. Two one-day cattle shows were held in the area.

There were 27 poultry units with 36 cocks, 171 hens and 54 chicks. These units produced 7,693 eggs during the year and of them 812 eggs were set at the units, 1,092 eggs were sold for hatching and 5,789 eggs were sold for table.

One thousand seven hundred and ninety-six cases were treated, 887 castrations were done and 14,367 preventive inoculations and vaccinations were conducted in the area.

One exhibition was held and departmental leaflets were distributed in the area.

(iii) *South Arcot district*.—There were three blocks at Kurinjipadi, Kadambuliur and Chinnasalem.

Six Kangayam, 1 Scindhi and 3 Murrah buffalo breeding bulls remained at stud in the area and 80 services were performed by them. Seventeen calves born to these bulls were inspected. Three Cattle Shows were conducted.

Three Mandya rams were stationed for stud purposes. One sheep and goat show was conducted.

Two hundred and fourteen birds and 306 eggs of the exotic breeds were introduced in the area.

Twenty-eight breeding associations were formed.

Five thousand nine hundred and sixty-four cases were treated, 1,649 castrations were done and 20,313 preventive inoculations and vaccinations were conducted in the area. In addition 2,792 sheep were dewormed.

Two hundred and eighty-two village meetings were held and leaflets on departmental activities were distributed.

(iv) *Tanjore district*.—There were two blocks at Vedaranyam and Thiruthuraiipundi.

Thirty-three Umblachery bulls, 5 Scindhi bulls and 6 Murrah buffalo bulls were maintained in this area and they performed 1,239 services during the year. Two Artificial Insemination Centres with 4 sub-centres to each were started and 761 artificial inseminations were done. Two cattle shows were held.

Eleven Tellicherry bucks were at stud in the area and they performed 86 services.

Two poultry farms were started. The Poultry Production Centre, Saliangalam, was also situated in the area and 260 birds and 1,736 eggs of the exotic breeds were distributed.

Guinea grass and Australian drought resistant grass were cultivated in 35 acres.

There were 3 first aid centres, and 5,328 cases were treated, 1,579 castrations were done and 9,904 preventive inoculations and vaccinations were conducted in the area.

Forty village meetings were held and departmental leaflets were distributed.

(v) *Tiruchirappalli district*.—There were 4 blocks in the district at Karur, Musiri, Perambalur and Pudukkottai.

There were 29 bulls of the Kangayam, Scindhi and Murrah buffalo breeds in the area. They performed 880 services and out of 322 calves born to them 169 were inspected. One cattle show was conducted.

Six Mecheri rams were distributed in the area.

Seventy-one poultry units were started and 640 exotic birds besides 2,861 eggs were distributed.

There were 5 first aid centres and 3,940 cases were treated, 1,249 castrations were done and 13,496 preventive inoculations and vaccinations were conducted in the area.

Forty-six village meetings were conducted.

(vi) *Madurai district*.—There were 3 blocks in the Thirumangalam taluk, at Thirumangalam, T. Kallupatti and Usilampatti.

Eleven Kangayam and one Murrah buffalo breeding bulls were distributed in the area during the year and they performed 144 services. On the whole there were 20 Kangayam, one Scindhi and one Murrah buffalo breeding bulls at stud in the area in the different schemes. Two cattle shows were conducted.

Seventy-six rams, 3 Jamnapuri bucks and 14 she-goats and 16 kids of the Tellicherry breed were distributed in the area. Twenty-one sheep-breeding and one goat-breeding associations were formed.

Seven poultry units besides the poultry farm at T. Kallupatti were functioning during the year and 162 cocks, 100 hens, 96 chicks and 4,044 eggs for setting were distributed in the area. Nine poultry breeding associations were started.

There were 7 first aid centres and 13,929 cases were treated, 1,720 castrations were performed and 29,458 preventive inoculations and vaccinations were conducted in the area. In addition 4,785 sheep were dewormed.

(vii) *Ramanathapuram district*.—There were 3 blocks in Srivilliputtur, Sivakasi and Rajapalayam.

Two Scindhi, 20 Kangayam and 6 Murrah buffalo-bulls remained at stud in the area. Eight hundred and ninety-one services were performed by them and out of 126 calves born 88 were inspected. Two cattle shows were held.

Eleven rams of the Karuvukada breed were distributed. Four sheep breeding associations were formed.

One Poultry unit was started. The poultry production centre at Malli was also in this area and 163 cocks of the exotic breeds were supplied in the area on 50 per cent contribution basis. Besides 19 chicks of exotic breeds were supplied. Seven hundred and two exotic eggs were also sold

for hatching on 50 per cent contribution basis. In addition 2,447 graded, exotic and desi eggs were sold to the public in the area.

There were 7 first aid centres and 6,996 cases were treated, 1,647 castrations were done and 31,133 preventive inoculations and vaccinations were conducted in the area.

(viii) *Tirunelveli district*.—There were 3 blocks at Sankarankovil, Kuruvikulam and Kovilpatti.

Ten Kangayam, 3 Scindhi and 6 Murrah buffalo bulls were at stud in the area and they performed 2,753 services. Two cattle shows were held.

One poultry demonstration unit was being started in the area.

There were 2 first aid centres and 3,617 cases were treated, 1,856 castrations were done and 24,599 preventive inoculations and vaccinations were conducted in the area.

(ix) *Coimbatore district (West)*.—There were 4 blocks in the Avana-shi, Ootacamund, Gudalur and Coonoor taluks.

Forty bulls of the Kangayam and Scindhi breeds were maintained in the area. They performed 2,205 services and 543 calves were born to them.

Five rams of the Mandya breed and 6 rams of the Nilgiris breed were at stud in the area and 90 kids were born to them during the year.

Fifty-one cockerels of the exotic breeds were distributed.

There were 2 first aid centres and 8,365 cases were treated, 744 castrations were done and 16,586 preventive inoculations and vaccinations were conducted in the area.

Leaflets regarding the care and management and balanced feeding of livestock were distributed in the area.

(x) *Coimbatore district (East)*.—There were 3 blocks at Tirupur, Kangayam and Palladam.

The National Extension Service Administration was giving loan for the purchase of bulls to the interested and backward individuals. There were 53 bulls in the area and they performed 3,475 services. Out of 1,59 calves born to them 1,431 were inspected.

Three small poultry units were started, and 398 birds and 763 egg of the exotic breeds were distributed in the area.

Eleven thousand seven hundred and sixty-nine cases were treated and 2,999 castrations were done in the area. In addition 21,445 preventive inoculations and vaccinations were conducted and 2,889 sheep were dewormed.

(xi) *Salem district*.—There were 3 blocks in the district at Athur, Krishnagiri and Peddanayakanpalayam.

Five Kangayam, two Scindhi, 8 Hallikar and 2 Murrah buffalo bull remained at stud in the area and 145 services were performed by them. Two cattle shows were held.

Four Mecheri rams and 2 bucks were at stud in the area.

Some villages were selected for grading up local poultry and 3 poultry units were started during the year. In addition 6,320 eggs were collected, 3,000 eggs were sold for hatching and 130 cockerels and 27 hens of exotic breeds were sold for breeding purposes.

Three thousand one hundred and eighty-three cases were treated, 863 castrations were done and 10,041 preventive inoculations and vaccinations were conducted in the area.

Twenty-eight village meetings were conducted and departmental leaflets were distributed in the area.

(xii) *South Kanara district*.—There were 3 blocks at Bindoor, Sullya, and Manjeswar.

There were 5 Murrah buffalo and 13 Scindhi bulls at stud in the area and they performed 403 services. One hundred and fifty-five calves were born to them. Two Murrah buffalo-bulls were purchased for distribution in the area.

Six bucks were at stud and they performed 254 services.

Thirty cocks, 270 chicks and 1,066 eggs of the exotic variety were distributed to the public.

There were 3 First Aid Centres and 2,018 cases were treated, 997 castrations were done and 343 preventive inoculations and vaccinations were conducted in the area.

Lectures were delivered in the rural Development Units and departmental leaflets were distributed in the area.

(xiii) *Malabar district*.—There were 3 blocks at Tellicherry, Ponnur and Taliparamba.

Four Scindhi and one Murrah buffalo breeding bulls were at stud in the area. One cattle show was held.

Fifty exotic birds and 50 eggs were distributed in the area.

There were 5 First Aid Centres, and 4,645 cases were treated, 1,265 castrations were done and 989 preventive inoculations and vaccinations were conducted in the area.

Departmental leaflets were distributed.

## CHAPTER XII.

### VETERINARY PUBLIC HEALTH.

120. (a) *Milk inspection*.—(i) The staff of this department inspected the general health of milch cattle in 67 co-operative milk supply unions and societies, and advised them on their maintenance, hygienic housing, judicious feeding and scientific breeding.

(ii) The staff also inspected the cows and buffaloes brought for milking at 54 milking yards in the premises of human Government hospitals and gave necessary advice.

(b) *Meat inspection*.—The part-time services of the Veterinary Assistant Surgeons of this department were utilized by 38 panchayat boards and 40 municipalities during the year for meat inspection work.

The staff did anti-mortem examination of 36,738 cattle, 592,816 sheep, 359,195 goats and 422 pigs in the various slaughter houses and declared 2,181 cattle, 10,990 sheep and 9,605 goats as unfit for slaughter.

During the course of post-mortem inspections they confiscated 48 carcasses in whole and 23,174 in parts for various conditions rendering the flesh unfit for human consumption.

(c) *Lethal Chambers*.—There were 46 Lethal chambers at the end of the year in the different districts maintained by the local bodies for the destruction of dogs. The departmental staff inspected these lethal chambers and gave necessary suggestions and advice.

The destruction of stray dogs taken up by the local bodies plays an important role in controlling the incidence of rabies, thus preventing risk to human life.

## CHAPTER XIII.

121. *Miscellaneous—(a) Criminal poisoning.*—The Chemical Examiner to the Government of Madras examined 109 materials connected with cattle poisoning during the year. The number of cases examined, the number in which poisoning was detected and the kind of poison detected are detailed below :—

| Nature of material examined.  | Number of cases examined. | Number of cases detected. | Kind of poison.                                 |
|-------------------------------|---------------------------|---------------------------|-------------------------------------------------|
| (1)                           | (2)                       | (3)                       | (4)                                             |
| Viscera and contents ..       | 78                        | 14                        | Arsenic (12).<br>Phosphine (2).                 |
| Tissues other than viscera .. | ..                        | ..                        | ..                                              |
| Excreta or stomach contents.  | 14                        | 5                         | Arsenic.                                        |
| Miscellaneous articles ..     | 17                        | 10                        | Arsenic (6).<br>Phosphine (3).<br>Oleander (1). |

(b) *Certificates.*—The staff of this department examined and certified 222 cases of malicious injuries and wounds and issued 144 post-mortem certificates during the period under report.

(c) *Society for the Prevention of Cruelty to Animals.*—The total number of convictions under the Prevention of Cruelty to Animals Act, during the year was 13,064.

(d) *Propaganda.*—(i) The departmental staff carried out propaganda on the various departmental activities such as disease prevention and livestock development with the aid of leaflets, pamphlets, posters, preserved specimens, etc.

(ii) The Propaganda Unit of this department participated in the various exhibitions held in the City of Madras and in the mufassal. In the Congress exhibition held at Madras 13 stalls were taken up by this department and of these three small stalls were converted into a cattle shed with cement flooring. A grand show attracting large crowds was put up and the activities of the various branches of the department were explained in detail to the public. The Prime Minister of India, the Chief Minister of Madras and other Union and State Ministers were among the distinguished visitors to the stalls.

Models of the Livestock Research Station, Hosur Cattle Farm, District Livestock Farms, South Kanara, Malabar, Pudukkottai and Orathanad, the Salvage Farm, Kambakkam, the model of a Key Village Centre and a model to show mixed farming were among the novel exhibits displayed this year.

A big State map in plywood to show the location of the Artificial Insemination Centres, Key Villages and Key Farm Centres, on illuminated glass map of the State showing the location of the Veterinary institutions, Livestock Farms, etc., and a big coloured map of the State in Plywood depicting the measures taken to prevent the ingress of rinderpest into this State by the establishment of the Quarantine Stations were exhibited.

In the Dairy section actual demonstrations of butter making were given and the quantity of butter so made was sold to the public.

A model Poultry pen was also erected and the different breeds of poultry were exhibited.

The Unit also sent selected materials to the Golden Jubilee Exhibition at the Madras Veterinary College and the "Centenary Exhibition Train" and displayed propaganda materials in the opening ceremonies of the District Livestock Farm, Orathanad, the Veterinary Dispensary, Koradacheri and the road leading to the District Livestock Farm, Malabar.

*Posters and charts.*—The following posters, charts, maps and graphs were prepared by the Unit during this year :—

Map showing dissemination of rinderpest in the Madras City.

Posters on the activities of the Animal Husbandry department, in the Madras State.

Posters on utilization of carcasses.

Two designs for the sign boards for hospitals and dispensaries.

Graph showing the lactation curve.

Cattle routes in Madras State.

Folder on pastures.

Map showing cattle routes (in and out) in the Madras State.

Map showing the taluks in the Madras State.

Map showing cattle population.

Graph showing census of white cattle.

Graph showing census of buffaloes.

Mortality due to rinderpest, 1900 to 1952.

Folder on "prevention is better than cure".

Maps showing "Rinderpest in the Madras State".

Artificial Insemination Centres in the Madras State.

Organisation of the Animal Husbandry department.

Cattle population in the Madras State.

Small maps on livestock, ghee, hides and skins, etc., markets.

Map showing Key Villages in the Coimbatore district.

Map showing Community Projects and Key Villages in the Madras

State.

Map showing the Community Project area and Key Villages in the Madurai district.

Map showing the breed tracts.

Map showing the Artificial Insemination Centres, etc., in the Madras

City.

Charts on the duration of pregnancy in domestic animals.

Charts on the Gestation table.

Map showing quarantine stations.

Charts on milk.

Posters on milk.

Maps on plywood boards.

Model of the salvage dry cows farm, Kambakkam.

Model of mixed farming.

Model of a Key Village Centre.

*Leaflets, etc.*—Arrangements have been made to reprint the various departmental leaflets and also to publish attractive booklets and folders.

*Photography.*—A number of Photographs were taken at the various departmental functions held during the year and 39 photographs of the various breeds of cows, breeding bulls, etc., were enlarged and coloured. As many as 700 prints and cabinet size enlargements were taken during the year.

(e) *Glanders inspection.*—The Veterinary Assistant Surgeon in-charge of Glanders Inspection duty, Madras, conducted routine inspections of the

animals in the hackney stands, State hospitals, cattle-sheds, public institutions and milking yards. He inspected 1,138 equines and 16,362 bovines during the year under report. Nine horses that landed at the Madras Harbour were inspected by the District Veterinary Officer, Madras and the Glanders Inspector during the year. Besides, 23 horses, belonging to the King Institute, Guindy, were malleined during the period.

(f) *Veterinary Council*.—Under the existing rules issued by the Ministry of Health, Government of India, the Veterinary Practitioners in India are debarred from prescribing certain drugs as sulphanamides, barbiturates and the like as they are not included among the Registered Practitioners. As there are yet no authorized registers of Veterinary Practitioners as on the medical side, the Indian Council of Agricultural Research has suggested that steps should be taken to remedy the defect, at least partially, by preparing registers in stages which should be deemed as interim authorized registers.

With this object in view the Government of Madras have ordered the opening of an interim authorized register of Veterinary Practitioners, and the first batch of 401 Veterinary Practitioners have been registered. The list has been sent for publication in the *Fort St. George Gazette*.

(g) *Sri W. R. S. Sathianathan's Report*.—Sri W. R. S. Sathianathan, I.C.S., was deputed as Special Officer, to go into the working of the Animal Husbandry department and make his recommendations for improving its administration with particular reference to the working of the Livestock Farms.

The recommendations of the Special Officer are being investigated into and necessary proposals have been sent to the Government.

(h) *Forest Livestock*.—The Inspector of Livestock with the two Assistant Veterinary Inspectors attended to the management and treatment of the entire livestock of the Forest department.

The following table gives the strength of the livestock maintained by the Forest department:—

| Kinds of animal. | Number remaining on 1st April 1954. | Additions. |         |            |            | Deductions. |        |               |         | Number remaining on 31st March 1955. |
|------------------|-------------------------------------|------------|---------|------------|------------|-------------|--------|---------------|---------|--------------------------------------|
|                  |                                     | Captures.  | Births. | Transfers. | Purchases. | Total.      | Sales. | Destructions. | Losses. | Total.                               |
| Elephants ..     | 125                                 | 5          | 9       | ..         | ..         | 14          | 40     | 1             | ..      | 44                                   |
| Buffaloes ..     | 24                                  | ..         | ..      | ..         | 2          | 2           | 1      | ..            | 1       | 2                                    |
| Bullocks ..      | 2                                   | ..         | ..      | ..         | ..         | ..          | ..     | ..            | ..      | ..                                   |
| Total ..         | 151                                 | 5          | 9       | ..         | 2          | 16          | 41     | 1             | 2       | 44                                   |
|                  |                                     |            |         |            |            |             |        |               |         | 101                                  |

There was one case of Pox among the elephants during the year. Four hundred non-contagious cases were treated during the year as against five hundred and twenty-eight cases treated during the previous year.

During the year 40 elephants (including one elephant and one elephant calf sold to foreign countries) were sold and a sum of Rs. 1,37,145 was realized. In addition one elephant calf was despatched to Holland as a gift by the Prime Minister.

(i) *The King Institute, Guindy*.—The services of two Veterinary Assistant Surgeons of this department were lent to the King Institute, Guindy and they were attached to the anti-toxin section of the institute.

(j) *Private Practitioners*.—During the year 32 Veterinarians mostly retired officers were engaged in private practice.

(k) *Manual revision*.—A revision of the departmental manual which was last printed in the year 1931 was completed during the year and it is under print.

## CHAPTER XIV.

### STATISTICS.

122. (a) The statistical section started functioning from 26th May 1954. The preliminary work on the collection of data in all livestock farms of this State was undertaken. To start with the pedigree records of the livestock Research Station, Hosur, where the records have been maintained for over 25 years, were examined. The details of all the cow history sheets pertaining to the different lactations of milk yield, different progenies born, different bulls to which each cow was sired and all other relevant information relating to number of days in milk, number of days dry and the daily average milk yield for each animal were processed. In all 456 history sheets of Scindhi cows, 523 history sheets of Kangayam cows and 135 history sheets of Hallikar cows were investigated and tabulated, as per the milk yields of various lactations, number of days in milk and number of days dry, in order to evolve the standard basis with which the milking capacity of each breed in different lactations could be evaluated. The respective mean with the standard error for each lactation was explored by applying the recent Statistical technique, so as to form a basis to maintain a standard with which a future plan of work can be undertaken in an economic way. (Vide Appendix I-IV.)

Another investigation was also undertaken to forecast the peak yield of a particular animal from the performance of the first lactation. The data on milk yield of different lactations of both Scindhi and Kangayam, were tabulated and arranged in the order of the first lactation to the corresponding peak lactation. Here it needs mention that as per the previous analysis, the average lactation period has been fixed as 270 days for working out the correction factor involved in the adjustment of milk yield to the number of days in milk. All records pertaining to the above study were standardized to 270 days in milk by applying the regression co-efficient of milk yield on days in milk. This amounts to the adjustment of each lactation yield of each cow to 270 days on a standardized level. Having standardized the records on the first lactation yield with the corresponding peak lactation yield, both the correlation co-efficient and the regression co-efficient were set up as per the statistical methods. It was observed that in the Scindhi breed, the correlation between the first lactation and the fourth lactation (peak lactation) was highly significant and in the Kangayam breed the first lactation and the third lactation (peak lactation) was highly significant giving an evidence to show that there is an association between the first lactation yield and the fourth lactation yield (to give the maximum) in Scindhi breed and between first lactation and third (to give the maximum) in Kangayam breed. Further investigation was undertaken to explore the possibilities of forecasting the result by the animal's production of milk in the first lactation. The method of "curve fitting" was adopted in this case. As a first step, a linear relationship between the two varieties was taken up. With the two sets of standardized data for each breed, the Analysis of variance table was set up to separate the sum of squares due to:

linear regression and the sum of squares due to error variation from the total sum of squares, having the milk yield of the first lactation as the independent variate and the milk yield of the peak lactation as the dependent variate. The students' "t" test was applied and found in both cases of Scindhi and Kangayam to be highly significant, thus establishing a linear relationship between the first lactation and the peak lactation yield. This investigation has resulted in the forecast of the peak lactation from the first lactation by the linear relationship equation.

X = Independent variate (milk yield of first lactation).

Y = Dependent variate (milk yield of the peak lactation).

The linear equation for forecasting the result of Scindhi—

$$Y = 1.0292 X + 2212.85.$$

Of Kangayam—

$$Y = 1.325 X + 159.48.$$

Simultaneously the co-efficient of correlation was also worked with respect to the milk yield and the number of days in milk for each lactation, so as to know the measure of association between the two variates (vide Appendices 5 to 8).

A preliminary analysis of the fish meal experiment conducted at the Livestock Research Station, Hosur, was done and the result is being assessed and final analysis will be undertaken shortly, soon after the completion of the experiment.

A comparative study was undertaken by testing the difference in weight by actual measurement and by formula  $\frac{LG^2}{300}$ . The weight of animals in all the Livestock Farms were taken breedwise and in all 41 animals of Scindhi, 45 animals of Kangayam, 17 animals of Gir and 20 animals of Murrah breed were put to statistical analysis. The result indicates that in Scindhi breed alone, there is no difference between the two, but, in other breeds, there is difference indicating a different formula to be evolved.

On the Disease Control side, the data for the last twenty years collected on Haemorrhagic Septicæmia, Black Quarter, and Anthrax, are being tabulated for all the districts in the State so as to mark out the endemic areas in the State, with a view to forecast the disease in advance, when preventive inoculations in these endemic areas could be done well in advance. Monthly statistics pertaining to the disease position of this State was also consolidated by this section for information and publicity.

Maintenance of herd registers for all the animals in all Livestock Farms, with the view to have a central herd book, was done and all the pedigree and detailed particulars of every animal in all the Government Livestock Farms, have been entered in different herd registers maintained at this office, from the monthly reports of the Livestock Farms. This work has to go simultaneously with the statistical work, so that, based on the proper maintenance of herd registers, statistical methods may be evolved. The herd registers maintained at the various Livestock Research Stations, including the Key Village Centres and Artificial Insemination Units have been standardized and new registers introduced, so as to have a uniform procedure of herd recording. This will facilities improvements in the methods of herd recording and form the foundation for statistical analysis.

This section also scrutinized the periodical reports from the departmental staff especially the monthly reports of the Livestock Farms as regards the milk yield, etc., and examined some of the schemes drawn on the Livestock developmental work for future planning and developmental work arising from day-to-day administration.

During the year under report the statistician was deputed for International Training on Sample Survey and Design of Experiments for a period of three months from 20th September to 19th December 1954, under the auspices of the Food and Agriculture Organization of the United Nations at New Delhi.

The statistical tables are given in Appendices 1—8.

#### APPENDIX 1.

##### Statement showing the performance of Scindhi.

| Number of lactations. | milk<br>Average yield. | lactation<br>Average period. | dry<br>Average period. | calving<br>Average interval. | average<br>Daily (lactation period). | average<br>Daily (calving interval). |
|-----------------------|------------------------|------------------------------|------------------------|------------------------------|--------------------------------------|--------------------------------------|
| (1)                   | (2)                    | (3)                          | (4)                    | (5)                          | (6)                                  | (7)                                  |
| First lactation ..    | 3,495.7                | 312.3                        | 223.1                  | 533.1                        | 11.1                                 | 6.9                                  |
| Second lactation ..   | 3,709.5                | 432.9                        | 193.1                  | 502.0                        | 12.0                                 | 7.9                                  |
| Third lactation ..    | 4,072.9                | 307.0                        | 173.0                  | 480.1                        | 13.1                                 | 8.8                                  |
| Fourth lactation ..   | 4,037.5                | 302.1                        | 184.4                  | 500.4                        | 13.3                                 | 8.5                                  |
| Fifth lactation ..    | 3,900.2                | 254.1                        | 169.3                  | 473.0                        | 13.2                                 | 9.1                                  |
| Sixth lactation ..    | 4,277.0                | 304.0                        | 160.4                  | 474.4                        | 13.2                                 | 8.8                                  |
| Seventh lactation ..  | 4,335.8                | 315.0                        | 192.2                  | 504.6                        | 13.7                                 | 7.8                                  |
| Eighth lactation ..   | 3,838.0                | 305.3                        | 150.0                  | 438.0                        | 12.6                                 | 8.4                                  |
| Ninth lactation ..    | 3,635.9                | 327.8                        | 145.4                  | 469.8                        | 11.2                                 | 7.1                                  |
| Tenth lactation ..    | 2,792.5                | 287.8                        | 144.0                  | 434.7                        | 9.7                                  | 7.1                                  |
| Mean (+) ..           | 3,809.5                | 314.85                       | 173.49                 | 481.01                       | 12.31                                | 8.04                                 |
| Standard error (—)    | 141.4                  | 14.46                        | 7.97                   | 13.73                        | 0.4                                  | 0.24                                 |

## APPENDIX 2.

*Statement showing the performance of Kangayam.*

| Number of lactations. |          | milk   | lactation | dry     | calving   | average             | average             |
|-----------------------|----------|--------|-----------|---------|-----------|---------------------|---------------------|
|                       |          | yield. | period.   | period. | interval. | (lactation period). | (calving interval). |
| (1)                   | (2)      | (3)    | (4)       | (5)     | (6)       | (7)                 | (8)                 |
| First lactation ..    | 1,301.5  | 257.2  | 241.1     | 502.3   | 5.0       | 2.8                 |                     |
| Second lactation ..   | 1,437.9  | 258.2  | 208.8     | 470.7   | 5.5       | 3.4                 |                     |
| Third lactation ..    | 1,548.4  | 259.0  | 210.5     | 466.7   | 4.8       | 3.7                 |                     |
| Fourth lactation ..   | 1,574.0  | 259.9  | 182.1     | 443.5   | 5.0       | 3.6                 |                     |
| Fifth lactation ..    | 1,692.4  | 260.6  | 196.1     | 457.0   | 5.3       | 3.8                 |                     |
| Sixth lactation ..    | 1,766.8  | 267.9  | 204.2     | 453.7   | 5.7       | 3.7                 |                     |
| Seventh lactation ..  | 1,788.5  | 266.2  | 194.6     | 464.0   | 5.7       | 4.1                 |                     |
| Eighth lactation ..   | 1,775.5  | 271.5  | 169.8     | 425.8   | 5.4       | 4.3                 |                     |
| Ninth lactation ..    | 1,636.6  | 260.8  | 270.3     | 462.0   | 5.1       | 4.3                 |                     |
| Mean (+) ..           | 1,613.51 | 262.4  | 207.94    | 460.63  | 5.28      | 3.74                |                     |
| Standard error (—)    | 55.4     | 1.6    | 10.19     | 6.93    | 0.35      | 0.14                |                     |

### APPENDIX 3.

*Statement showing the performance of Hallikar.*

| Number of lactation. | Average<br>yield | Average<br>lactation<br>period. | dry<br><br>Average<br>period | calving<br><br>Average<br>interval. | average<br>lactation<br>period). | average<br>lactation<br>period). |
|----------------------|------------------|---------------------------------|------------------------------|-------------------------------------|----------------------------------|----------------------------------|
| (1)                  | (2)              | (3)                             | (4)                          | (5)                                 | (6)                              | (7)                              |
| First lactation ..   | 942.6            | 236.3                           | 214.5                        | 517.7                               | 4.0                              | 2.1                              |
| Second lactation ..  | 868.1            | 239.7                           | 237.9                        | 453.4                               | 3.6                              | 1.8                              |
| Third lactation ..   | 954.2            | 238.7                           | 200.4                        | 439.5                               | 4.0                              | 2.2                              |
| Fourth lactation ..  | 1,026.4          | 242.9                           | 191.6                        | 420.1                               | 4.2                              | 2.4                              |
| Fifth lactation ..   | 1,034.9          | 238.8                           | 186.0                        | 444.7                               | 4.3                              | 2.4                              |
| Sixth lactation ..   | 1,047.9          | 252.4                           | 148.8                        | 430.8                               | 4.2                              | 2.6                              |
| Seventh lactation .. | 971.3            | 213.0                           | 227.6                        | 496.5                               | 4.6                              | 2.2                              |
| Eighth lactation ..  | 811.9            | 210.9                           | 202.7                        | 417.0                               | 3.9                              | 2.0                              |
| Ninth lactation ..   | 634.4            | 209.6                           | 231.8                        | 468.9                               | 3.0                              | 1.4                              |
| Tenth lactation ..   | 518.2            | 159.0                           | 266.8                        | 424.9                               | 3.3                              | 1.4                              |
| Mean (+) ..          | 880.99           | 224.13                          | 204.81                       | 451.4                               | 3.91                             | 2.05                             |
| Standard error (—)   | 56.5             | 8.67                            | 8.81                         | 10.5                                | 0.15                             | 0.12                             |

## APPENDIX 4.

Statement showing the particulars of mean, standard error, coefficient variation of Scindhi (Generation-wise).

[illegible]



*Statement showing the particulars of average, standard error, coefficient of variation of Scindhi (Generation-wise)—cont.*

DAILY AVERAGE YIELD (LACTATION PERIOD).[illegible]

## APPENDIX 4—cont.

*Statement showing the particulars of average, standard error and co-efficient of variation of Scindhi (Generation wise)—cont.*

| Order of lactation.                     | I    | II   | III  | IV   | V    | VI   | VII  | VIII | IX  | X   | Average |
|-----------------------------------------|------|------|------|------|------|------|------|------|-----|-----|---------|
| DAILY AVERAGE YIELD (CALVING INTERVAL), |      |      |      |      |      |      |      |      |     |     |         |
| Foundation Stock—                       |      |      |      |      |      |      |      |      |     |     |         |
| Number of animals                       | 31   | 36   | 30   | 20   | 9    | 5    | 2    | 1    | 1   | 1   | 7.8     |
| Mean                                    | 5.7  | 6.9  | 8.1  | 8.4  | 7.8  | 9.3  | 8.3  | 8.0  | 7.7 | ... | ...     |
| Standard error                          | 0.51 | 0.43 | 0.53 | 0.51 | ...  | ...  | ...  | ...  | ... | ... | ...     |
| Co-efficient of variation               | 50.9 | 37.7 | 35.8 | 27.4 | ...  | ...  | ...  | ...  | ... | ... | ...     |
| First Generation—                       |      |      |      |      |      |      |      |      |     |     |         |
| Number of animals                       | 45   | 36   | 35   | 27   | 21   | 15   | 5    | 3    | 1   | ... | 8.4     |
| Mean                                    | 6.8  | 8.3  | 8.5  | 8.6  | 9.7  | 8.8  | 9.8  | 8.9  | 5.9 | ... | ...     |
| Standard error                          | 0.29 | 0.36 | 0.56 | 0.37 | 0.52 | 0.39 | ...  | ...  | ... | ... | ...     |
| Co-efficient of variation               | 29.0 | 25.7 | 38.8 | 22.9 | 24.9 | 20.5 | ...  | ...  | ... | ... | ...     |
| Second Generation—                      |      |      |      |      |      |      |      |      |     |     |         |
| Number of animals                       | 65   | 50   | 35   | 25   | 20   | 16   | 12   | 6    | 2   | 1   | 8.9     |
| Mean                                    | 7.6  | 8.8  | 9.7  | 9.7  | 8.7  | 8.7  | 9.0  | 9.9  | 7.8 | ... | ...     |
| Standard error                          | 0.41 | 0.6  | 0.8  | 0.13 | 0.7  | 0.8  | 1.1  | ...  | ... | ... | ...     |
| Co-efficient of variation               | 44.5 | 48.1 | 49.5 | 58.2 | 32.2 | 39.9 | 42.8 | ...  | ... | ... | ...     |
| Third Generation—                       |      |      |      |      |      |      |      |      |     |     |         |
| Number of animals                       | 80   | 61   | 45   | 34   | 26   | 17   | 11   | 6    | 3   | 1   | 7.7     |
| Mean                                    | 7.0  | 8.0  | 9.0  | 9.3  | 8.7  | 8.9  | 7.6  | 6.3  | 6.5 | ... | ...     |
| Standard error                          | 0.32 | 0.33 | 0.57 | 0.88 | 0.81 | 0.93 | 1.06 | ...  | ... | ... | ...     |
| Co-efficient of variation               | 39.8 | 33.6 | 42.0 | 55.2 | 27.5 | 43.3 | 46.3 | ...  | ... | ... | ...     |
| Fourth Generation—                      |      |      |      |      |      |      |      |      |     |     |         |
| Number of animals                       | 62   | 55   | 37   | 23   | 8    | 5    | 4    | ...  | ... | ... | 8.1     |
| Mean                                    | 7.6  | 7.7  | 8.6  | 8.9  | 10.0 | 8.4  | 5.2  | ...  | ... | ... | ...     |
| Standard error                          | 0.43 | 0.45 | 0.53 | 0.91 | ...  | ...  | ...  | ...  | ... | ... | ...     |
| Co-efficient of variation               | 43.4 | 42.7 | 38.0 | 48.8 | ...  | ...  | ...  | ...  | ... | ... | ...     |
| Fifth Generation—                       |      |      |      |      |      |      |      |      |     |     |         |
| Number of animals                       | 26   | 10   | 7    | 4    | 1    | ...  | ...  | ...  | ... | ... | 8.4     |
| Mean                                    | 7.0  | 8.7  | 9.0  | 8.8  | 8.5  | ...  | ...  | ...  | ... | ... | ...     |
| Standard error                          | 0.44 | 0.63 | ...  | ...  | ...  | ...  | ...  | ...  | ... | ... | ...     |
| Co-efficient of variation               | 31.7 | 22.8 | ...  | ...  | ...  | ...  | ...  | ...  | ... | ... | ...     |
| Sixth Generation—                       |      |      |      |      |      |      |      |      |     |     |         |
| Number of animals                       | 2    | 2    | 1    | 1    | ...  | ...  | ...  | ...  | ... | ... | 7.3     |
| Mean                                    | 6.8  | 7.2  | 8.6  | 6.0  | ...  | ...  | ...  | ...  | ... | ... | ...     |
| Standard error                          | ...  | ...  | ...  | ...  | ...  | ...  | ...  | ...  | ... | ... | ...     |
| Co-efficient of variation               | ...  | ...  | ...  | ...  | ...  | ...  | ...  | ...  | ... | ... | ...     |

## APPENDIX 5.

Table showing the correlation between the first lactation and the respective peak lactation.

SCINDHI.

| Name of the Items.                                                | Correlation coefficient value 'r'. | Remarks.              |
|-------------------------------------------------------------------|------------------------------------|-----------------------|
| Correlation between first lactation and Second (peak) lactation.  | 0.3636                             | Not significant.      |
| Correlation between first lactation and third (peak) lactation.   | 0.1348                             | Do.                   |
| Correlation between first lactation and fourth (peak) lactation.  | 0.7228*                            | * Highly significant. |
| Correlation between first lactation and fifth (peak) lactation.   | 0.1831                             | Not significant.      |
| Correlation between first lactation and sixth (peak) lactation.   | 0.1563                             | Do.                   |
| Correlation between first lactation and seventh (peak) lactation. | 0.6133                             | Do.                   |

## APPENDIX 6.

Table showing the regression co-efficient of the first lactation with the respective peak lactation.

SCINDHI.

| Name of the Items.                                               | Regression co-efficient of 'b'. | Remarks.              |
|------------------------------------------------------------------|---------------------------------|-----------------------|
| Regression between first lactation and second (peak) lactation.  | 0.5663                          | Not significant.      |
| Regression between first lactation and third (peak) lactation.   | 0.2180                          | Do.                   |
| Regression between first lactation and fourth (peak) lactation.  | 1.0292*                         | * Highly significant. |
| Regression between first lactation and fifth (peak) lactation.   | 0.3378                          | Not significant.      |
| Regression between first lactation and sixth (peak) lactation.   | 0.2224                          | Do.                   |
| Regression between first lactation and seventh (peak) lactation. | 0.9292                          | Do.                   |

## APPENDIX 7.

Table showing the correlation of the first lactation and the respective peak lactation.

KANGAYAM.

| Name of the Items.                                                | Correlation coefficient value 'r'. | Remarks.              |
|-------------------------------------------------------------------|------------------------------------|-----------------------|
| Correlation between first lactation and second (peak) lactation.  | 0.3657                             | Not significant.      |
| Correlation between first lactation and third (peak) lactation.   | 0.5460 *                           | * Highly significant. |
| Correlation between first lactation and fourth (peak) lactation.  | 0.5232                             | Not significant.      |
| Correlation between first lactation and fifth (peak) lactation.   | 0.5278                             | Do.                   |
| Correlation between first lactation and sixth (peak) lactation.   | 0.4492                             | Do.                   |
| Correlation between first lactation and seventh (peak) lactation. | 0.1492                             | Do.                   |

## APPENDIX 8.

Table showing the regression co-efficient of the first lactation and the respective peak lactation.

| KANGAYM.                                                         |  |                                     |                       |
|------------------------------------------------------------------|--|-------------------------------------|-----------------------|
| Name of the items.                                               |  | Regression co-eff-<br>cient of 'b'. | Remarks.              |
| Regression between first lactation and second (peak) lactation.  |  | 0.4748                              | Not significant.      |
| Regression between first lactation and third (peak) lactation.   |  | 1.325 *                             | * Highly significant. |
| Regression between first lactation and fourth (peak) lactation.  |  | 0.8329                              | Not significant.      |
| Regression between first lactation and fifth (peak) lactation.   |  | 0.7669                              | Do.                   |
| Regression between first lactation and sixth (peak) lactation.   |  | 1.2137                              | Do.                   |
| Regression between first lactation and seventh (peak) lactation. |  | 0.2673                              | Do.                   |

(b) *Work on evaluation of achievements of livestock farms.*—Government ordered that the achievements of each livestock farm of this State in all its aspects should be examined and reviewed in detail and future plans formulated on the basis of the results so achieved. For this purpose, they sanctioned temporarily a section for a period of three months from the date of formation. The temporary section was first formed on 2nd September 1954 but was disbanded on 16th September 1954, as the Officer under whose guidance it had to work was deputed for a special training for three months. The section was reconstituted on 8th January 1955.

During the period from 8th January to 31st March 1955, the preliminary work of collecting the necessary statistical data and making the required calculations under the guidance of the Animal Husbandry Statistician was in progress.

## CHAPTER XV—FINANCE.

123. A statement showing the receipts and charges of the department for the year 1954-55 is appended (Table VIII):—

|                            |  |
|----------------------------|--|
| RECEIPTS.                  |  |
| 1954-55—Rs. 8,17,763-0-9.  |  |
| CHARGES.                   |  |
| 1954-55—Rs. 40,73,429-0-9. |  |

## CHAPTER XVI—PROGRAMME OF WORK.

124. The extent to which the programme of work for 1954-55 outlined in the Administrative Report for 1953-54 was implemented during the year is indicated below:—

(a) *Education.*—(i) Twelve posts of Lecturers in the Madras Veterinary College were redesignated as those of Professors and an additional Professor on the recommendations of the Madras University Commission.

(ii) A Stockmen's Course was started in place of the Veterinary and Livestock Inspector's Course.

(iii) Two flaying centres were opened in the mufassal, one at Coonoor and the other at Tiruchirappalli.

(b) *Livestock Section.*—(i) *Livestock Research Station, Hosur Cattle Farm.*—The programme to concentrate on the Scindhi herd was continued. The Farm was more or less self-sufficient with regard to fodder position. In place of small gutta bunds, regular contour bunding was started as a measure of soil conservation.

(ii) *District Livestock Farm, South Kanara.*—Grading up to improve the local breed of cattle was continued.

(iii) *District Livestock Farm, Malabar.*—Pedigree breeding of Scindhi and Murrah breeds was continued. A herd of Malabar goats were also continued to be maintained.

(iv) *District Livestock Farm, Pudukottai.*—Pedigree breeding of Kangayam and Scindhi breeds was continued.

(v) *Sheep Farm, Ootacamund.*—The research on woolly sheep, fodder and pastures was continued.

(vi) *Key villages.*—Two more centres were opened.

(vii) *General.*—One hundred and forty-five bulls of the various breeds were issued from the different farms.

(c) *Veterinary aid.*—(i) Out of nine Veterinary Institutions sanctioned, eight have been opened. All the three touring billets and four Minor Veterinary Dispensaries sanctioned were opened.

(ii) Twenty-two Veterinary Livestock Inspectors were employed.

(iii) Three clinical laboratories, two in Headquarter Veterinary Institutions and one in a Livestock Research Station were opened.

(iv) Two Veterinary Institutions were supplied with refrigerators.

(v) Twenty quarantine stations were established in the border areas of the State of which one is seasonal.

(d) *Investigation and research.*—(i) A Statistical Section to deal with the problems of Animal Breeding, Nutrition and Disease Control was organized.

(ii) A scheme for the control and eradication of, and research on Brucellosis was implemented. The other items of investigation and research have been mentioned under the respective heads.

## PROGRAMME OF WORK FOR 1955-56.

125. The broad outlines of the programme of work and the improvements to the department proposed or expected to be undertaken during the year 1955-56 are given below:—

(a) *Education.*—(i) To grant a higher start in the new scale to the professors of the Madras Veterinary College.

(ii) To equip the surgery section of the Madras Veterinary College.

(iii) To provide a new bus to the Madras Veterinary College.

(iv) To purchase an up-to-date X-ray plant for the Madras Veterinary College Hospital.

(v) To purchase an Ambulatory Clinic for the Madras Veterinary College.

(vi) To construct an open air theatre for the Madras Veterinary College.

(vii) To introduce a Post-graduate Course in Parasitology in the Madras Veterinary College and organize Helminthiasis Research in the field.

(viii) To increase the number of admissions to the B.V.Sc. Course.

- (ix) To revive the Veterinary and Livestock Inspector's Course.
- (x) To increase the number of admissions to the Stockmen's Course.

(b) *Livestock Section*—(i) *Livestock Research Station, Hosur Cattle Farm*.—To continue the concentration on the Scindhi herd and to transfer the Kangayam herd gradually to the District Livestock Farms as and when they are opened.

To grow fodder crops and grasses.

To take measures to carry out soil conservation.

(ii) *District Livestock Farm, South Kanara*.—To continue grading for improving the local breeding of cattle at the Farm.

To construct residential buildings for the staff.

(iii) *District Livestock Farm, Malabar*.—To continue pedigree breeding of Scindhi and Murrah breeds.

To construct residential and non-residential buildings at the Farm.

(iv) *District Livestock Farm, Pudukkottai*.—To continue pedigree breeding of the Kangayam and Scindhi herds.

To acquire more lands for the improvement of the Farm.

(v) *District Livestock Farm, Orathanad*.—To breed and supply Umblachery bulls to the public.

To start a Poultry Farm with exotic breeds of birds in order to supply exotic birds in the area.

(vi) *Sheep Farm, Ootacamund*.—To continue building up of the Farm and conduct research on woolly sheep, fodder and pastures.

To start a small herd of foreign breed for cross-breeding.

To locate a sub-centre in the Nilgiris for undertaking sheep and wool development on a regional basis.

To construct quarters for the staff.

(vii) *Poultry Research Station, Madras*.—To construct a shed for rearing chicks.

To introduce new foreign blood by importing birds.

To supply birds to the National Extension Service area.

(viii) *General*.—To distribute male breeding stock as programmed in the First Five-Year Plan.

To include more number of bulls in the scheme.

To open three Artificial Insemination Centres in the District Headquarter Hospitals at Salem, Erode and Malabar.

To start an Artificial Insemination Centre for each Community Development Block.

To supply stallions to breeders.

To establish a sheep farm in Chingleput district for breeding Nellore breed of sheep.

(c) *Veterinary aid*.—(i) To supply a jeep to each District Veterinary Officer.

(ii) To open nine Veterinary Institutions.

(iii) To open ten touring Billets and Minor Veterinary Dispensaries.

(iv) To establish ten more clinical laboratories at Headquarter institutions and Livestock Farms.

(v) To appoint a second house surgeon in the Madras Veterinary College Hospital.

(vi) To construct permanent buildings for Veterinary Dispensaries, Cannanore and Gobichettipalayam.

(vii) To increase the number of District Veterinary Officers and Ministerial staff to cope up with the increased work.

(d) In the Second Five-Year Plan various schemes taking into consideration all the problems connected with livestock both in health and disease have been drawn up.

#### CHAPTER XVII—FIVE-YEAR PLAN.

128. The progress made on the important schemes included in the First Five-Year Plan are detailed below. The Post-War Development Schemes have already been merged with the Five-Year Plan.

(a) *Taking over the Pudukkottai Farm*.—The Farm has been established and the area of the farm is being extended by having one square mile of land offered by His Highness the Rajah of Pudukkottai in the nearby forest.

(b) *Purchase of laboratory equipment to the Institute of Veterinary Preventive Medicine, Ranipet*.—Most of the equipment and furniture have been purchased and the balance will be purchased within the Five-Year Period.

(c) *Opening of a Touring Billet in each taluk*.—Under this scheme ten touring billets have been opened so far to combat contagious diseases of cattle and to render Veterinary aid in the villages.

(d) *Opening of a Veterinary Institution for each taluk*.—Under this scheme 11 Veterinary Institutions have been opened and these institutions provide greater facilities for the people in the treatment of their livestock.

(e) *District Livestock Farms, South Kanara and Malabar*.—The approach road and bridge to connect the District Livestock Farm, Malabar, with the main road were constructed and transport made easy. The two farms continued to produce and supply breeding bulls to the ryots.

(f) *Establishment of Clinical Laboratories in the Headquarter Veterinary Institutions and Livestock Farms*.—Under the scheme three clinical laboratories were opened at the end of the year and eight specimens were examined in one of them out of which six proved positive.

(g) *Distribution of male breeding stock*.—Under the scheme 274 bulls of the different breeds and 30 rams have been distributed up to the end of the year.

(h) *Artificial insemination of cattle*.—Four Artificial Insemination Centres with six sub-centres have been started and 38,928 inseminations have been done in them till the end of the year.

(i) *Scheme to maintain a flock of Mandya rams at the Livestock Research Station, Hosur Cattle Farm*.—Under this scheme 21 rams and 20 ewes have been sold so far. The target fixed has not been attained completely and action is being taken separately in the matter.

(j) *Key Village Scheme for Livestock Improvement*.—There were nine Key Village Centres and 36 Key Villages functioning as programmed by the Government of India at the end of the year. The scheme is functioning satisfactorily and 18,713 artificial insemination and 3,727 natural services have been done in these centres.

(k) *Key Farm Centres in private institutions*.—There were six Key Farm Centres functioning at the end of the year as approved by the Government of India. The scheme is functioning satisfactorily and 9,903 artificial

insemination and 2,890 natural services were done in the centres up to the end of the year.

(l) *Scheme for the control of Brucellosis.*—This scheme was started recently and the work was in progress during the year.

(m) *Starting of Stockmen's Course.*—A course of eleven months' duration was started in the Madras Veterinary College and 53 students were undergoing training in the course.

(n) *Opening of a Statistical Section for the Animal Husbandry department.*—A section was formed during the year and it was engaged in the collection and compilation of all statistical data on Animal Husbandry matters including research schemes.

(c) *Salvage of dry cows in Madras City.*—Nine hundred and seventy-two cows were salvaged and returned before and after calving to their owners, till the end of the year.

(p) *Import of day-old chicks from abroad.*—Nine hundred and fifty chicks of the White Leghorn, Rhode Island Red and Light Sussex breeds were imported from abroad and the chicks were being reared in the Poultry Research Station, Madras.

(q) *District Poultry Farm, Cannanore.*—At the end of the year the farm maintained 8 cocks, 91 hens and 283 chicks of the White Leghorn and Rhode Island Red breeds.

The statements showing the progress of expenditure are given below :—

#### STATEMENT I.

##### Summary statement of Development Expenditure, Madras State.

| Head of Development.                                                                                        | Rupees in lakhs.       |          |          |          |          |                                      | Budget.                          |
|-------------------------------------------------------------------------------------------------------------|------------------------|----------|----------|----------|----------|--------------------------------------|----------------------------------|
|                                                                                                             | Provision in the plan. | Actuals. | Actuals. | Actuals. | Actuals. | Expenditure up to end of March 1955. |                                  |
| (1)                                                                                                         | (2)                    | (3)      | (4)      | (5)      | (6)      | (7)                                  | (8)                              |
| <b>Animal Husbandry—</b>                                                                                    |                        |          |          |          |          |                                      |                                  |
| 1. Appointment of Deputy Directors of Animal Husbandry.                                                     | 1.57                   | 0.26     | 0.31     | 0.35     | 0.34     | 1.26                                 | 0.31                             |
| 2. Appointment of District Veterinary Officers.                                                             | 2.74                   | 0.58     | 0.63     | 0.50     | 0.52     | 2.23                                 | 0.51                             |
| 3. Taking over of Pudukkottai farm.                                                                         | 3.30                   | 0.28     | 0.43     | 0.68     | 0.70     | 2.09                                 | Provision included under item 9. |
| 4. Training abroad ..                                                                                       | 0.09                   | 0.08     | 0.01     | ..       | ..       | 0.09                                 | ..                               |
| 5. Purchase of Laboratory equipment and furniture for Institute of Veterinary Preventive Medicine, Ranipet. | 0.38                   | 0.17     | 0.12     | 0.01     | 0.04     | 0.34                                 | 0.04                             |
| 6. Research in diseases of sheep and goat.                                                                  | 0.44                   | 0.06     | 0.06     | 0.11     | 0.10     | 0.33                                 | 0.11                             |
| 7. Opening of Touring Bilets in each taluk.                                                                 | 5.45                   | 0.83     | 1.06     | 1.25     | 0.89     | 4.03                                 | 1.42                             |
| 8. Opening of Veterinary Institutions in each taluk.                                                        | 2.82                   | 0.17     | 0.17     | 0.24     | 0.34     | 0.92                                 | 1.90                             |
| 9. District Livestock Farms, South Kanara and Malabar.                                                      | 10.77                  | 1.97     | 1.97     | 1.54     | 2.25     | 7.73                                 | 3.94                             |

| Head of development.                                                                                       | Rupees in lakhs.       |          |          |          |          |                                      | 1955-56 Budget.                  |
|------------------------------------------------------------------------------------------------------------|------------------------|----------|----------|----------|----------|--------------------------------------|----------------------------------|
|                                                                                                            | Provision in the plan. | Actuals. | Actuals. | Actuals. | Actuals. | Expenditure up to end of March 1955. |                                  |
| (1)                                                                                                        | (2)                    | (3)      | (4)      | (5)      | (6)      | (7)                                  | (8)                              |
| <b>Animal Husbandry—cont.</b>                                                                              |                        |          |          |          |          |                                      |                                  |
| 10. Establishment of Clinical Laboratories in Head-quarter Veterinary Hospitals and Livestock Farms.       | ..                     | ..       | ..       | ..       | 0.01     | 0.01                                 | Provision included under item 8. |
| 11. Increase in the number of Sheep and Goat Demonstration Units.                                          | 0.68                   | ..       | 0.19     | 0.18     | 0.14     | 0.51                                 | 0.17                             |
| 12. Distribution of Male breeding stock.                                                                   | 2.45                   | 0.65     | ..       | ..       | 1.80     | 2.45                                 | ..                               |
| 13. Artificial insemination of cattle.                                                                     | 2.85                   | 0.26     | 0.39     | 0.48     | 0.61     | 1.74                                 | 1.11                             |
| 14. Scheme for the maintenance of a flock of Mandya rams at Livestock Research Station, Hosur Cattle Farm. | 0.15                   | 0.08     | 0.02     | 0.03     | 0.01     | 0.12                                 | 0.03                             |
| 15. Key Village Scheme for Livestock Improvement.                                                          | 6.54                   | 0.29     | 0.44     | 2.01     | 1.79     | 4.53                                 | 2.01                             |
| 16. Key Farm Centres in private institutions.                                                              | 2.63                   | ..       | 0.68     | 0.62     | 0.69     | 1.99                                 | 0.64                             |
| 17. Scheme for the control of Brucellosis.                                                                 | 0.08                   | ..       | ..       | ..       | 0.08     | 0.08                                 | 0.07                             |
| 18. Starting of Stockmen's Course.                                                                         | ..                     | ..       | ..       | ..       | 0.11     | 0.11                                 | Separate figures not available.  |
| 19. Opening of a Statistical Section.                                                                      | 0.15                   | ..       | ..       | ..       | 0.07     | 0.07                                 | 0.08                             |
| 20. Salvage of dry cows in Madras City.                                                                    | 2.65                   | 0.55     | 0.42     | 0.31     | 0.73     | 2.01                                 | 0.64                             |
| 21. District Poultry Farm, Cannanore.                                                                      | 0.55                   | 0.11     | 0.11     | 0.11     | 0.10     | 0.43                                 | 0.12                             |
| 22. Import of day old chicks.                                                                              | 0.10                   | ..       | ..       | ..       | ..       | ..                                   | 0.10                             |
|                                                                                                            | 46.39                  | 6.32     | 7.01     | 8.42     | 11.32    | 33.07                                | 12.30                            |

#### STATEMENT I-A.

##### Expenditure on Centrally Sponsored Schemes.

| Head.                                     | Rupees in lakhs.    |                |                     |                |                     |                |                    |                |                   |                |
|-------------------------------------------|---------------------|----------------|---------------------|----------------|---------------------|----------------|--------------------|----------------|-------------------|----------------|
|                                           | 1951-52 (Accounts). |                | 1952-53 (Accounts). |                | 1953-54 (Accounts). |                | 1954-55 (Revised). |                | 1955-56 (Budget). |                |
|                                           | Total.              | State's share. | Total.              | State's share. | Total.              | State's share. | Total.             | State's share. | Total.            | State's share. |
| (1)                                       | (2)                 | (3)            | (4)                 | (5)            | (6)                 | (7)            | (8)                | (9)            | (10)              | (11)           |
| Key Village Scheme ..                     | 0.29                | *              | 0.44                | *              | 2.01                | 1.79           | 1.79               | .91            | 2.01              | ..             |
| Key Farm Centres in private institutions. | ..                  | ..             | 0.68                | *              | 0.62                | *              | 0.69               | .19            | 0.64              | ..             |
|                                           | 0.29                |                | 1.12                |                | 2.63                |                | 2.48               |                | 2.65              |                |

\* Details for Central grants are not readily available.

## STATEMENT II.

*Expenditure on the State Plan and Central Assistance:*

|                                                                                                    | 1951-52. | 1952-53. | 1953-54. | 1954-55. | 1955-56. |
|----------------------------------------------------------------------------------------------------|----------|----------|----------|----------|----------|
| 1. Total Plan Expenditure—                                                                         |          |          |          |          |          |
| 1.1. On Revenue Account ..                                                                         | 6.32     | 7.01     | 8.42     | 11.32    | 12.39    |
| 1.2. On Capital Account ..                                                                         | ..       | ..       | ..       | ..       | ..       |
| 2. Central Assistance for the Plan—                                                                |          |          |          |          |          |
| 2.1. Grants—                                                                                       |          |          |          |          |          |
| 2.1.1. Grants for Grow More Food Exclusive of Food Bonus.                                          | ..       | ..       | ..       | ..       | ..       |
| 2.1.2. Special assistance to Part B States (under F.F.I. and Gadgil Committee Award) ..            | ..       | ..       | ..       | ..       | ..       |
| 2.2. Loans—                                                                                        |          |          |          |          |          |
| 2.2.1. Loans advanced by the Department of Economic Affairs, Ministry of Finance, for State Plans. | ..       | ..       | ..       | ..       | ..       |
| 2.2.2. Loan for Grow More Food.                                                                    | ..       | ..       | ..       | ..       | ..       |
| 2.2.3. Loans for schemes of permanent improvement in scarcity affected areas.                      | ..       | ..       | ..       | ..       | ..       |
| 2.2.4. Equipment in the form of loans for Schemes included in the State Plans ..                   | ..       | ..       | ..       | ..       | ..       |

TABLE I.—Statistics of mortality from contagious diseases and other causes among livestock in the Madras State during the year 1954-55.

|                 | Equines.  |     |     |     |     |     |     |     |       |        | Cattle. |      |       |      |        |      |      |      |      |      | Sheep.                                   |      |      |      |      |      |      |      |      |      |        |      |      |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |
|-----------------|-----------|-----|-----|-----|-----|-----|-----|-----|-------|--------|---------|------|-------|------|--------|------|------|------|------|------|------------------------------------------|------|------|------|------|------|------|------|------|------|--------|------|------|--|--|--|--|--|--|--|---------------|--|--|--|--|--|--|--|--|--|
|                 | (1)       | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9)   | (10)   | (11)    | (12) | (13)  | (14) | (15)   | (16) | (17) | (18) | (19) | (20) | (21)                                     | (22) | (23) | (24) | (25) | (26) | (27) | (28) | (29) | (30) | (31)   | (32) | (33) |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |
| 1954-55 Attacks | ..        | ..  | ..  | ..  | ..  | 15  | ..  | 14  | 2,681 | 12,788 | 6,224   | 285  | 1,193 | 50   | 23,235 | 566  | ..   | ..   | ..   | ..   | ..                                       | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..     | ..   | ..   |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |
| 1954-55 Deaths  | ..        | 6   | ..  | ..  | ..  | 6   | ..  | 9   | 2,512 | 58     | 6,020   | 259  | 881   | 50   | 9,789  | 566  | ..   | ..   | ..   | ..   | ..                                       | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..     | ..   | ..   |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |
| 1953-54 Attacks | ..        | 2   | ..  | ..  | ..  | 2   | ..  | 56  | 1,760 | 25     | 2,510   | 379  | 331   | 49   | 5,110  | 84   | ..   | ..   | ..   | ..   | ..                                       | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..     | ..   | ..   |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |
| 1952-53 Deaths  | ..        | ..  | ..  | ..  | ..  | ..  | ..  | 2   | 1,626 | 73     | 1,896   | 573  | 56    | 24   | 4,250  | 163  | ..   | ..   | ..   | ..   | ..                                       | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..     | ..   | ..   |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and parasitic diseases. |      |      |      |      |      |      |      |      |      | Total. |      |      |  |  |  |  |  |  |  | Other causes. |  |  |  |  |  |  |  |  |  |
|                 | Glanders. |     |     |     |     |     |     |     |       |        | Surra.  |      |       |      |        |      |      |      |      |      | Other contagious and paras               |      |      |      |      |      |      |      |      |      |        |      |      |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |

TABLE I.—Statistics of mortality from contagious diseases and other causes among livestock in the Madras State during the .. .. . year 1954-55—cont.

[illegible]

TABLE II.—Summary of results of preventive inoculations in the Madras State during the year 1954-1955.

| Serial number and name of the disease against which inoculation was undertaken. | Method of inoculation.                               | Source of product.                                    | Number of out-breaks in which inoculations were undertaken. | Number of villages affected in these out-breaks. | Population of the affected village. | Number of animals which died uninoculated in the course of outbreaks. |          |         | Number of animals inoculated. |          |         | Number of inoculated animals which died of the disease. |          |         |
|---------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------|----------|---------|-------------------------------|----------|---------|---------------------------------------------------------|----------|---------|
|                                                                                 |                                                      |                                                       |                                                             |                                                  |                                     | Bovines.                                                              | Hquines. | Others. | Bovines.                      | Hquines. | Others. | Bovines.                                                | Hquines. | Others. |
| 1 Rinderpest ..                                                                 | Serum simultaneous with goat virus (in clean areas). | Institute of Veterinary Preventive Medicine, Ranipet. | ..                                                          | ..                                               | ..                                  | ..                                                                    | ..       | ..      | ..                            | ..       | ..      | ..                                                      | ..       | ..      |
|                                                                                 | Serum alone (in clean areas).                        | Do.                                                   | ..                                                          | ..                                               | ..                                  | ..                                                                    | ..       | ..      | ..                            | ..       | ..      | ..                                                      | ..       | ..      |
|                                                                                 | Freeze dried vaccine (in affected areas).            | Do.                                                   | 1                                                           | 1                                                | 1,900                               | 9                                                                     | ..       | ..      | 1,716                         | ..       | ..      | ..                                                      | ..       | ..      |
|                                                                                 | Freeze dried vaccine (in clean areas).               | Do.                                                   | ..                                                          | ..                                               | ..                                  | ..                                                                    | ..       | ..      | 1,22,730                      | ..       | ..      | ..                                                      | ..       | ..      |
|                                                                                 | Total ..                                             |                                                       | 1                                                           | 1                                                | 1,900                               | 9                                                                     | ..       | ..      | 1,37,328                      | ..       | ..      | ..                                                      | ..       | ..      |
| 2 Hemorrhagic septicaemia.                                                      | Vaccine alone (in affected areas).                   | Institute of Veterinary Preventive Medicine, Ranipet. | 682                                                         | 689                                              | 3,25,537                            | 3,221                                                                 | ..       | ..      | 1,33,034                      | ..       | 39      | 2                                                       | ..       | ..      |
|                                                                                 | Vaccine alone (in clean areas).                      | Do.                                                   | ..                                                          | ..                                               | ..                                  | ..                                                                    | ..       | ..      | 28,083                        | ..       | 1,030   | ..                                                      | ..       | ..      |
|                                                                                 | Total ..                                             |                                                       | 682                                                         | 689                                              | 3,25,537                            | 3,221                                                                 | ..       | ..      | 1,61,117                      | ..       | 1,069   | 2                                                       | ..       | ..      |

TABLE II.—Summary of results of preventive inoculations in the Madras State during the year 1954-1955—cont.

| Serial number and name of the disease against which inoculation was undertaken. | Method of inoculation.             | Source of product.                                    | Number of outbreaks in which inoculations were undertaken. |       |          | Number of villages affected in these outbreaks. |       |          | Population of the affected villages. |     |        | Number of animals which died in the course of outbreaks. |      |      | Number of animals inoculated. |      |      | Number of animals which died of the disease. |    |    |
|---------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------|------------------------------------------------------------|-------|----------|-------------------------------------------------|-------|----------|--------------------------------------|-----|--------|----------------------------------------------------------|------|------|-------------------------------|------|------|----------------------------------------------|----|----|
|                                                                                 |                                    |                                                       | (1)                                                        | (2)   | (3)      | (4)                                             | (5)   | (6)      | (7)                                  | (8) | (9)    | (10)                                                     | (11) | (12) | (13)                          | (14) | (15) |                                              |    |    |
| 3 Black-Quarter                                                                 | Vaccine alone (in affected areas). | Institute of Veterinary Preventive Medicine, Ranipet. | 1,462                                                      | 1,471 | 4,58,627 | 6,246                                           | 1,471 | 4,58,627 | 6,246                                | 470 | 11,027 | 3,63,312                                                 | ..   | ..   | 3                             | ..   | ..   | ..                                           | .. | .. |
|                                                                                 | Vaccine alone (in clean areas).    | Do.                                                   | ..                                                         | ..    | ..       | ..                                              | ..    | ..       | ..                                   | ..  | 61,445 | ..                                                       | ..   | ..   | ..                            | ..   | ..   | ..                                           | .. | .. |
|                                                                                 | Total                              |                                                       | 1,462                                                      | 1,471 | 4,58,627 | 6,246                                           | 1,471 | 4,58,627 | 6,246                                | 470 | 11,027 | 3,63,312                                                 | ..   | ..   | 3                             | ..   | ..   | ..                                           | .. | .. |
| 4 Anthrax                                                                       | Spore vaccine (in affected areas). | Institute of Veterinary Preventive Medicine, Ranipet. | 97                                                         | 97    | 53,910   | 257                                             | 97    | 53,910   | 257                                  | ..  | ..     | ..                                                       | ..   | ..   | ..                            | ..   | ..   | ..                                           | .. | .. |
|                                                                                 | Serum alone (in affected areas).   | Do.                                                   | ..                                                         | ..    | ..       | ..                                              | ..    | ..       | ..                                   | ..  | ..     | ..                                                       | ..   | ..   | ..                            | ..   | ..   | ..                                           | .. | .. |
|                                                                                 | Spore vaccine (in clean areas).    | Do.                                                   | ..                                                         | ..    | ..       | ..                                              | ..    | ..       | ..                                   | ..  | 3,042  | ..                                                       | ..   | ..   | ..                            | ..   | ..   | ..                                           | .. | .. |
|                                                                                 | Total                              |                                                       | 97                                                         | 97    | 53,910   | 257                                             | 97    | 53,910   | 257                                  | ..  | 470    | 14,069                                                   | ..   | ..   | ..                            | ..   | ..   | ..                                           | .. | .. |
| 5 Bovine Lymphangitis                                                           | Vaccine alone (in clean areas).    | Institute of Veterinary Preventive Medicine, Ranipet. | ..                                                         | ..    | ..       | ..                                              | ..    | ..       | ..                                   | ..  | 82     | ..                                                       | ..   | ..   | ..                            | ..   | ..   | ..                                           | .. | .. |
|                                                                                 | Total                              |                                                       | ..                                                         | ..    | ..       | ..                                              | ..    | ..       | ..                                   | ..  | 82     | ..                                                       | ..   | ..   | ..                            | ..   | ..   | ..                                           | .. | .. |

|             |                                    |                                                       |     |     |        |    |    |     |    |    |    |    |    |        |    |    |    |    |    |    |
|-------------|------------------------------------|-------------------------------------------------------|-----|-----|--------|----|----|-----|----|----|----|----|----|--------|----|----|----|----|----|----|
| 6 Sheep-pox | Vaccine alone (in affected areas). | Institute of Veterinary Preventive Medicine, Ranipet. | 118 | 119 | 53,326 | .. | .. | 794 | .. | .. | .. | .. | .. | 37,586 | .. | .. | .. | .. | .. | 1  |
|             | Vaccine alone (in clean areas).    | Do.                                                   | ..  | ..  | ..     | .. | .. | ..  | .. | .. | .. | .. | .. | 1,259  | .. | .. | .. | .. | .. | .. |
|             | Total                              |                                                       | 118 | 119 | 53,326 | .. | .. | 794 | .. | .. | .. | .. | .. | 38,845 | .. | .. | .. | .. | .. | 1  |

|                   |                                                                  |                                                       |    |    |        |    |    |       |    |    |    |    |    |        |    |    |    |    |    |    |
|-------------------|------------------------------------------------------------------|-------------------------------------------------------|----|----|--------|----|----|-------|----|----|----|----|----|--------|----|----|----|----|----|----|
| 7 Enteric Toxæmia | Clostridium Welchii Anaculture Vaccinations (in affected areas). | Institute of Veterinary Preventive Medicine, Ranipet. | 39 | 48 | 21,415 | .. | .. | 1,099 | .. | .. | .. | .. | .. | 11,383 | .. | .. | .. | .. | .. | 6  |
|                   | Clostridium Welchii Anaculture Vaccinations (in clean areas).    | Do.                                                   | .. | .. | ..     | .. | .. | ..    | .. | .. | .. | .. | .. | 3,102  | .. | .. | .. | .. | .. | .. |
|                   | Total                                                            |                                                       | 39 | 48 | 21,415 | .. | .. | 1,099 | .. | .. | .. | .. | .. | 14,485 | .. | .. | .. | .. | .. | 6  |

|            |                                    |                                                       |   |   |     |    |    |   |    |    |    |    |    |     |    |    |    |    |    |    |
|------------|------------------------------------|-------------------------------------------------------|---|---|-----|----|----|---|----|----|----|----|----|-----|----|----|----|----|----|----|
| 8 Goat Pox | Vaccine alone (in affected areas). | Institute of Veterinary Preventive Medicine, Ranipet. | 1 | 1 | 200 | .. | .. | 2 | .. | .. | .. | .. | .. | 161 | .. | .. | .. | .. | .. | .. |
|            | Total                              |                                                       | 1 | 1 | 200 | .. | .. | 2 | .. | .. | .. | .. | .. | 161 | .. | .. | .. | .. | .. | .. |

|                    |                                    |                                                       |    |    |        |    |    |     |    |    |    |    |    |          |    |    |    |    |    |   |
|--------------------|------------------------------------|-------------------------------------------------------|----|----|--------|----|----|-----|----|----|----|----|----|----------|----|----|----|----|----|---|
| 9 Ranikhet Disease | Vaccine alone (in affected areas). | Institute of Veterinary Preventive Medicine, Ranipet. | 51 | 52 | 24,554 | .. | .. | 783 | .. | .. | .. | .. | .. | 17,415   | .. | .. | .. | .. | .. | 2 |
|                    | Vaccine alone (in clean areas).    | Do.                                                   | .. | .. | ..     | .. | .. | ..  | .. | .. | .. | .. | .. | 1,42,174 | .. | .. | .. | .. | .. | 7 |
|                    | Total                              |                                                       | 51 | 52 | 24,554 | .. | .. | 783 | .. | .. | .. | .. | .. | 1,59,589 | .. | .. | .. | .. | .. | 9 |

TABLE II.—Summary of results of preventive inoculations in the Madras State during the year 1954-55—cont.

| Serial number and name of the disease against which inoculation was undertaken. | (1) | (2)                                   | (3)                                                   | Number of outbreaks in which inoculations were undertaken. | Number of villages affected in these outbreaks. | (5)      | (6)   | Number of animals which died un inoculated in the course of outbreaks. |          |          | Number of animals inoculated. |          |         | Number of inoculated animals which died of the disease. |          |         |
|---------------------------------------------------------------------------------|-----|---------------------------------------|-------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------|----------|-------|------------------------------------------------------------------------|----------|----------|-------------------------------|----------|---------|---------------------------------------------------------|----------|---------|
|                                                                                 |     |                                       |                                                       |                                                            |                                                 |          |       | Bovines.                                                               | Equines. | Others.  | Bovines.                      | Equines. | Others. | Bovines.                                                | Equines. | Others. |
| 10 Fowl-pox .. .. .                                                             |     | Fowl-pox Vaccine (in affected areas). | Institute of Veterinary Preventive Medicine, Ranipet. | 10                                                         | 10                                              | 10       | 1,497 | ..                                                                     | ..       | 64       | ..                            | ..       | 1,177   | ..                                                      | ..       | ..      |
| .. .. .                                                                         |     | Do.                                   | Do.                                                   | 3                                                          | 3                                               | 3        | 1,238 | ..                                                                     | ..       | ..       | ..                            | ..       | 231     | ..                                                      | ..       | ..      |
| .. .. .                                                                         |     | Do.                                   | Do.                                                   | ..                                                         | ..                                              | ..       | ..    | ..                                                                     | ..       | ..       | ..                            | ..       | 49      | ..                                                      | ..       | ..      |
| Total .. .. .                                                                   |     |                                       |                                                       | 13                                                         | 13                                              | 13       | 2,735 | ..                                                                     | ..       | 64       | ..                            | ..       | 4,316   | ..                                                      | ..       | ..      |
| 11 Fowl Cholera .. .. .                                                         |     | Vaccine alone (in affected areas).    | Institute of Veterinary Preventive Medicine, Ranipet. | 1                                                          | 1                                               | 1        | 800   | ..                                                                     | ..       | 10       | ..                            | ..       | 45      | ..                                                      | ..       | ..      |
| Total .. .. .                                                                   |     |                                       |                                                       | 1                                                          | 1                                               | 1        | 800   | ..                                                                     | ..       | 10       | ..                            | ..       | 45      | ..                                                      | ..       | ..      |
| Grand total                                                                     |     |                                       |                                                       | 2,465                                                      | 2,492                                           | 9,43,504 | 9,733 | ..                                                                     | 3,222    | 7,37,353 | ..                            | 2,26,262 | 5       | 21                                                      | ..       | ..      |
| 1953-54                                                                         |     |                                       |                                                       | 1,351                                                      | 1,364                                           | 7,64,975 | 5,134 | ..                                                                     | 2,565    | 3,89,994 | ..                            | 1,41,224 | 31      | 2                                                       | ..       | ..      |
| 1952-53                                                                         |     |                                       |                                                       | 1,202                                                      | 1,216                                           | 6,93,174 | 4,285 | ..                                                                     | 2,801    | 3,05,781 | ..                            | 1,30,557 | 4       | 209                                                     | ..       | ..      |

TABLE III.—Statement showing the number of animals treated and castrated at the Veterinary Hospitals and Dispensaries in the State of Madras during the year 1954-55.

| Year.   | Number of Veterinary<br>Institutions. |     |     | Number of Veterinary<br>Assistant<br>Surgeons<br>employed. |     |       | Number of in-patients treated. |          |       | Number of out-patients treated. |          |          | Total number of cases<br>supplied with medicine<br>but not brought to the<br>Institutions. |        |      |        |        | Castrations performed. |  |  |
|---------|---------------------------------------|-----|-----|------------------------------------------------------------|-----|-------|--------------------------------|----------|-------|---------------------------------|----------|----------|--------------------------------------------------------------------------------------------|--------|------|--------|--------|------------------------|--|--|
|         | (1)                                   | (2) | (3) | (4)                                                        | (5) | (6)   | (7)                            | (8)      | (9)   | (10)                            | (11)     | (12)     | (13)                                                                                       | (14)   | (15) | (16)   | (17)   |                        |  |  |
| 1954-55 | ..                                    | 94  | 101 | 5,050                                                      | 141 | 2,230 | 7,421                          | 1,66,053 | 3,550 | 74,544                          | 2,44,147 | 2,51,568 | 1,646                                                                                      | 32,111 | 40   | 10,983 | 43,134 |                        |  |  |
| 1953-54 | ..                                    | 89  | 101 | 5,527                                                      | 312 | 853   | 6,692                          | 1,54,821 | 3,561 | 67,349                          | 2,25,731 | 2,32,423 | 545                                                                                        | 29,043 | 217  | 11,474 | 40,734 |                        |  |  |
| 1952-53 | ..                                    | 88  | 95  | 5,485                                                      | 267 | 855   | 6,607                          | 1,43,739 | 3,109 | 58,544                          | 2,05,392 | 2,11,999 | 431                                                                                        | 26,195 | 619  | 10,039 | 36,853 |                        |  |  |

TABLE IV.—Statement showing the number of animals treated and castrated by Veterinary Assistant Surgeons on tour during the year 1954-1955.

| Year.   | Number of Veterinary Assistant Surgeons. |     |        | Number of villages visited by the Veterinary Assistant Surgeons. |     |       | Castrations performed. |        |     | Treated for contagious diseases. |        |        | Treated for non-contagious diseases. |        |          | Total number of castrations performed and cases treated. |
|---------|------------------------------------------|-----|--------|------------------------------------------------------------------|-----|-------|------------------------|--------|-----|----------------------------------|--------|--------|--------------------------------------|--------|----------|----------------------------------------------------------|
|         | (1)                                      | (2) | (3)    | (4)                                                              | (5) | (6)   | (7)                    | (8)    | (9) | (10)                             | (11)   | (12)   | (13)                                 | (14)   | (15)     |                                                          |
| 1954-55 | ..                                       | 92  | 13,223 | 32,268                                                           | 3   | 5,030 | 37,301                 | 13,959 | 1   | 931                              | 14,891 | 98,424 | 710                                  | 24,227 | 1,23,361 | 1,75,553                                                 |
| 1953-54 | ..                                       | 90  | 13,614 | 34,107                                                           | 120 | 4,412 | 38,639                 | 3,406  | 12  | 782                              | 4,200  | 82,631 | 1,281                                | 23,002 | 1,06,914 | 1,49,753                                                 |
| 1952-53 | ..                                       | 86  | 12,907 | 26,769                                                           | 4   | 3,740 | 30,513                 | 1,708  | ..  | 632                              | 2,340  | 73,591 | 472                                  | 14,950 | 89,013   | 1,21,866                                                 |

TABLE V (a).—Statement showing the number of approved breeding bulls at stud in the State of Madras during the year 1954-55.

| Districts.             | Present on 1st April 1954. |     |     |     | Obtained during the year. |     |     |       | Average cost. |      |      |      | Casualties, transfers removals, etc., during the year. |      |      |      |
|------------------------|----------------------------|-----|-----|-----|---------------------------|-----|-----|-------|---------------|------|------|------|--------------------------------------------------------|------|------|------|
|                        | G                          |     | LB  |     | O                         |     | G   |       | LB            |      | O    |      | G                                                      |      | LB   |      |
|                        | (2)                        | (3) | (4) | (5) | (6)                       | (7) | (8) | (9)   | (10)          | (11) | (12) | (13) | (14)                                                   | (15) | (16) | (17) |
| (1) Madras ..          | 15                         | ..  | 5   | 8   | ..                        | 8   | ..  | ..    | ..            | 5    | ..   | 2    | ..                                                     | ..   | ..   | ..   |
| 2 Chingleput ..        | 8                          | ..  | 9   | 8   | ..                        | 2   | ..  | ..    | ..            | ..   | ..   | 8    | ..                                                     | ..   | ..   | ..   |
| 3 North Arcot ..       | 10                         | ..  | 5   | 7   | ..                        | 2   | ..  | ..    | ..            | 1    | ..   | 1    | ..                                                     | ..   | ..   | ..   |
| 4 South Arcot ..       | 7                          | 4   | 2   | 12  | ..                        | 1   | ..  | ..    | ..            | 3    | ..   | 1    | ..                                                     | ..   | ..   | ..   |
| 5 Tanjore ..           | 10                         | 8   | 60  | 9   | ..                        | 23  | ..  | ..    | 1,500         | 2    | ..   | 17   | ..                                                     | ..   | ..   | ..   |
| 6 Tiruchirappalli ..   | 22                         | 3   | 32  | 20  | ..                        | 34  | 800 | ..    | 600           | 9    | 2    | 11   | ..                                                     | ..   | ..   | ..   |
| 7 Madurai ..           | 10                         | 7   | 47  | 36  | ..                        | 27  | ..  | ..    | ..            | 5    | 1    | 12   | ..                                                     | ..   | ..   | ..   |
| 8 Ramanathapuram ..    | 15                         | 2   | 2   | 19  | ..                        | 3   | ..  | ..    | ..            | 8    | 1    | ..   | ..                                                     | ..   | ..   | ..   |
| 9 Tirunelveli ..       | 18                         | ..  | 8   | 9   | 2                         | 6   | 800 | 1,000 | ..            | 12   | ..   | 3    | ..                                                     | ..   | ..   | ..   |
| 10 Coimbatore (†) ..   | 46                         | 177 | 162 | 26  | 51                        | 67  | ..  | ..    | ..            | 12   | 66   | 83   | ..                                                     | ..   | ..   | ..   |
| 11 Nilgiris ..         | 11                         | 9   | 22  | 8   | 6                         | 46  | ..  | ..    | ..            | ..   | 5    | 13   | ..                                                     | ..   | ..   | ..   |
| 12 Salem ..            | 28                         | ..  | 22  | 11  | ..                        | 12  | 800 | ..    | 400           | 17   | ..   | 4    | ..                                                     | ..   | ..   | ..   |
| 13 South Kanara (†) .. | 32                         | ..  | 7   | 10  | ..                        | 6   | ..  | ..    | ..            | 11   | ..   | 1    | ..                                                     | ..   | ..   | ..   |
| 14 Malabar ..          | ..                         | ..  | ..  | ..  | ..                        | ..  | ..  | ..    | ..            | ..   | ..   | ..   | ..                                                     | ..   | ..   | ..   |
| Total—                 | 232                        | 210 | 333 | 183 | 59                        | 237 | ..  | ..    | ..            | 85   | 75   | 156  | ..                                                     | ..   | ..   | ..   |
| 1954-55 ..             | ..                         | ..  | ..  | ..  | ..                        | ..  | ..  | ..    | ..            | ..   | ..   | ..   | ..                                                     | ..   | ..   | ..   |
| 1953-54 ..             | 302                        | 205 | 369 | 47  | 65                        | 193 | ..  | ..    | ..            | 95   | 60   | 179  | ..                                                     | ..   | ..   | ..   |
| 1952-53 ..             | 346                        | 201 | 380 | 48  | 72                        | 111 | ..  | ..    | ..            | 92   | 68   | 123  | ..                                                     | ..   | ..   | ..   |

|                        | Number of approved bulls at stud. |      |      |      | Population of cows over three years per census.* |       |           |        | Number of bulls.            |        | Number of cows covered during the year. |      |
|------------------------|-----------------------------------|------|------|------|--------------------------------------------------|-------|-----------|--------|-----------------------------|--------|-----------------------------------------|------|
|                        | G                                 |      | LB   |      | O                                                |       | T         |        | Required to be maintained.* |        | Short of requirements.                  |      |
|                        | (14)                              | (15) | (16) | (17) | (18)                                             | (19)  | (20)      | (21)   | (22)                        | (23)   | (24)                                    | (25) |
| 1 Madras ..            | 18                                | ..   | 11   | 29   | 9,282                                            | 9 0   | 6,667     | 66     | 37                          | 1,523  | ..                                      | ..   |
| 2 Chingleput ..        | 16                                | ..   | 3    | 19   | 8,543                                            | 3 6   | 2,13,279  | 2,133  | 2,114                       | 636    | ..                                      | ..   |
| 3 North Arcot ..       | 16                                | ..   | 6    | 22   | 5,804                                            | 0 0   | 3,11,474  | 3,115  | 3,093                       | 997    | ..                                      | ..   |
| 4 South Arcot ..       | 16                                | 4    | 2    | 22   | 3,842                                            | 10 3  | 4,37,433  | 4,374  | 4,352                       | 480    | ..                                      | ..   |
| 5 Tanjore ..           | 17                                | 8    | 66   | 91   | 9,984                                            | 0 0   | 3,45,394  | 3,454  | 3,363                       | 5,033  | ..                                      | ..   |
| 6 Tiruchirappalli ..   | 33                                | 1    | 55   | 99   | 17,463                                           | 0 0   | 3,86,979  | 3,870  | 3,781                       | 4,822  | ..                                      | ..   |
| 7 Madurai ..           | 41                                | 6    | 62   | 109  | 15,335                                           | 15 6  | 3,33,961  | 3,340  | 3,231                       | 4,605  | ..                                      | ..   |
| 8 Ramanathapuram ..    | 26                                | 1    | 5    | 32   | 3,214                                            | 0 0   | 2,24,156  | 2,242  | 2,210                       | 1,100  | ..                                      | ..   |
| 9 Tirunelveli ..       | 15                                | 2    | 11   | 28   | 3,760                                            | 0 0   | 1,48,794  | 1,488  | 1,460                       | 1,062  | ..                                      | ..   |
| 10 Coimbatore (†) ..   | 60                                | 162  | 146  | 368  | 48,609                                           | 13 3  | 4,24,117  | 4,241  | 3,873                       | 19,811 | ..                                      | ..   |
| 11 Nilgiris ..         | 19                                | 10   | 55   | 84   | 8,218                                            | 8 6   | 6,71,792  | 6,718  | 6,634                       | 2,777  | ..                                      | ..   |
| 12 Salem ..            | 22                                | ..   | 30   | 52   | 5,207                                            | 7 9   | 2,29,832  | 2,298  | 2,246                       | 2,554  | ..                                      | ..   |
| 13 South Kanara (†) .. | 31                                | ..   | 12   | 43   | 9,171                                            | 15 10 | 3,65,222  | 3,652  | 3,609                       | 1,866  | ..                                      | ..   |
| 14 Malabar ..          | ..                                | ..   | ..   | ..   | ..                                               | ..    | ..        | ..     | ..                          | ..     | ..                                      | ..   |
| Total—                 | 330                               | 194  | 464  | 988  | 1,48,437                                         | 3 7   | 40,99,100 | 40,991 | 40,003                      | 47,066 | ..                                      | ..   |
| 1954-55 ..             | ..                                | ..   | ..   | ..   | ..                                               | ..    | ..        | ..     | ..                          | ..     | ..                                      | ..   |
| 1953-54 ..             | 254                               | 210  | 383  | 847  | 1,26,020                                         | 11 8  | 40,99,100 | 40,991 | 40,144                      | 54,923 | ..                                      | ..   |
| 1952-53 ..             | 302                               | 205  | 369  | 876  | 2,17,123                                         | 6 0   | 40,99,100 | 40,991 | 40,111                      | 53,352 | ..                                      | ..   |

G = Government. LB = Local bodies. O = Others. T = Total.

\* These are the correct figures.

(†) Bulls belonging to the Key Village Scheme have been excluded this year.

(‡) The bulls at stud in the Kolla Cattle Farm included last year have now been omitted.

TABLE V (b).—Statement showing the number of approved buffalo bulls at stud in the State of Madras during the year 1954-55.

| Districts.           | Present on 1st April 1954. |     |     |                |     |     | Obtained during the year. |    |    | Casualties, transfers, removals, etc., during the year. |    |    |
|----------------------|----------------------------|-----|-----|----------------|-----|-----|---------------------------|----|----|---------------------------------------------------------|----|----|
|                      | Number.                    |     |     | Average price. |     |     | G                         | LB | O  | G                                                       | LB | O  |
|                      | (1)                        | (2) | (3) | (4)            | (5) | (6) |                           |    |    |                                                         |    |    |
| 1 Madras ..          | ..                         | 2   | ..  | 1              | 1   | ..  | ..                        | .. | 5  | ..                                                      | .. | 1  |
| 2 Chingleput ..      | ..                         | ..  | ..  | 1              | 2   | ..  | ..                        | .. | 2  | ..                                                      | .. | 1  |
| 3 North Arcot ..     | ..                         | 5   | ..  | 1              | 2   | ..  | ..                        | .. | 4  | 2                                                       | .. | .. |
| 4 South Arcot ..     | ..                         | 1   | ..  | 1              | 3   | ..  | ..                        | .. | 1  | ..                                                      | .. | .. |
| 5 Tanjore ..         | ..                         | ..  | ..  | 13             | 2   | ..  | ..                        | .. | 7  | ..                                                      | .. | .. |
| 6 Tiruchirappalli .. | ..                         | 3   | ..  | 14             | 5   | ..  | ..                        | .. | 17 | 5                                                       | .. | 3  |
| 7 Madurai ..         | ..                         | 6   | ..  | 7              | 13  | ..  | ..                        | .. | 7  | ..                                                      | .. | 2  |
| 8 Ramanathapuram ..  | ..                         | 4   | ..  | ..             | 3   | ..  | ..                        | .. | 3  | 3                                                       | .. | .. |
| 9 Tirunelveli ..     | ..                         | 5   | ..  | 7              | 3   | ..  | ..                        | .. | 6  | 4                                                       | .. | 2  |
| 10 Coimbatore ..     | ..                         | 4   | ..  | 11             | 1   | ..  | ..                        | .. | 4  | 1                                                       | .. | 3  |
| 11 Nilgiris ..       | ..                         | ..  | ..  | 2              | 2   | ..  | ..                        | .. | 5  | ..                                                      | .. | 1  |
| 12 Salem ..          | ..                         | ..  | ..  | 7              | 3   | ..  | ..                        | .. | 3  | ..                                                      | .. | 1  |
| 13 South Kanara ..   | ..                         | 4   | ..  | 1              | 2   | ..  | ..                        | .. | .. | 2                                                       | .. | .. |
| 14 Malabar ..        | ..                         | 6   | ..  | ..             | ..  | ..  | ..                        | .. | .. | ..                                                      | .. | .. |
| TOTAL—               | ..                         | 45  | ..  | 66             | 42  | ..  | ..                        | .. | 64 | 17                                                      | .. | 14 |
| 1954-55 ..           | ..                         | 62  | 1   | 60             | 11  | ..  | ..                        | .. | 32 | 28                                                      | 1  | 26 |
| 1953-54 ..           | ..                         | 60  | ..  | 62             | 16  | 1   | ..                        | .. | 22 | 14                                                      | .. | 24 |
| 1952-53 ..           | ..                         | ..  | ..  | ..             | ..  | ..  | ..                        | .. | .. | ..                                                      | .. | .. |

## MADRAS ANIMAL HUSBANDRY DEPARTMENT

|                      | Number of approved bulls at stud.   |      |      |      | G. | LB. | O. | T. | Net cost for issues and maintenance of stud bulls. | Population of cows over three years according to census.* | Number of bulls.                |                             | Number of cows covered during the year. |
|----------------------|-------------------------------------|------|------|------|----|-----|----|----|----------------------------------------------------|-----------------------------------------------------------|---------------------------------|-----------------------------|-----------------------------------------|
|                      | Balance on hand on 31st March 1955. |      |      |      |    |     |    |    |                                                    |                                                           | Required to be main-<br>tained. | Short of require-<br>ments. |                                         |
|                      | (14)                                | (15) | (16) | (17) |    |     |    |    |                                                    |                                                           |                                 |                             |                                         |
|                      |                                     |      |      |      |    |     |    |    | RS. A. P.                                          |                                                           |                                 |                             |                                         |
| 1 Madras ..          | ..                                  | ..   | 5    | 8    | 3  | ..  | .. | .. | 420 0 0                                            | 7,506                                                     | 75                              | 67                          | 336                                     |
| 2 Chingleput ..      | ..                                  | ..   | 2    | 4    | 2  | ..  | .. | .. | 410 0 0                                            | 97,525                                                    | 975                             | 971                         | 146                                     |
| 3 North Arcot ..     | ..                                  | ..   | 5    | 10   | 5  | ..  | .. | .. | ..                                                 | 79,778                                                    | 798                             | 788                         | 446                                     |
| 4 South Arcot ..     | ..                                  | ..   | 2    | 6    | 4  | ..  | .. | .. | 220 0 0                                            | 90,404                                                    | 904                             | 898                         | 225                                     |
| 5 Tanjore ..         | ..                                  | ..   | 20   | 22   | 2  | ..  | .. | .. | 3,079 0 0                                          | 182,347                                                   | 1,623                           | 1,601                       | 1,073                                   |
| 6 Tiruchirappalli .. | ..                                  | ..   | 28   | 36   | 8  | ..  | .. | .. | 7,126 0 0                                          | 151,721                                                   | 1,517                           | 1,481                       | 2,244                                   |
| 7 Madurai ..         | ..                                  | ..   | 12   | 31   | 19 | ..  | .. | .. | 1,540 0 0                                          | 118,413                                                   | 1,184                           | 1,153                       | 1,152                                   |
| 8 Ramanathapuram.    | ..                                  | ..   | 3    | 7    | 4  | ..  | .. | .. | 1,886 11 0                                         | 76,419                                                    | 764                             | 757                         | 264                                     |
| 9 Tirunelveli ..     | ..                                  | ..   | 11   | 15   | 4  | ..  | .. | .. | 1,417 0 0                                          | 90,318                                                    | 903                             | 888                         | 581                                     |
| 10 Coimbatore ..     | ..                                  | ..   | 12   | 16   | 4  | ..  | .. | .. | 660 0 0                                            | 146,774                                                   | 1,468                           | 1,452                       | 846                                     |
| 11 Nilgiris ..       | ..                                  | ..   | 6    | 8    | 2  | ..  | .. | .. | 220 0 0                                            | 116,267                                                   | 1,163                           | 1,155                       | 235                                     |
| 12 Salem ..          | ..                                  | ..   | 9    | 16   | 7  | ..  | .. | .. | 1,318 0 0                                          | 69,396                                                    | 694                             | 678                         | 743                                     |
| 13 South Kanara ..   | ..                                  | ..   | 1    | 7    | 6  | ..  | .. | .. | ..                                                 | 64,562                                                    | 650                             | 643                         | 885                                     |
| 14 Malabar ..        | ..                                  | ..   | ..   | ..   | .. | ..  | .. | .. | ..                                                 | ..                                                        | ..                              | ..                          | ..                                      |
| TOTAL.               | ..                                  | ..   | 116  | 186  | 70 | ..  | .. | .. | 18,296 11 0                                        | 1,271,820                                                 | 12,718                          | 12,532                      | 9,176                                   |
| 1954-55 ..           | ..                                  | ..   | 66   | 111  | 45 | ..  | .. | .. | 28,741 9 4                                         | 1,271,820                                                 | 12,718                          | 12,607                      | 6,800                                   |
| 1953-54 ..           | ..                                  | ..   | 60   | 123  | 62 | ..  | .. | .. | ..                                                 | 1,271,820                                                 | 12,718                          | 12,595                      | 8,433                                   |
| 1952-53 ..           | ..                                  | ..   | ..   | ..   | .. | ..  | .. | .. | ..                                                 | ..                                                        | ..                              | ..                          | ..                                      |
|                      |                                     |      |      |      |    |     |    |    | T=Total.                                           |                                                           |                                 |                             |                                         |
|                      |                                     |      |      |      |    |     |    |    | O=Others.                                          |                                                           |                                 |                             |                                         |
|                      |                                     |      |      |      |    |     |    |    | LB=Local bodies.                                   |                                                           |                                 |                             |                                         |
|                      |                                     |      |      |      |    |     |    |    | G=Government.                                      |                                                           |                                 |                             |                                         |
|                      |                                     |      |      |      |    |     |    |    | * These are the correct figures.                   |                                                           |                                 |                             |                                         |

G=Government.

LB=Local bodies.

O=Others.

T=Total. \* These are the correct figures.

TABLE V (c).—Statement showing the number of horses and donkeys at stud in the State of Madras during the year 1954-55.

| District.             | (1) | Number as on 1st April 1954. |     |     | Obtained during the year. |     |     | Casualties etc. |     |      | Balance on 31st March 1955. |      |      | Number of animals covered. |      |      | Population.     |        |
|-----------------------|-----|------------------------------|-----|-----|---------------------------|-----|-----|-----------------|-----|------|-----------------------------|------|------|----------------------------|------|------|-----------------|--------|
|                       |     | G. LB. O.                    |     |     | G. LB. O.                 |     |     | G. LB. O.       |     |      | G. LB. O.                   |      |      | G. LB. O.                  |      |      | Mares. Donkeys. |        |
|                       |     | (2)                          | (3) | (4) | (5)                       | (6) | (7) | (8)             | (9) | (10) | (11)                        | (12) | (13) | (14)                       | (15) | (16) | (17)            | (18)   |
| 1 Coimbatore West     | 1   | ..                           | ..  | ..  | ..                        | ..  | ..  | ..              | ..  | ..   | 1                           | ..   | ..   | 1                          | 50   | ..   | ..              | ..     |
| 2 Coimbatore East     | 2   | ..                           | ..  | ..  | ..                        | ..  | ..  | ..              | ..  | ..   | 2                           | ..   | ..   | 2                          | 103  | ..   | ..              | ..     |
| 3 Hoosur-Cattle Farm. | 2   | ..                           | ..  | ..  | 2                         | ..  | ..  | 1               | ..  | ..   | 3                           | ..   | ..   | 3                          | 43   | ..   | ..              | ..     |
| Total                 |     |                              |     |     |                           |     |     |                 |     |      |                             |      |      |                            |      |      |                 |        |
| 1954-55               | ..  | ..                           | ..  | ..  | 2                         | ..  | ..  | 1               | ..  | ..   | 6                           | ..   | ..   | 6                          | 196  | ..   | 14,766          | 71,595 |
| 1953-54               | ..  | ..                           | ..  | ..  | 1                         | ..  | ..  | 3               | ..  | ..   | 5                           | ..   | ..   | ..                         | 139  | ..   | 14,766          | 71,595 |
| 1952-53               | ..  | ..                           | ..  | ..  | 3                         | ..  | ..  | 1               | ..  | ..   | 7                           | ..   | ..   | ..                         | 114  | ..   | 14,766          | 71,595 |

G = Government.

LB = Local Bodies.

O = Others.

T = Total.

TABLE VI.—Abstract of particulars regarding Cattle Fairs and Shows held during the year 1954-55 in the State of Madras.

|                                         | 1954-55. | Total number of animals sold—cont.                        | 1954-55.                    |
|-----------------------------------------|----------|-----------------------------------------------------------|-----------------------------|
| 1 Total number of shows and fairs .. .. | 165      | 18 Young stock .. ..                                      | 7,518                       |
| Total number of stock present—          |          | 19 Average price .. ..                                    | 95                          |
| 2 Bulls .. ..                           | 13,009   | 20 Ponies .. ..                                           | ..                          |
| 3 Bullocks .. ..                        | 130,341  | 21 Average price .. ..                                    | ..                          |
| 4 Cows .. ..                            | 18,466   | 22 Other animals .. ..                                    | 2,015                       |
| 5 Young stock .. ..                     | 27,468   | 23 Average price .. ..                                    | ..                          |
| 6 Buffaloes .. ..                       | 12,809   |                                                           |                             |
| 7 Camels .. ..                          | ..       | RS. A. P.                                                 |                             |
| 8 Ponies .. ..                          | 301      | Prize money awarded—                                      |                             |
| 9 Other animals .. ..                   | 13,891   | 24 Amount realized in fees.                               | 1,208 0 0                   |
| Total number of animals sold—           |          | 25 Total number of animals that competed for prizes .. .. | 30,107 0 0                  |
| 10 Bulls .. ..                          | 4,168    | 26 From Provincial funds                                  | 22,328 15 9                 |
| 11 Average price .. ..                  | ..       | 27 From Local funds ..                                    | 5,319 9 0                   |
| 12 Bullocks .. ..                       | 53,022   | 28 Other sources .. ..                                    | 13,103 9 3                  |
| 13 Average price .. ..                  | ..       | 29 Total .. ..                                            | 40,752 2 0                  |
| 14 Cows .. ..                           | 7,568    | 30 Amount actually awarded .. ..                          | 20,853 5 8                  |
| 15 Average price .. ..                  | ..       | 31 Number of medals, prizes, etc., awarded.               | Prizes 4,123. Cash Rs. 235. |
| 16 Buffaloes .. ..                      | 9,329    |                                                           |                             |
| 17 Average price .. ..                  | ..       |                                                           |                             |

TABLE VIII.—Statement showing the receipts and charges of the Animal Husbandry Department for the year 1954-55.

|                                                                                 | RS.      | A. | P. | RS. | A. | P. |
|---------------------------------------------------------------------------------|----------|----|----|-----|----|----|
| Receipts.                                                                       |          |    |    |     |    |    |
| XXX. Veterinary—                                                                |          |    |    |     |    |    |
| (a) Veterinary College fees .. ..                                               | 81,800   | 13 | 3  |     |    |    |
| (b) Contribution from local bodies .. ..                                        | 35,015   | 9  | 1  |     |    |    |
| (c) Rents on buildings .. ..                                                    | 7,264    | 0  | 7  |     |    |    |
| Recovery of overpayments .. ..                                                  | 7,701    | 15 | 3  |     |    |    |
| Sale of unused animals in Institute of Veterinary Preventive Medicine, Renipet. | 12,459   | 13 | 0  |     |    |    |
| Salvage of Dry-Cows .. ..                                                       | 25,709   | 10 | 0  |     |    |    |
| Livestock Receipts .. ..                                                        | 4,01,480 | 15 | 5  |     |    |    |
| Other receipts .. ..                                                            | 2,46,330 | 4  | 2  |     |    |    |
|                                                                                 | 8,17,763 | 0  | 9  |     |    |    |
| 41. Veterinary—                                                                 |          |    |    |     |    |    |
| A. Direction—                                                                   |          |    |    |     |    |    |
| 1 Pay of Officers .. ..                                                         | 29,127   | 14 | 0  |     |    |    |
| 2 Pay of establishment .. ..                                                    | 41,958   | 12 | 0  |     |    |    |
| 3 Allowances .. ..                                                              | 16,559   | 14 | 0  |     |    |    |
| Dearness Allowance .. ..                                                        | ..       | .. | .. |     |    |    |
| Travelling allowance and other compensatory allowance.                          | 17,580   | 12 | 0  |     |    |    |
| 4 Office contingencies—                                                         | 2,438    | 15 | 3  |     |    |    |
| Books and periodicals .. ..                                                     | 6,341    | 6  | 0  |     |    |    |
| Service postage .. ..                                                           | 432      | 0  | 0  |     |    |    |
| Dearness allowance to menials .. ..                                             | 48       | 0  | 0  |     |    |    |
| Madras allowance to menials .. ..                                               | 6,125    | 12 | 8  |     |    |    |
| Other contingencies .. ..                                                       | ..       | .. | .. |     |    |    |
| 5 Other charges—                                                                | 1,265    | 2  | 0  |     |    |    |
| Apparatus and materials .. ..                                                   | 52       | 3  | 0  |     |    |    |
| Customs Duty .. ..                                                              | ..       | .. | .. |     |    |    |
|                                                                                 | 1,21,930 | 0  | 11 |     |    |    |
| a. Superintendence—                                                             |          |    |    |     |    |    |
| B. District Officers—                                                           |          |    |    |     |    |    |
| 1 Pay of officers .. ..                                                         | 41,393   | 6  | 0  |     |    |    |
| 2 Pay of establishment .. ..                                                    | 38,892   | 6  | 0  |     |    |    |

TABLE VIII.—Statement showing the receipts and charges of the Animal Husbandry Department for the year 1954-55—cont.

| Receipts—cont.                                                |          | RS. | A. | P.       | RS. | A. | P. |
|---------------------------------------------------------------|----------|-----|----|----------|-----|----|----|
| <b>a. Superintendence—cont.</b>                               |          |     |    |          |     |    |    |
| <b>B. District Officers—cont.</b>                             |          |     |    |          |     |    |    |
| 3 Allowances—                                                 |          |     |    |          |     |    |    |
| Dearness allowance .. .. .                                    | 24,945   | 13  | 0  |          |     |    |    |
| Travelling allowance and other compensatory allowance.        | 30,036   | 14  | 0  |          |     |    |    |
| 4 Office contingencies—                                       |          |     |    |          |     |    |    |
| Rents .. .. .                                                 | 3,418    | 1   | 9  |          |     |    |    |
| Service postage .. .. .                                       | 9,304    | 12  | 6  |          |     |    |    |
| Dearness allowance to menials .. .. .                         | 2,401    | 8   | 0  |          |     |    |    |
| Other contingencies .. .. .                                   | 5,488    | 11  | 1  |          |     |    |    |
| 5 Other charges—                                              |          |     |    |          |     |    |    |
| Compensation (under the Glanders and Farcy Act) .. .. .       |          |     |    | 1,55,881 | 8   | 4  |    |
| <b>Charges.</b>                                               |          |     |    |          |     |    |    |
| <b>b. Subordinate Establishment—</b>                          |          |     |    |          |     |    |    |
| 1 Pay of establishment .. .. .                                | 2,15,249 | 8   | 0  |          |     |    |    |
| 2 Allowances—                                                 |          |     |    |          |     |    |    |
| Dearness allowances .. .. .                                   | 65,148   | 0   | 0  |          |     |    |    |
| Travelling and other compensatory allowances                  | 78,958   | 4   | 6  |          |     |    |    |
| 3 Office contingencies—                                       |          |     |    |          |     |    |    |
| Tour Charges .. .. .                                          | 76       | 12  | 8  |          |     |    |    |
| Service postage .. .. .                                       | 4,925    | 3   | 6  |          |     |    |    |
| Other contingencies .. .. .                                   | 10,229   | 3   | 0  |          |     |    |    |
| 4 Purchase of sera including freight .. .. .                  | 1,958    | 12  | 9  |          |     |    |    |
| 5 Pilot scheme for eradication of Rinderpest—                 |          |     |    |          |     |    |    |
| Pay of establishments .. .. .                                 | 6,755    | 10  | 0  |          |     |    |    |
| Dearness allowances .. .. .                                   | 2,685    | 4   | 0  |          |     |    |    |
| Travelling allowance and other compensatory allowance .. .. . | 2,263    | 7   | 0  |          |     |    |    |
| Other charges .. .. .                                         | 64,789   | 11  | 0  |          |     |    |    |
|                                                               |          |     |    | 4,53,039 | 12  | 5  |    |
| <b>C. Hospitals and dispensaries—</b>                         |          |     |    |          |     |    |    |
| 1 Pay of establishments .. .. .                               | 1,94,771 | 15  | 0  |          |     |    |    |
| 2 Allowances and Office contingencies .. .. .                 | 48,640   | 0   | 0  |          |     |    |    |
| Dearness allowance—                                           |          |     |    |          |     |    |    |
| Travelling and other compensatory allowances.                 | 16,019   | 9   | 0  |          |     |    |    |
| Office contingencies—                                         |          |     |    |          |     |    |    |
| Pay of menials .. .. .                                        | 37,808   | 7   | 9  |          |     |    |    |
| Dearness allowance to menials .. .. .                         | 43,694   | 8   | 0  |          |     |    |    |
| Madras allowances to menials .. .. .                          | 142      | 0   | 0  |          |     |    |    |
| Rent .. .. .                                                  | 33,182   | 3   | 0  |          |     |    |    |
| Office expenses .. .. .                                       | 9,142    | 9   | 1  |          |     |    |    |
| Service postage .. .. .                                       | 5,411    | 1   | 8  |          |     |    |    |
| Other contingencies .. .. .                                   | 7,719    | 12  | 4  |          |     |    |    |
| 3 Other charges—                                              |          |     |    |          |     |    |    |
| Medicine and other hospital necessities .. .. .               | 1,48,010 | 14  | 0  |          |     |    |    |
| Petty construction and repairs .. .. .                        | 7,855    | 11  | 3  |          |     |    |    |
|                                                               |          |     |    | 5,52,428 | 11  |    |    |
| 4 Grant to the Veterinary Dispensaries—                       |          |     |    |          |     |    |    |
| <b>d. Veterinary— Education and Research—</b>                 |          |     |    |          |     |    |    |
| <b>A. Veterinary College—</b>                                 |          |     |    |          |     |    |    |
| 1 Pay of officers .. .. .                                     | 56,062   | 8   | 0  |          |     |    |    |
| 2 Pay of establishment .. .. .                                | 76,161   | 8   | 0  |          |     |    |    |
| 3 Allowances and honoraria—                                   |          |     |    |          |     |    |    |
| Honoraria .. .. .                                             | 654      | 0   | 0  |          |     |    |    |
| Dearness allowance .. .. .                                    | 34,719   | 13  | 0  |          |     |    |    |
| Travelling and other compensatory allowance .. .. .           | 18,893   | 1   | 0  |          |     |    |    |
| 4 Office contingencies—                                       |          |     |    |          |     |    |    |
| Rates and taxes .. .. .                                       | 13,076   | 12  | 0  |          |     |    |    |
| Pay of menials .. .. .                                        | 6,548    | 10  | 0  |          |     |    |    |
| Dearness allowance to menials .. .. .                         | 9,656    | 6   | 0  |          |     |    |    |
| Madras allowance to menials .. .. .                           | 980      | 15  | 0  |          |     |    |    |
| Electric current and telephone charges .. .. .                | 7,591    | 8   | 10 |          |     |    |    |
| Office expenses and clearing charges .. .. .                  | 6,261    | 6   | 0  |          |     |    |    |

TABLE VIII.—Statement showing the receipts and charges of the Animal Husbandry Department for the year 1954-55—cont.

| Charges—cont.                                                                                             |        | RS. | A. | P.       | RS. | A. | P. |
|-----------------------------------------------------------------------------------------------------------|--------|-----|----|----------|-----|----|----|
| <b>5 Other charges—</b>                                                                                   |        |     |    |          |     |    |    |
| Scholarships and Stipends .. .. .                                                                         | 34,528 | 0   | 0  |          |     |    |    |
| Apparatus and Materials .. .. .                                                                           | 64,895 | 12  | 10 |          |     |    |    |
| Feed and upkeep of sick animals .. .. .                                                                   | 7,573  | 14  | 3  |          |     |    |    |
| Maintenance of Sheeing Forge .. .. .                                                                      | 1,577  | 9   | 6  |          |     |    |    |
| Books and Periodicals and Compensation for the animals destroyed under the Glanders and Farcy Act .. .. . | 3,209  | 12  | 3  |          |     |    |    |
| Other contingencies .. .. .                                                                               | 23,011 | 10  | 3  |          |     |    |    |
|                                                                                                           |        |     |    | 3,65,403 | 2   | 11 |    |
| <b>B. Veterinary Investigation—</b>                                                                       |        |     |    |          |     |    |    |
| 1 Pay of staff, allowances and office contingencies                                                       |        |     |    |          |     |    |    |
| Pay of staff .. .. .                                                                                      | 7,926  | 8   | 0  |          |     |    |    |
| Allowances—                                                                                               |        |     |    |          |     |    |    |
| Dearness allowance .. .. .                                                                                | 1,827  | 1   | 0  |          |     |    |    |
| Travelling allowance and other compensatory .. .. .                                                       | 4,477  | 15  | 0  |          |     |    |    |
| Office contingencies—                                                                                     |        |     |    |          |     |    |    |
| Dearness allowance to menials .. .. .                                                                     | 216    | 0   | 0  |          |     |    |    |
| Apparatus and Materials .. .. .                                                                           | 90     | 3   | 0  |          |     |    |    |
| Other contingencies .. .. .                                                                               | 1,484  | 5   | 0  |          |     |    |    |
| 2 Mobile laboratory .. .. .                                                                               | 7,075  | 13  | 3  |          |     |    |    |
|                                                                                                           |        |     |    | 23,097   | 13  | 3  |    |
| <b>C. Enquiry into the Helminthiasis of Cattle—</b>                                                       |        |     |    |          |     |    |    |
| 1 Pay of officers .. .. .                                                                                 | 5,120  | 0   | 0  |          |     |    |    |
| 2 Pay of establishment .. .. .                                                                            | 1,999  | 14  | 0  |          |     |    |    |
| Allowances—                                                                                               |        |     |    |          |     |    |    |
| Dearness allowances .. .. .                                                                               | 1,488  | 6   | 0  |          |     |    |    |
| Travelling allowance and other compensatory .. .. .                                                       | 379    | 7   | 0  |          |     |    |    |
| Office contingencies—                                                                                     |        |     |    |          |     |    |    |
| Dearness allowance to menials .. .. .                                                                     | 216    | 0   | 0  |          |     |    |    |
| Madras allowance to menials .. .. .                                                                       | 24     | 0   | 0  |          |     |    |    |
| Other Contingencies .. .. .                                                                               | 636    | 15  | 0  |          |     |    |    |
|                                                                                                           |        |     |    | 9,864    | 10  | 0  |    |
| 4 Contribution to Indian Council of Agricultural Research Provident Fund.                                 |        |     |    |          |     |    |    |
| <b>I. Investigation into the disease of Poultry—</b>                                                      |        |     |    |          |     |    |    |
| Pay of officers, Establishment and Allowances.                                                            |        |     |    |          |     |    |    |
| Pay of officers .. .. .                                                                                   | 4,080  | 0   | 0  |          |     |    |    |
| Pay of establishment .. .. .                                                                              | 1,700  | 12  | 0  |          |     |    |    |
| Allowances—                                                                                               |        |     |    |          |     |    |    |
| Dearness allowance .. .. .                                                                                | 1,710  | 11  | 0  |          |     |    |    |
| Travelling and other compensatory .. .. .                                                                 |        |     |    |          |     |    |    |
| Allowances .. .. .                                                                                        | 1,771  | 1   | 0  |          |     |    |    |
| Other charges .. .. .                                                                                     | 1,251  | 4   | 0  |          |     |    |    |
|                                                                                                           |        |     |    | 10,513   | 12  | 0  |    |
| <b>E. Indigenous Drugs, Scheme—</b>                                                                       |        |     |    |          |     |    |    |
| <b>F. Contagious Abortion Scheme—</b>                                                                     |        |     |    |          |     |    |    |
| 1 Pay of establishment .. .. .                                                                            | 451    | 6   | 0  |          |     |    |    |
| 2 Allowances and other charges .. .. .                                                                    | 400    | 14  | 0  |          |     |    |    |
| 3 Office contingencies .. .. .                                                                            | 171    | 2   | 6  |          |     |    |    |
|                                                                                                           |        |     |    | 1,023    | 6   | 6  |    |
| <b>G. Scheme for the study of cattle sterility—</b>                                                       |        |     |    |          |     |    |    |
| Pay of officers and establishment .. .. .                                                                 | 2,587  | 12  | 0  |          |     |    |    |
| Dearness Allowance .. .. .                                                                                |        |     |    |          |     |    |    |
| <b>Other charges—</b>                                                                                     |        |     |    |          |     |    |    |
| <b>A. Veterinary Biological and Research Institute,</b>                                                   |        |     |    |          |     |    |    |
| <b>Ranipet—</b>                                                                                           |        |     |    |          |     |    |    |
| 1 Pay of officers .. .. .                                                                                 | 9,109  | 1   | 0  |          |     |    |    |
| 2 Pay of establishment .. .. .                                                                            | 33,258 | 6   | 0  |          |     |    |    |
| 3 Allowances—                                                                                             |        |     |    |          |     |    |    |
| Dearness allowance .. .. .                                                                                | 13,798 | 2   | 0  |          |     |    |    |
| Travelling allowance and Other compensatory .. .. .                                                       | 2,538  | 9   | 0  |          |     |    |    |

TABLE VIII.—Statement showing the receipts and charges of the Animal Husbandry Department for the year 1954-55—cont

|                                                                     | RS.      | A. | P. | RS.      | A. | P. |
|---------------------------------------------------------------------|----------|----|----|----------|----|----|
| <i>Charges—cont.</i>                                                |          |    |    |          |    |    |
| 4. Office contingencies—                                            |          |    |    |          |    |    |
| Electric Current and Telephone Charges ..                           | 3,171    | 13 | 1  |          |    |    |
| Pay of Menials .. .. .                                              | 8,883    | 14 | 0  |          |    |    |
| Dearness Allowance to Menials .. .. .                               | 10,802   | 14 | 0  |          |    |    |
| Service postage .. .. .                                             | 3,515    | 2  | 0  |          |    |    |
| Other contingencies .. .. .                                         | 25,141   | 1  | 2  |          |    |    |
| 5. Other charges .. .. .                                            | 58,011   | 1  | 0  |          |    |    |
| Livestock maintenance charges .. .. .                               | 15,479   | 5  | 3  |          |    |    |
| Apparatus and Materials .. .. .                                     | 17,331   | 11 | 11 |          |    |    |
|                                                                     |          |    |    | 2,03,628 | 12 | 5  |
| B. Manufacture of Ranikhet Disease Vaccine—                         |          |    |    |          |    |    |
| 1. Pay of Officers .. .. .                                          | 3,301    | 7  | 0  |          |    |    |
| 2. Pay of establishment .. .. .                                     |          |    |    |          |    |    |
| 3. Allowances and other charges—                                    |          |    |    |          |    |    |
| Allowances—                                                         |          |    |    |          |    |    |
| Dearness allowance .. .. .                                          | 1,835    | 1  | 0  |          |    |    |
| Travelling and other compensatory .. ..                             | 939      | 11 | 0  |          |    |    |
| Other charges—                                                      |          |    |    |          |    |    |
| Madras allowance to menials .. .. .                                 | 20       | 11 | 0  |          |    |    |
| Other charges .. .. .                                               | 892      | 11 | 9  |          |    |    |
|                                                                     |          |    |    | 6,989    | 9  | 9  |
| f. Breeding Operations—                                             |          |    |    |          |    |    |
| A. Research Stations—                                               |          |    |    |          |    |    |
| 1. Pay of Officers .. .. .                                          | 3,120    | 0  | 0  |          |    |    |
| 2. Pay of establishment .. .. .                                     | 27,134   | 5  | 0  |          |    |    |
| Allowances and other charges—                                       |          |    |    |          |    |    |
| Allowances—                                                         |          |    |    |          |    |    |
| Dearness allowance .. .. .                                          | 9,977    | 3  | 0  |          |    |    |
| Travelling and other compensatory .. ..                             | 4,587    | 1  | 0  |          |    |    |
| Other charges—                                                      |          |    |    |          |    |    |
| Petty Construction and Repairs .. .. .                              | 18,479   | 15 | 6  |          |    |    |
| Purchase of livestock .. .. .                                       | 1,500    | 0  | 0  |          |    |    |
| Purchase of deadstock .. .. .                                       | 13,716   | 15 | 0  |          |    |    |
| Repairs and Upkeep .. .. .                                          | 24,132   | 0  | 0  |          |    |    |
| Maintenance of cattle .. .. .                                       | 2,53,534 | 14 | 5  |          |    |    |
| Mazdoor Labour .. .. .                                              | 28,308   | 13 | 6  |          |    |    |
| Dearness allowance to menials .. .. .                               | 35,740   | 4  | 0  |          |    |    |
| Madras allowance to menials .. .. .                                 | 327      | 3  | 0  |          |    |    |
| Other charges .. .. .                                               | 43,420   | 0  | 6  |          |    |    |
|                                                                     |          |    |    | 4,63,978 | 10 | 11 |
| B. Livestock Improvement Scheme—                                    |          |    |    |          |    |    |
| 1. Cattle Improvement- .. .. .                                      |          |    |    |          |    |    |
| 2. Sheep Breeding Scheme—                                           |          |    |    |          |    |    |
| Sheep Breeding Scheme .. .. .                                       | 1,954    | 0  | 0  |          |    |    |
| Dearness allowance to staff .. .. .                                 | 604      | 14 | 0  |          |    |    |
| Dearness allowance to menials .. .. .                               | 1,511    | 4  | 0  |          |    |    |
|                                                                     |          |    |    | 4,070    | 2  | 0  |
| 3. Maintenance and other charges—                                   |          |    |    |          |    |    |
| Maintenance of cattle .. .. .                                       | 64,370   | 8  | 7  | 64,370   | 8  | 7  |
| Premia for maintenance of breeding bulls ..                         | 89,745   | 12 | 9  | 89,745   | 12 | 9  |
| Dearness allowance to menials .. .. .                               | 11,432   | 9  | 0  | 11,432   | 9  | 0  |
| Madras allowance to menials .. .. .                                 | 129      | 15 | 0  | 129      | 15 | 0  |
| Scheme for improvement of Kangayam breed of cattle.                 | 99,485   | 12 | 6  |          |    |    |
| Dearness allowance to staff .. .. .                                 | 2,232    | 8  | 0  |          |    |    |
| Dearness allowance to menials .. .. .                               | 964      | 0  | 0  |          |    |    |
|                                                                     |          |    |    | 1,02,682 | 4  | 6  |
| Scheme for the improvement of milch goats in South Kanara district. | 402      | 11 | 0  | 402      | 11 | 0  |
| Cattle Breeding at Angunagaram .. .. .                              | 984      | 11 | 0  | 984      | 11 | 0  |
| Subsidy .. .. .                                                     | 15,000   | 0  | 0  | 15,000   | 0  | 0  |
| 5. Scheme for improvement of mutton or hairy type of sheep.         | 7,762    | 14 | 0  | 7,762    | 14 | 0  |

TABLE VIII.—Statement showing the receipts and charges of the Animal Husbandry Department for the year 1954-55—cont.

|                                                                                 | RS.    | A. | P. | RS.      | A. | P. |
|---------------------------------------------------------------------------------|--------|----|----|----------|----|----|
| <i>Charges—cont.</i>                                                            |        |    |    |          |    |    |
| 6. Scheme for the grant of subsidy to owners of calves in Madras City.          |        |    |    |          |    |    |
| 7. Scheme for the improvement of woolly sheep in the Nilgiris—                  |        |    |    |          |    |    |
| Pay of establishment .. .. .                                                    | 4,545  | 9  | 0  |          |    |    |
| Dearness allowance .. .. .                                                      | 1,688  | 3  | 0  |          |    |    |
| Travelling and other compensatory .. ..                                         | 719    | 9  | 0  |          |    |    |
| Dearness allowance to menials .. .. .                                           | 2,877  | 0  | 0  |          |    |    |
| Other charges .. .. .                                                           | 20,045 | 9  | 9  |          |    |    |
|                                                                                 |        |    |    | 29,875   | 14 | 9  |
| C. Pony Breeding Improvement Scheme—                                            |        |    |    |          |    |    |
| Dearness allowance .. .. .                                                      | 594    | 0  | 0  |          |    |    |
| Miscellaneous .. .. .                                                           | 3,081  | 3  | 3  |          |    |    |
|                                                                                 |        |    |    | 3,675    | 3  | 3  |
| D. Poultry Development Scheme—                                                  |        |    |    |          |    |    |
| Pay of Officers .. .. .                                                         | 4,413  | 6  | 0  |          |    |    |
| Pay of establishment .. .. .                                                    | 6,209  | 9  | 0  |          |    |    |
| Allowances—                                                                     |        |    |    |          |    |    |
| Dearness allowance .. .. .                                                      | 3,526  | 1  | 0  |          |    |    |
| Travelling and other compensatory .. ..                                         | 1,955  | 13 | 0  |          |    |    |
| Dearness allowance to menials .. .. .                                           | 2,070  | 10 | 7  |          |    |    |
| Madras allowance to menials .. .. .                                             | 22     | 4  | 0  |          |    |    |
| Other charges .. .. .                                                           | 17,127 | 8  | 6  |          |    |    |
|                                                                                 |        |    |    | 35,325   | 4  | 1  |
| E. Other charges—                                                               |        |    |    |          |    |    |
| 1 Grants to Agricultural Association, Exhibition Committees, etc. .. .. .       | 24,785 | 15 | 3  | 24,785   | 15 | 3  |
| 2 Contributions—                                                                |        |    |    |          |    |    |
| Contributions to Local bodies for purchase and maintenance of breeding bulls .. | 11,625 | 2  | 0  | 11,625   | 2  | 0  |
| American Arcot Mission for Poultry Improvement .. .. .                          | 9,325  | 4  | 3  | 9,325    | 4  | 3  |
|                                                                                 |        |    |    |          |    |    |
| F. Scheme for salvage of dry cows—                                              |        |    |    |          |    |    |
| Pay of establishment and allowances—                                            |        |    |    |          |    |    |
| Pay of establishment .. .. .                                                    | 6,081  | 2  | 0  |          |    |    |
| Dearness allowance to staff .. .. .                                             | 2,281  | 12 | 0  |          |    |    |
| Travelling and other compensatory .. ..                                         | 2,216  | 7  | 0  |          |    |    |
| Dearness allowance to menials .. .. .                                           | 4,350  | 13 | 0  |          |    |    |
| Madras allowance to menials .. .. .                                             | 71     | 7  | 0  |          |    |    |
| Other charges .. .. .                                                           | 58,290 | 10 | 6  |          |    |    |
|                                                                                 |        |    |    | 73,292   | 3  | 6  |
| G. Key Village Scheme—                                                          |        |    |    |          |    |    |
| Pay of establishment and Allowances—                                            |        |    |    |          |    |    |
| 1 Pay of Officers .. .. .                                                       | 3,269  | 11 | 0  |          |    |    |
| 2 Pay of establishment .. .. .                                                  | 48,738 | 8  | 0  |          |    |    |
| 3 Allowances—                                                                   |        |    |    |          |    |    |
| Dearness allowance .. .. .                                                      | 15,096 | 4  | 0  |          |    |    |
| Travelling and other compensatory .. ..                                         | 13,021 | 9  | 0  |          |    |    |
| Other charges .. .. .                                                           | 98,645 | 7  | 5  |          |    |    |
|                                                                                 |        |    |    | 1,78,771 | 7  | 8  |
| H. Key Farm Centres in private institutions—                                    |        |    |    |          |    |    |
| 1 Pay of establishment .. .. .                                                  | 26,197 | 0  | 0  |          |    |    |
| 2 Allowances—                                                                   |        |    |    |          |    |    |
| Dearness allowance .. .. .                                                      | 7,811  | 8  | 0  |          |    |    |
| Travelling and other compensatory .. ..                                         | 2,747  | 7  | 0  |          |    |    |
| Other charges .. .. .                                                           | 32,704 | 5  | 3  |          |    |    |
|                                                                                 |        |    |    | 69,460   | 4  | 8  |
| Apparatus and materials—                                                        |        |    |    |          |    |    |
| Maintenance of Cattle .. .. .                                                   | ....   |    |    |          |    |    |
| Other charges .. .. .                                                           | ....   |    |    |          |    |    |
| 4 Deduct—Charges recoverable from other Government, Departments, etc. .. .. .   | ....   |    |    |          |    |    |

TABLE VIII.—Statement showing the receipts and charges of the Animal Husbandry Department for the year 1954-55—cont.

|                                                             | RS.    | A. | P. | RS.      | A. | P. |
|-------------------------------------------------------------|--------|----|----|----------|----|----|
| <i>Charges—cont.</i>                                        |        |    |    |          |    |    |
| J. Scheme for the study of cross breeding of cattle—        |        |    |    |          |    |    |
| 1 Pay of Officers and establishment .. ..                   | 336    | 0  | 0  |          |    |    |
| Dearness allowance .. ..                                    | 86     | 10 | 0  |          |    |    |
| Travelling allowance and other compensatory allowance .. .. | 54     | 2  | 0  |          |    |    |
| Other charges .. ..                                         | 15,181 | 11 | 3  |          |    |    |
|                                                             |        |    |    | 15,658   | 7  | 3  |
| H. District Livestock Farm, Orathanad—                      |        |    |    |          |    |    |
| 1 Pay of officers .. ..                                     | 2,149  | 5  | 0  |          |    |    |
| 2 Pay of establishment .. ..                                | 5,200  | 14 | 0  |          |    |    |
| 3 Allowances—                                               |        |    |    |          |    |    |
| Dearness allowance .. ..                                    | 2,449  | 9  | 0  |          |    |    |
| Travelling allowance and other compensatory allowance .. .. | 1,925  | 4  | 0  |          |    |    |
| 4 Other charges—                                            |        |    |    |          |    |    |
| Petty construction and repairs .. ..                        | 11,340 | 12 | 0  |          |    |    |
| Purchase of livestock .. ..                                 | 41,248 | 3  | 3  |          |    |    |
| Purchase of deadstock .. ..                                 | 16,874 | 6  | 6  |          |    |    |
| Repairs and Upkeep .. ..                                    | 9,751  | 10 | 3  |          |    |    |
| Maintenance of cattle .. ..                                 | 23,209 | 9  | 6  |          |    |    |
| Mazdoor labour .. ..                                        | 11,271 | 11 | 9  |          |    |    |
| Dearness allowance to menials .. ..                         | 3,025  | 2  | 0  |          |    |    |
| Other charges .. ..                                         | 3,902  | 8  | 9  |          |    |    |
|                                                             |        |    |    | 1,32,349 | 0  | 0  |
| 41. g. Development Schemes—                                 |        |    |    |          |    |    |
| 1. Schemes included in the Five-Year Plan—                  |        |    |    |          |    |    |
| A. Direction—                                               |        |    |    |          |    |    |
| 1 Pay of Officers .. ..                                     | 18,595 | 9  | 0  |          |    |    |
| 2 Pay of establishment .. ..                                | 2,563  | 10 | 0  |          |    |    |
| 3 Allowances—                                               |        |    |    |          |    |    |
| Dearness allowance .. ..                                    | 3,475  | 13 | 0  |          |    |    |
| Travelling and other compensatory .. ..                     | 8,861  | 4  | 0  |          |    |    |
| 4 Office contingencies .. ..                                | 462    | 6  | 3  |          |    |    |
|                                                             |        |    |    | 33,958   | 10 | 3  |
| B. District Officers—                                       |        |    |    |          |    |    |
| 1 Pay of officers .. ..                                     | 14,402 | 6  | 0  |          |    |    |
| 2 Pay of establishment .. ..                                | 11,492 | 0  | 0  |          |    |    |
| 3 Allowances—                                               |        |    |    |          |    |    |
| Dearness allowance .. ..                                    | 7,879  | 1  | 0  |          |    |    |
| Travelling and other compensatory .. ..                     | 8,989  | 14 | 0  |          |    |    |
| 4 Contingencies—                                            |        |    |    |          |    |    |
| Other contingencies .. ..                                   | 8,724  | 15 | 9  |          |    |    |
| Madras Allowance to menials .. ..                           | 36     | 0  | 0  |          |    |    |
|                                                             |        |    |    | 51,524   | 4  | 9  |
| C. Subordinate establishment—                               |        |    |    |          |    |    |
| Pay of establishment and office contingencies—              |        |    |    |          |    |    |
| Pay of establishment .. ..                                  | 43,109 | 12 | 0  |          |    |    |
| Dearness allowance .. ..                                    | 16,856 | 9  | 0  |          |    |    |
| Travelling allowance .. ..                                  | 19,523 | 3  | 0  |          |    |    |
| Other charges .. ..                                         | 2,372  | 15 | 0  |          |    |    |
|                                                             |        |    |    | 81,862   | 7  | 0  |
| D. Hospitals and Dispensaries—                              |        |    |    |          |    |    |
| 1. Pay of establishment .. ..                               | 11,907 | 4  | 0  |          |    |    |
| 2. Allowance and office contingencies—                      |        |    |    |          |    |    |
| Dearness Allowance .. ..                                    | 2,721  | 12 | 0  |          |    |    |
| Travelling Allowance .. ..                                  | 2,042  | 14 | 0  |          |    |    |
| Dearness Allowance to Menials .. ..                         | 2,178  | 10 | 0  |          |    |    |
| Other charges .. ..                                         | 14,534 | 10 | 9  |          |    |    |
| Scheme for the starting of Clinical Laboratories.           | 885    | 4  | 9  |          |    |    |
|                                                             |        |    |    | 34,370   | 7  | 6  |

TABLE VIII.—Statement showing the receipts and charges of the Animal Husbandry Department for the year 1954-55—cont.

|                                                                                          | RS.      | A. | P. | RS.      | A. | P. |
|------------------------------------------------------------------------------------------|----------|----|----|----------|----|----|
| <i>Charges—cont.</i>                                                                     |          |    |    |          |    |    |
| E. Veterinary Education and Research—                                                    |          |    |    |          |    |    |
| Investigation into the diseases of sheep and goats—                                      |          |    |    |          |    |    |
| 1. Pay of officers .. ..                                                                 | 4,660    | 12 | 0  |          |    |    |
| 2. Pay of establishment .. ..                                                            | 777      | 11 | 0  |          |    |    |
| 3. Allowances and other charges .. ..                                                    |          |    |    |          |    |    |
| Allowances—                                                                              |          |    |    |          |    |    |
| Dearness Allowance .. ..                                                                 | 1,217    | 14 | 0  |          |    |    |
| Travelling and other compensatory .. ..                                                  | 2,454    | 4  | 0  |          |    |    |
| Other charges .. ..                                                                      | 1,736    | 1  | 3  |          |    |    |
|                                                                                          |          |    |    | 10,846   | 10 | 3  |
| F. Other charges—                                                                        |          |    |    |          |    |    |
| Veterinary Biological and Research Institute, Ranipet—                                   |          |    |    |          |    |    |
| Purchase of laboratory equipment and furniture .. ..                                     | 4,184    | 11 | 6  |          |    |    |
|                                                                                          |          |    |    | 4,184    | 11 | 6  |
| G. Breeding Operations—                                                                  |          |    |    |          |    |    |
| (i) Research Stations—                                                                   |          |    |    |          |    |    |
| 1. Pay of establishment .. ..                                                            | 5,960    | 9  | 0  |          |    |    |
| 2. Allowances and other charges .. ..                                                    |          |    |    |          |    |    |
| Allowances—                                                                              |          |    |    |          |    |    |
| Dearness allowance .. ..                                                                 | 1,951    | 5  | 0  |          |    |    |
| Travelling and other compensatory .. ..                                                  | 3,532    | 13 | 0  |          |    |    |
| Other charges .. ..                                                                      | 822      | 8  | 9  |          |    |    |
|                                                                                          |          |    |    | 12,267   | 3  | 9  |
| (ii) Livestock Development—                                                              |          |    |    |          |    |    |
| A. Scheme to maintain a flock of Mandya Rams in the Livestock Research Station, Hosur .. | 1,348    | 5  | 8  |          |    |    |
|                                                                                          |          |    |    | 1,348    | 5  | 8  |
| C. Scheme for the improvement of Livestock—                                              |          |    |    |          |    |    |
| Other charges .. ..                                                                      | 1,80,102 | 3  | 0  |          |    |    |
|                                                                                          |          |    |    | 1,80,102 | 3  | 0  |
| (iii) District Farms .. ..                                                               |          |    |    |          |    |    |
| (iv) Cattle Breeding Farms—                                                              |          |    |    |          |    |    |
| 1. Pay of officers .. ..                                                                 | 9,876    | 11 | 0  |          |    |    |
| 2. Pay of establishment .. ..                                                            | 19,326   | 15 | 0  |          |    |    |
| 3. Allowances—                                                                           |          |    |    |          |    |    |
| Dearness allowance .. ..                                                                 | 9,888    | 9  | 0  |          |    |    |
| Travelling and other compensatory .. ..                                                  | 5,813    | 8  | 0  |          |    |    |
| 4. Other Charges—                                                                        |          |    |    |          |    |    |
| Livestock .. ..                                                                          | 86       | 10 | 0  |          |    |    |
| Deadstock .. ..                                                                          | 11,645   | 12 | 9  |          |    |    |
| Repairs and upkeep .. ..                                                                 | 31,870   | 2  | 9  |          |    |    |
| Maintenance of cattle .. ..                                                              | 1,65,663 | 8  | 0  |          |    |    |
| Mazdoor labour .. ..                                                                     | 18,192   | 15 | 9  |          |    |    |
| Dearness allowance to menials .. ..                                                      | 12,070   | 3  | 0  |          |    |    |
| Other charges .. ..                                                                      | 21,160   | 15 | 6  |          |    |    |
|                                                                                          |          |    |    | 3,05,395 | 14 | 9  |
| I. Schemes included in the Five-Year Plan continued—                                     |          |    |    |          |    |    |
| G. (V) Scheme for Artificial Insemination of Cattle—                                     |          |    |    |          |    |    |
| 1. Pay of officers .. ..                                                                 | 3,600    | 0  | 0  |          |    |    |
| 2. Pay of establishment .. ..                                                            | 20,155   | 3  | 0  |          |    |    |
| 3. Allowances—                                                                           |          |    |    |          |    |    |
| Dearness allowance to staff .. ..                                                        | 7,385    | 12 | 0  |          |    |    |
| Travelling and other compensatory .. ..                                                  | 5,644    | 11 | 0  |          |    |    |
| Dearness allowance to menials .. ..                                                      | 3,478    | 0  | 6  |          |    |    |
| Madras allowance for menials .. ..                                                       | 152      | 10 | 0  |          |    |    |
| Other charges .. ..                                                                      | 21,071   | 11 | 3  |          |    |    |
|                                                                                          |          |    |    | 61,487   | 15 | 9  |
| H. Works—Cattle Breeding Farms .. ..                                                     | 18,901   | 10 | 3  |          |    |    |
|                                                                                          |          |    |    | 18,901   | 10 | 3  |

TABLE VIII.—Statement showing the receipts and charges of the Animal Husbandry Department for the year 1954-55— cont.

| Charges—cont.                                                                         |            |               |  |
|---------------------------------------------------------------------------------------|------------|---------------|--|
|                                                                                       | RS. A. P.  | RS. A. P.     |  |
| <b>II. Other Development Schemes—</b>                                                 |            |               |  |
| <b>A. Veterinary, Education and Research—</b>                                         |            |               |  |
| (i) Technical training in the United Kingdom and the United States of America .. .. . | .. .. .    | .. .. .       |  |
| Other charges .. .. .                                                                 | .. .. .    | .. .. .       |  |
| (ii) Education and training of demobilized personnel .. .. .                          | .. .. .    | .. .. .       |  |
| (iii) Maintenance allowance and cost of books .. .. .                                 | .. .. .    | .. .. .       |  |
| (iv) Veterinary College .. .. .                                                       | .. .. .    | .. .. .       |  |
| Pay of officers .. .. .                                                               | 10,160 0 0 |               |  |
| Pay of establishments .. .. .                                                         | 633 15 0   |               |  |
| Dearness allowance .. .. .                                                            | 2,136 0 0  |               |  |
| Madras Allowance to Menials .. .. .                                                   | 76 12 0    |               |  |
| Dearness Allowance to Menials .. .. .                                                 | 209 11 0   |               |  |
| Travelling and Other Compensatory .. .. .                                             | 1,243 2 0  |               |  |
| Other charges—Office Contingencies .. .. .                                            | 651 13 0   |               |  |
|                                                                                       |            | 15,111 5 0    |  |
| <b>B. Breeding Operation Scheme for the Development of Sheep and Goats—</b>           |            |               |  |
| 1. Pay of officers .. .. .                                                            | 2,699 5 0  |               |  |
| 2. Pay of Establishment .. .. .                                                       | 3,030 6 0  |               |  |
| 3. Allowances and other Charges .. .. .                                               | .. .. .    | .. .. .       |  |
| <b>Allowances—</b>                                                                    |            |               |  |
| Dearness Allowance to staff .. .. .                                                   | 1,962 7 0  |               |  |
| Travelling and other compensatory .. .. .                                             | 4,268 0 0  |               |  |
| Dearness allowance to menials .. .. .                                                 | 214 4 0    |               |  |
| Other charges .. .. .                                                                 | 1,486 11 0 |               |  |
|                                                                                       |            | 13,661 1 0    |  |
| <b>h. Charges in England—High Commissioner for India—</b>                             |            |               |  |
| A. Leave salaries and deputation pay .. .. .                                          | .. .. .    | .. .. .       |  |
| B. Stores for India .. .. .                                                           | .. .. .    | .. .. .       |  |
| Total—Major Head 41—Voted .. .. .                                                     | .. .. .    | .. .. .       |  |
| Add—Recoveries .. .. .                                                                | .. .. .    | .. .. .       |  |
| Total—Gross Demand XIX—Veterinary—                                                    |            |               |  |
| Voted .. .. .                                                                         | .. .. .    | .. .. .       |  |
| Grand Total .. .. .                                                                   | .. .. .    | 40,73,429 0 9 |  |

TABLE IX.—Strength of staff and distribution as on 31st March 1955.

| Gazetted.                                                                                                                         |         | Number.                               |
|-----------------------------------------------------------------------------------------------------------------------------------|---------|---------------------------------------|
| 1 Head of the Department .. .. .                                                                                                  | .. .. . | 1                                     |
| 2 Deputy Director of Animal Husbandry (Veterinary) .. .. .                                                                        | .. .. . | 1                                     |
| 3 Deputy Director of Animal Husbandry (Livestock) .. .. .                                                                         | .. .. . | 1                                     |
| 4 Principal, Madras Veterinary College, Madras .. .. .                                                                            | .. .. . | 1                                     |
| 5 Superintendent, Institute of Veterinary Preventive Medicine, Ranipet .. .. .                                                    | .. .. . | 1                                     |
| 6 Professors and Lecturers and Additional Lecturers (Excluding one post held by the Principal, Madras Veterinary College) .. .. . | .. .. . | 13                                    |
| 7 Additional Professor in Biology .. .. .                                                                                         | .. .. . | 1                                     |
| 8 Lecturer in Chemistry .. .. .                                                                                                   | .. .. . | 1                                     |
| 9 Research Officer, Madras Helminthiasis Scheme, Madras Veterinary College .. .. .                                                | .. .. . | 1                                     |
| 10 District Veterinary Officers .. .. .                                                                                           | .. .. . | 14                                    |
| 11 Superintendent, Livestock Research Station, Hosur Cattle Farm .. .. .                                                          | .. .. . | 1                                     |
| 12 Superintendent, District Livestock Farms .. .. .                                                                               | .. .. . | 4                                     |
| 13 Sheep and Goat Development Officer, Madras .. .. .                                                                             | .. .. . | 1                                     |
| 14 Poultry Development Officer, Madras .. .. .                                                                                    | .. .. . | 1                                     |
| 15 Veterinary Disease Investigation Officer (Cattle) .. .. .                                                                      | .. .. . | 1                                     |
| 16 Veterinary Disease Investigation Officer (Sheep and Goat) .. .. .                                                              | .. .. . | 1                                     |
| 17 Veterinary Disease Investigation Officer (Poultry) .. .. .                                                                     | .. .. . | 1                                     |
| 18 Research Officer, Institute of Veterinary Preventive Medicine, Ranipet .. .. .                                                 | .. .. . | 1                                     |
| 19 Special Officer, Freeze Dried Vaccines, Institute of Veterinary Preventive Medicine, Ranipet .. .. .                           | .. .. . | 1                                     |
| 20 Superintendent, Kangayam Cattle Improvement Scheme, Palayakottai .. .. .                                                       | .. .. . | 1                                     |
| 21 Special Officer for Artificial Insemination, Madras .. .. .                                                                    | .. .. . | 1                                     |
| 22 Inspector of Key Villages, Kangayam .. .. .                                                                                    | .. .. . | 1                                     |
| 23 Regional Sterility Officer .. .. .                                                                                             | .. .. . | 1                                     |
| 24 Special Officer for Cross Breeding .. .. .                                                                                     | .. .. . | 1                                     |
| 25 Animal Husbandry Statistician .. .. .                                                                                          | .. .. . | 1                                     |
| 26 Personal Assistant to the Director of Animal Husbandry, Madras .. .. .                                                         | .. .. . | 1                                     |
| 27 Lecturer in Animal Husbandry, Agricultural College, Coimbatore .. .. .                                                         | .. .. . | 1                                     |
| 28 Inspector of Livestock, Kozhikode .. .. .                                                                                      | .. .. . | 1                                     |
| Total .. .. .                                                                                                                     | .. .. . | 56                                    |
| <b>Non-gazetted.</b>                                                                                                              |         |                                       |
|                                                                                                                                   |         | <b>Veterinary Assistant Surgeons.</b> |
| 1 In Veterinary Institutions .. .. .                                                                                              | .. .. . | 101                                   |
| 2 In-charge Touring Bilets and Minor Veterinary Dispensaries .. .. .                                                              | .. .. . | 92                                    |
| 3 In the Madras Veterinary College .. .. .                                                                                        | .. .. . | 27                                    |
| 4 In the Institute of Veterinary Preventive Medicine, Ranipet .. .. .                                                             | .. .. . | 12                                    |
| 5 Assistant to Veterinary Disease Investigation Officer (Cattle) .. .. .                                                          | .. .. . | 1                                     |
| 6 In Livestock Farms including the Salvage of Dry Cows Farm .. .. .                                                               | .. .. . | 10                                    |
| 7 In the Sheep Farm, Dunsandle .. .. .                                                                                            | .. .. . | 1                                     |
| 8 In Poultry Farms .. .. .                                                                                                        | .. .. . | 2                                     |
| 9 In Kangayam Cattle Improvement Scheme, Palayakottai .. .. .                                                                     | .. .. . | 1                                     |
| 10 In Artificial Insemination Centres .. .. .                                                                                     | .. .. . | 5                                     |
| 11 In Key Village Centres .. .. .                                                                                                 | .. .. . | 9                                     |
| 12 In Key Farm Centres .. .. .                                                                                                    | .. .. . | 6                                     |
| 13 In the Cross Breeding Station .. .. .                                                                                          | .. .. . | 1                                     |
| 14 In Sheep Units .. .. .                                                                                                         | .. .. . | 3                                     |
| 15 In Wool Analysis Laboratory .. .. .                                                                                            | .. .. . | 1                                     |
| 16 In Brucellosis Scheme .. .. .                                                                                                  | .. .. . | 1                                     |
| 17 In Clinical Laboratories .. .. .                                                                                               | .. .. . | 3                                     |
| 18 In Quarantine Stations .. .. .                                                                                                 | .. .. . | 5                                     |
| 19 In Community Project and National Extension Service Schemes .. .. .                                                            | .. .. . | 59                                    |
| 20 Assistant to Animal Husbandry Statistician .. .. .                                                                             | .. .. . | 1                                     |
| 21 Glanders Inspector .. .. .                                                                                                     | .. .. . | 1                                     |
| 22 In the Propaganda Unit .. .. .                                                                                                 | .. .. . | 1                                     |
| 23 In the Forest Department .. .. .                                                                                               | .. .. . | 2                                     |
| 24 In the Agricultural Department .. .. .                                                                                         | .. .. . | 2                                     |
| 25 In the King Institute, Guindy .. .. .                                                                                          | .. .. . | 2                                     |
| 26 Leave reserves .. .. .                                                                                                         | .. .. . | 25                                    |
| Total .. .. .                                                                                                                     | .. .. . | 374                                   |



TABLE XI (a).—Statement showing the location and other particulars of livestock farms in the State of Madras during the year 1954-55.

| ADMINISTRATION REPORT OF THE                                  |                   |                    |                                                                                      |                                                               |                                     |                                    |                                   |                                           |                                |                               |                                                      |                                        |                                      |  |
|---------------------------------------------------------------|-------------------|--------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------|------------------------------------|-----------------------------------|-------------------------------------------|--------------------------------|-------------------------------|------------------------------------------------------|----------------------------------------|--------------------------------------|--|
| Name and address of the farm.                                 | Area of the farm. |                    | Purpose of the farm and herd (breeding experimental or dairy, etc.).                 | Breeds.                                                       | Strength of the herd in each breed. |                                    |                                   | Number of sires issued during the period. |                                |                               | Lactation average.                                   |                                        |                                      |  |
|                                                               | Total.            | Under cultivation. |                                                                                      |                                                               | Bulls.                              | Cows.                              | Young stock.                      | Year report.                              | Last year.                     | Year before last.             | Milk yield of the herd per lactation completed.      | Days in milk.                          | Days dry.                            |  |
|                                                               |                   |                    |                                                                                      |                                                               |                                     |                                    |                                   |                                           |                                |                               |                                                      |                                        |                                      |  |
| (1)                                                           | (2)               | (3)                | (4)                                                                                  | (5)                                                           | (6)                                 | (7)                                | (8)                               | (9)                                       | (10)                           | (11)                          | (12)                                                 | (13)                                   | (14)                                 |  |
|                                                               | ACS.              | ACS.               |                                                                                      |                                                               |                                     |                                    |                                   |                                           |                                |                               | LBS.                                                 |                                        |                                      |  |
| 1 Livestock Research Station, Hosur Cattle Farm.              | (A) 1,646.41      | 1,192.99           | To produce pedigree bulls for supply to districts and to do research work.           | Scindhi<br>Kangayam<br>Gir<br>Crossbred<br>Hallikar<br>Murrah | 10<br>5<br>2<br>..<br>..<br>2       | 134<br>127<br>31<br>..<br>..<br>.. | 312<br>252<br>84<br>38<br>..<br>1 | 62<br>42<br>3<br>3<br>..<br>..            | 28<br>15<br>1<br>..<br>5<br>.. | 50<br>7<br>5<br>..<br>3<br>.. | 3,811.0<br>1,625.0<br>4,454.0<br>3,893.0<br>..<br>.. | 290<br>248<br>316<br>303<br>..<br>..   | 104<br>177<br>124<br>134<br>..<br>.. |  |
| 2 District Live-stock Farm, South Kanara.                     | 760.0             | 550.0              | To improve livestock of the district.                                                | Scindhi<br>Gir<br>Local<br>Murrah<br>Dharwar                  | 2<br>1<br>1<br>1<br>1               | 19<br>4<br>26<br>56<br>6           | 42<br>13<br>39<br>73<br>5         | 14<br>2<br>..<br>2<br>..                  | 1<br>..<br>1<br>..<br>..       | 1<br>..<br>1<br>..<br>..      | 4,635.2<br>4,386.5<br>467.8<br>3,917.8<br>2,438.4    | 302<br>324<br>224<br>299<br>289        | 76<br>83<br>96<br>118<br>114         |  |
| 3 District Live-stock Farm, Malabar.                          | 381.28            | 157.92             | Do.                                                                                  | Scindhi<br>Kangayam<br>Murrah<br>Dharwar                      | 3<br>..<br>2<br>1                   | 7<br>3<br>29<br>6                  | 8<br>..<br>41<br>5                | 5<br>..<br>5<br>..                        | 3<br>..<br>6<br>..             | 1<br>..<br>..<br>..           | 3,322.1<br>4,247.0<br>2,688.0<br>..                  | 311.3<br>355.6<br>301.3                | 68.0<br>135.5<br>115.0               |  |
| 4 District Live-stock Farm, Pudukkottai.                      | (B) 9.26          | 6.28               | To improve the live-stock of the district and to run a small scale dairy farm.       | Scindhi<br>Kangayam<br>Crossbred<br>Sahiwal<br>Murrah         | 3<br>5<br>..<br>..<br>4             | 13<br>26<br>7<br>2<br>..           | 25<br>47<br>11<br>3<br>..         | 2<br>5<br>..<br>3<br>..                   | ..<br>1<br>..<br>..<br>..      | ..<br>..<br>..<br>..<br>..    | 3,643.0<br>1,931.0<br>3,301.0<br>3,085.0<br>..       | 308.0<br>287.0<br>294.0<br>325.0<br>.. | 219<br>246<br>122<br>293<br>..       |  |
| 5 District Live-stock Farm, Orathanad.                        | 278.5             | 115.3              | To improve the live-stock of the district, and to supply Unblachery bulls to Public. | Scindhi<br>Sahiwal<br>Umblachery<br>Murrah                    | 1<br>..<br>1<br>1                   | 10<br>..<br>16<br>29               | 20<br>..<br>42<br>19              | ..<br>..<br>..<br>..                      | ..<br>..<br>..<br>..           | ..<br>..<br>..<br>..          | 4,370.5<br>..<br>..<br>..                            | 355.0<br>..<br>..<br>..                | 102<br>..<br>..<br>..                |  |
| (A) This is the correct area. ✓ (B) This is the correct area. |                   |                    |                                                                                      |                                                               |                                     |                                    |                                   |                                           |                                |                               |                                                      |                                        |                                      |  |

(A) This is the correct area.

(B) This is the correct area.

TABLE XI (b).—Statement showing the location and other particulars of livestock farms in the State of Madras during the year 1954-55.

H.A.E.—11A

Sheep.

| Name and address of the farm.                    | Area of the farm. |                    | Purpose of the farm and flock.                                                                                                             | Breed.                                  | Strength of the flock in each breed. |       |        | Number of rams issued during. |            |                   | Average wool yield for the period. |       |        |  |  |
|--------------------------------------------------|-------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------|-------|--------|-------------------------------|------------|-------------------|------------------------------------|-------|--------|--|--|
|                                                  | Total.            | Under cultivation. |                                                                                                                                            |                                         | Rams.                                | Ewes. | Lambs. | Year report.                  | Last year. | Year before last. | Rams.                              | Ewes. | Lambs. |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         |                                      |       |        |                               |            |                   |                                    |       |        |  |  |
| (1)                                              | (2)               | (3)                | (4)                                                                                                                                        | (5)                                     | (6)                                  | (7)   | (8)    | (9)                           | (10)       | (11)              | (12)                               | (13)  | (14)   |  |  |
|                                                  | ACS.              | ACS.               |                                                                                                                                            |                                         |                                      |       |        |                               |            |                   |                                    |       |        |  |  |
| 1 Livestock Research Station, Hosur Cattle Farm. | Re- (a) 1,646.41  | 1,192.99           | To evolve white woolly sheep better in quality and quantity of fleece yield as well as in the carcass weight than the local Bellary sheep. | Bellary Bikanir Bellary Mandya Nilgiris | 6                                    | 10    | 6      | ..                            | 2          | 5                 | 3                                  | 1     | 10     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | 15                                   | 61    | 25     | 19                            | 8          | 6                 | 2                                  | 8     | 2      |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | 4                                    | 21    | 5      | 17                            | ..         | ..                | 3                                  | 11    | 2      |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | 24                                   | 75    | 49     | 12                            | ..         | ..                | 1                                  | 0 (B) | 8 (C)  |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | 2                             | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..     |  |  |
|                                                  |                   |                    |                                                                                                                                            |                                         | ..                                   | ..    | ..     | ..                            | ..         | ..                | ..                                 | ..    | ..</   |  |  |

(a) This is the correct area. (B) and (C) Hair yield. (D) Not shorn during the year.

TABLE XI (c).—Statement showing the location and other particulars of livestock farms in the State of Madras during the year 1954-55.

| Name and address of the farm.     | Area of the farm. |                    | Purpose of the farm and herd.                                                                                                    | Breed.         | Strength of the herd in each breed. |       |       | Number of bucks issued during. |            |                   | Average lactation yield for the herd. |               |           |
|-----------------------------------|-------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------|-------|-------|--------------------------------|------------|-------------------|---------------------------------------|---------------|-----------|
|                                   | Total.            | Under cultivation. |                                                                                                                                  |                | Bucks.                              | Does. | Kids. | Year report.                   | Last year. | Year before last. | Milk yield.                           | Days in milk. | Days dry. |
|                                   |                   |                    |                                                                                                                                  |                |                                     |       |       |                                |            |                   |                                       |               |           |
| (1)                               | (2)               | (3)                | (4)                                                                                                                              | (5)            | (6)                                 | (7)   | (8)   | (9)                            | (10)       | (11)              | (12)                                  | (13)          | (14)      |
|                                   | ACS.              | ACS.               |                                                                                                                                  |                |                                     |       |       |                                |            |                   | LB.                                   |               |           |
| District Livestock Farm, Malabar. | 381.28            | 157.92             | To determine the suitability of the Malabar goats to thrive in the local climatic and environmental conditions by pure breeding. | Malabar goats. | 3                                   | 30    | 69    | 6                              | 3          | 1                 | 345                                   | 183.8         | 72.2      |

Goats.

TABLE XI (d).—Statement showing the location and other particulars of livestock farms in the State of Madras during the year 1954-55.

Poultry.

| Name and address of the farm.                    | Area of the farm. |                    | Purpose of the farm and flock.                                                                                                                                                                                      | Breed.                                     | Number of birds in each breed. |              |                     | Number of cockerels issued for breeding during. |                 |                   | Number of hatching eggs sold during. |            |                   | Average egg yield per hen for the year. |
|--------------------------------------------------|-------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------|--------------|---------------------|-------------------------------------------------|-----------------|-------------------|--------------------------------------|------------|-------------------|-----------------------------------------|
|                                                  | Total.            | Under cultivation. |                                                                                                                                                                                                                     |                                            | Cocks.                         | Hens.        | Chicks.             | under Year report.                              | Last year.      | Year before last. | under Year report.                   | Last year. | Year before last. |                                         |
| (1)                                              | (2)               | (3)                | (4)                                                                                                                                                                                                                 | (5)                                        | (6)                            | (7)          | (8)                 | (9)                                             | (10)            | (11)              | (12)                                 | (13)       | (14)              | (15)                                    |
| 1 Livestock Research Station, Hosur Cattle Farm. | ACS. (A) 1,646.41 | 1,192.99           | To supply hatching eggs and breeding stock of exotic varieties to the public, poultry demonstration units, National Extension Service and Community Projects, etc., and to carry out research on poultry husbandry. | W.L.H. R.I.R. B.M.                         | 8 8 5                          | 35 38 19     | 109 191 62          | 8 8 5                                           | 18 25 7         | 7 11 4            | 2,325                                | 4,916      | 2,540             | 121.3 134.4 121.7                       |
| 2 Poultry Research Station, Madras.              | 9.98              | 100 cents.         | To do research work on poultry and to supply of birds and eggs.                                                                                                                                                     | W.L.H. R.I.R. B.M. L.S. B.L.H. Indigenous. | 3 7 3 1 3                      | 14 16 7 2 19 | 454 381 33 84 67 49 | 155 59 19 3 1                                   | 123 142 95 34 7 | 977               | 1,715                                | 1,776      | 5,197             | 106.0 104.3 62.8 104.5 5 86.8           |
| 3 District Livestock Farm, South Kanara.         | 780.0             | 550.0              | To Supply eggs, birds, etc., and do research on grading up of desi with Rhode Island Red and problems relating to high rain f.all areas.                                                                            | W.L.H. R.I.R. R.I.R. Desi cross. Desi      | 5 7 .. ..                      | 25 54 18 7   | 110 483 14 ..       | 261 518 5 ..                                    | 37 124 .. ..    | 15 39 .. ..       | 888                                  | 1,390      | 1,741             | 110 122 123 82                          |
| 4 District Poultry Farm, Cannanore.              | 28.33             | 1/2                | To supply eggs, birds etc. for improvement of poultry.                                                                                                                                                              | W.L.H. R.I.R.                              | 6 2                            | 69 22        | 210 73              | 112 9                                           | 112 21          | 65 ..             | 2,279                                | 6,734      | 2,224             | 97.57 85.86                             |
| (A) This is the correct area.                    |                   |                    | W.L.H.—White Leghorn. B.L.H.—Brown Leghorn. R.I.R.—Rhode Island Red.                                                                                                                                                |                                            |                                |              |                     |                                                 |                 |                   |                                      |            |                   | L.S.—Light Sussex.                      |

TABLE XII.—Performance of cows at the Livestock Research Station, Hosur Cattle Farm and District Livestock Farms for the year 1954-55 classified according to sires.

Particulars for 1954-55—Nil.

Statement showing the receipts and disposals of birds in poultry demonstration units in veterinary institutions for the year 1954-55.

| Location of unit. | Breed.                                        | Stock on 1st April 1954. | Received by hatch.    | Received from outside. | Sold for breeding. | Sold for table.       | Transfers.          | Deaths and destructions. | Stock on 31st March 1955. | Receipts. | Expenditure. |
|-------------------|-----------------------------------------------|--------------------------|-----------------------|------------------------|--------------------|-----------------------|---------------------|--------------------------|---------------------------|-----------|--------------|
| (1)               | (2)                                           | (3)                      | (4)                   | (5)                    | (6)                | (7)                   | (8)                 | (9)                      | (10)                      | (11)      | (12)         |
| 1 Kancheepuram    | R.I.R. ..<br>Desi. ..                         | 23<br>4                  | 14                    | 6<br>4                 | ..                 | 25<br>7               | ..                  | 10                       | 8<br>1                    | 171 12 9  | 388 3 9      |
| 2 Kaliyampundi    | R.I.R. ..<br>Desi. ..                         | 7<br>1                   | 36                    | ..<br>8                | ..                 | 1<br>5                | ..                  | 23<br>1                  | 19<br>3                   | 83 4 0    | 161 7 3      |
| 3 Ranipet         | W.L.H. ..                                     | ..                       | 76                    | 6                      | 12                 | ..                    | ..                  | 28                       | 42                        | 81 3 0    | 230 2 7      |
| 4 Cuddalore       | W.L.H. ..                                     | 22                       | 29                    | ..                     | 3                  | 3                     | ..                  | 31                       | 14                        | 169 7 0   | 158 5 0      |
| 5 Kallakurichi    | B.M. ..                                       | 28                       | 109                   | ..                     | 71                 | 1                     | ..                  | 47                       | 18                        | 458 14 0  | 371 7 0      |
| 6 Tanjore         | B.M. ..<br>Desi. ..                           | 48<br>6                  | 71                    | 28                     | ..                 | 70                    | 15                  | 7                        | 55<br>6                   | 628 8 0   | 387 5 9      |
| 7 Nagapattinam    | R.I.R. ..<br>Desi. ..                         | ..<br>..                 | 28                    | 15<br>4                | ..                 | ..                    | ..                  | 1                        | 42<br>4                   | 67 0 0    | 102 13 8     |
| 8 Tallakulam      | W.L.H. ..                                     | 61                       | 62                    | ..                     | 36                 | ..                    | ..                  | 31                       | 56                        | 651 6 0   | 584 12 6     |
| 9 Periakulam      | B.M. ..                                       | 36                       | 44                    | ..                     | 15                 | 4                     | ..                  | 5                        | 56                        | 362 12 0  | 320 9 2      |
| 10 Kodaikanal     | R.I.R. ..                                     | 10                       | 8                     | 2                      | 3                  | ..                    | ..                  | 10                       | 7                         | 167 8 0   | 192 6 4      |
| 11 Devakottai     | R.I.R. ..<br>Desi. ..                         | 12<br>..                 | 17                    | 1<br>2                 | ..                 | 6                     | ..                  | 5                        | 19<br>2                   | 105 4 0   | 143 0 0      |
| 12 Tirunelveli    | R.I.R. ..<br>Desi. ..                         | 47<br>2                  | 30                    | 3                      | ..                 | 31                    | ..                  | 18                       | 31<br>2                   | 467 2 0   | 340 14 3     |
| 13 Pollachi       | R.I.R. ..<br>W.L.H. ..<br>B.M. ..<br>Desi. .. | 71<br>1<br>..<br>3       | 108<br>14<br>25<br>.. | 3<br>..<br>..<br>..    | ..                 | 122<br>11<br>23<br>.. | ..<br>1<br>..<br>.. | 7<br>3<br>2<br>..        | 53<br>..<br>..<br>3       | 713 2 0   | 643 4 0      |

# ADMINISTRATION REPORT OF THE

|               |                       |               |       |         |       |         |     |     |         |            |            |
|---------------|-----------------------|---------------|-------|---------|-------|---------|-----|-----|---------|------------|------------|
| 14 Coonoor    | B.M. ..<br>Desi. ..   | 88<br>7       | 51    | 8       | ..    | 101     | 7   | 12  | 27<br>5 | 592 7 0    | 653 12 8   |
| 15 Ootacamund | W.L.H. ..<br>Desi. .. | 33(C)<br>6(C) | 29    | 32      | ..    | 24<br>4 | 26  | 9   | 35<br>1 | 376 8 0    | 518 1 0    |
| 16 Erode      | W.L.H. ..             | 154           | 713   | 49      | 666   | ..      | 34  | 32  | 184     | ..         | ..         |
| 17 Tiruppur   | R.I.R. ..             | 76            | 194   | ..      | 175   | ..      | 12  | 3   | 80      | 3,154 10 0 | 3,741 11 2 |
| 18 Dharpuram  | W.L.H. ..             | 87            | 382   | ..      | 258   | ..      | 81  | 19  | 111     | ..         | ..         |
| 19 Salem (B)  | W.L.H. ..<br>Desi. .. | 6<br>..       | ..    | 11      | ..    | 11      | ..  | 6   | ..      | 55 4 0     | 18 2 4     |
| 20 Mangalore  | R.I.R. ..<br>Desi. .. | 49<br>..      | 24    | 9       | ..    | 39      | ..  | 2   | 41<br>3 | 343 8 0    | 423 6 3    |
| 21 Kozhikode  | R.I.R. ..<br>Desi. .. | 28<br>..      | 27    | ..<br>5 | 9     | ..      | ..  | 14  | 32<br>4 | 340 2 0    | 402 2 3    |
| Total         |                       | 916           | 2,091 | 199     | 1,248 | 488     | 176 | 330 | 964     | 8,989 9 9  | 9,861 0 1  |

R.I.R.—Rhode Island Red.

W.L.H.—White Leghorn.

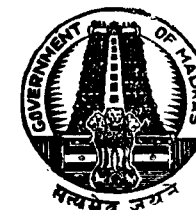
B.M.—Black Minorca.

N.R.—Non-recurring.

(B) Closed.

(C) The present figures are correct.

**MISCELLANEOUS**



AGRICULTURE DEPARTMENT

**G.O. No. 2767, 28th November 1955**

Administration Report, 1954-55—Animal Husbandry Department—Recorded with remarks.

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READ—the following paper:—

Letter from the Director of Animal Husbandry, dated 19/27th August 1955 and 10th September 1955, Roc. No. 119-H/55.

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**Order—No. 2767, Agriculture, dated 28th November 1955.**

The Report on the working of the Animal Husbandry Department for 1954-55, submitted by the Director of Animal Husbandry with the reference cited, is recorded with the following remarks.

**2. Administration.**—(a) The strength of the gazetted posts in the Madras Animal Husbandry Department on 31st March 1955 was 56 as against 52 at the commencement of the year and that of Veterinary Assistant Surgeons 374 as against 289. Five gazetted posts were created during the year of which one was not filled up.

(b) During the year, Shri M. C. Chellam, District Veterinary Officer, was deputed for a year's training in Sweden in theoretical and practical obstetrics and animal gynaecology including artificial insemination. Shri G. B. Radhakrishnan deputed to New Zealand for training in livestock improvement under the Commonwealth Technical Co-operation Scheme, returned during the year after completion of training.

**3. Veterinary Education.**—(a) The number of admissions to the B.V.Sc. course was 80 of which 47 candidates belonged to the Madras State. There was a fall in the number of applications for admissions when compared with that of last year. The two-years' Veterinary and Livestock Inspectors' Course admission to which was kept in abeyance from 1953-54 came to a close in June 1954. But in its place a new short-term course called the stockmen course of 11 months' duration was started in August 1954. The number of admissions to this course fixed originally at 40 was subsequently increased to 55 during the year. The Refresher course and the Flaying course were both continued during the year under review.

(b) One member of the staff of the College was awarded the M.Sc. degree by the Madras University.

## Statement showing the receipts and disposal of eggs in the poultry units in veterinary institutions for the year 1954—55.

| Location of unit. | Breed.    | Balance of eggs on hand on 1st April 1954. | Number of eggs.        |            |                    |                 |                   | Balance of eggs on hand on 31st March 1955. |
|-------------------|-----------|--------------------------------------------|------------------------|------------|--------------------|-----------------|-------------------|---------------------------------------------|
|                   |           |                                            | Received from outside. | Collected. | Sold for hatching. | Sold for table. | Set for hatching. | Transferred.                                |
| (1)               | (2)       | (3)                                        | (4)                    | (5)        | (6)                | (7)             | (8)               | (9)                                         |
| 1 Kancheepuram    | R.I.R. .. | 14                                         | ..                     | 613        | 249                | 324             | 43                | 2                                           |
|                   | Desi. ..  | ..                                         | ..                     | 45         | ..                 | 10              | ..                | 35                                          |
| 2 Kaliampoondi    | W.L.H. .. | 1                                          | ..                     | ..         | ..                 | ..              | ..                | 1                                           |
|                   | R.I.R. .. | ..                                         | ..                     | 563        | 170                | 274             | 110               | 9                                           |
|                   | Desi. ..  | ..                                         | ..                     | 34         | ..                 | 13              | ..                | 21                                          |
| 3 Ranipet         | W.L.H. .. | ..                                         | ..                     | 620        | 146                | 271             | 140               | 52                                          |
| 4 Cuddalore       | W.L.H. .. | 8                                          | ..                     | 557        | 489                | 6               | 70                | ..                                          |
| 5 Kallakuriobi    | B.M. ..   | 61                                         | ..                     | 2,072      | 462                | 1,266           | 234               | 140                                         |
| 6 Tanjore         | B.M. ..   | 7                                          | ..                     | 2,568      | 1,657              | 273             | 156               | 477                                         |
| 7 Nagapattinam    | R.I.R. .. | ..                                         | ..                     | 304        | 218                | 12              | 44                | 21                                          |
|                   | Desi. ..  | ..                                         | 124                    | ..         | ..                 | 115             | ..                | 9                                           |
| 8 Tallakulam      | W.L.H. .. | 38                                         | ..                     | 2,613      | 1,921              | 229             | 177               | 310                                         |
| 9 Periakulam      | B.M. ..   | ..                                         | ..                     | 1,135      | 906                | 120             | 94                | 2                                           |
| 10 Kodaikanal     | R.I.R. .. | 28                                         | ..                     | 647        | 544                | 52              | 30                | 43                                          |
| 11 Devakottai     | R.I.R. .. | 7                                          | ..                     | 340        | 240                | 69              | 33                | ..                                          |
|                   | Desi. ..  | ..                                         | 25                     | ..         | ..                 | 25              | ..                | ..                                          |
| 12 Tirunelveli    | R.I.R. .. | 7                                          | ..                     | 1,190      | 1,021              | 86              | 56                | 28                                          |
|                   | Desi. ..  | ..                                         | ..                     | 185        | ..                 | 181             | ..                | ..                                          |
| 13 Pollachi       | R.I.R. .. | 26                                         | ..                     | 1,495      | 794                | 283             | 341               | 86                                          |
|                   | Desi. ..  | ..                                         | ..                     | 51         | ..                 | 45              | ..                | ..                                          |
| 14 Ocooor         | B.M. ..   | 67                                         | ..                     | 1,886      | 1,566              | 160             | 93                | 72                                          |
|                   | Desi. ..  | ..                                         | ..                     | 54         | ..                 | 31              | ..                | 23                                          |
| 15 Octacammund    | W.L.H. .. | 3                                          | ..                     | 1,592      | 1,015              | 305             | 107               | 64                                          |
|                   | Desi. ..  | 2                                          | ..                     | 173        | ..                 | 81              | ..                | 18                                          |
|                   | Total     | 539                                        | 924                    | 33,940     | 16,990             | 10,118          | 3,970             | 2,813                                       |
|                   |           |                                            |                        |            |                    |                 |                   | 975                                         |
|                   |           |                                            |                        |            |                    |                 |                   | 537                                         |

(A) Closed in August 1954.

B.M.—Black Minorca.

W.L.H.—White Leghorn.

R.I.R.—Rhode Island Red.

V. R. RAJAGOPALAN,  
Director of Animal Husbandry.

MADRAS,  
19th August 1955.

|               |           |     |     |        |        |        |       |       |     |     |
|---------------|-----------|-----|-----|--------|--------|--------|-------|-------|-----|-----|
| 16 Erode      | W.L.H. .. | 182 | 775 | 3,683  | 1,323  | 1,593  | 1,108 | 567   | ..  | 49  |
| 17 Tiruppur   | R.I.R. .. | 44  | ..  | 3,230  | 974    | 1,654  | 401   | 154   | ..  | 91  |
| 18 Dharapuram | W.L.H. .. | 12  | ..  | 5,123  | 1,023  | 2,070  | 584   | 562   | 775 | 121 |
| 19 Salem (A)  | W.L.H. .. | 2   | ..  | 110    | 23     | 80     | 9     | ..    | ..  | ..  |
| 20 Mangalore  | R.I.R. .. | 15  | ..  | 1,726  | 1,066  | 454    | 50    | 85    | ..  | 86  |
| 21 Kozhikode  | R.I.R. .. | 10  | ..  | 1,331  | 1,183  | 36     | 90    | 32    | ..  | ..  |
|               | Total     | 539 | 924 | 33,940 | 16,990 | 10,118 | 3,970 | 2,813 | 975 | 537 |

(c) The foundation stone of the open-air theatre for the College was laid by Shri Ajit Prasad Jain, Union Minister for Food and Agriculture, on the Annual Sports Day of the College.

(d) The College continued to provide laboratory facilities for examination of clinical specimens sent by institutions in the mufassal. There was a fall in the receipt of the specimens from Andhra State.

(e) The Madras Veterinary College completed 50 years of useful service and the Golden Jubilee of the College was celebrated in a befitting manner from the 17th to 19th January 1955, the function being presided over by the Governor of Madras and inaugurated by the Prime Minister of India. A livestock show and exhibition was held and a Souvenir was published to celebrate the occasion.

4. The Institute of Veterinary Preventive Medicine.—The name of the institute was changed during the year under report from "The Veterinary Biological and Research Institute" to "The Institute of Veterinary Preventive Medicine". The Institute continued to engage itself in the production of sera and vaccines. The freeze dried rinderpest vaccines and other vaccines produced at the Institute were being tested at the Institute for viability and potency. The use of freeze dried goat tissue rinderpest vaccine for protecting livestock against rinderpest was started in the place of the old anti-rinderpest serum and goat blood virus, as the former was found to produce only a mild reaction and a durable immunity. In addition to meeting the needs of this State as well as Andhra State, the Institute supplied biological products to other neighbouring States during the year.

5. Livestock farms.—The Government have passed orders on the recommendations in the report of Sri W. R. S. Sathianadhan, I.C.S., The Director of Animal Husbandry is requested to give effect to them. A few salient features in the working of the Livestock farms call for the following remarks:—

(a) The total mortality in all the Livestock farms was less than that of the previous year. Mortality figures for South Kanara however continues to be high, namely, 9.2 per cent, though it is less than that of the previous year. It is stated that such a comparatively high rate of mortality in this farm was due to the peculiar climate of the locality and that measures are being adopted to control mortality in young stock of buffaloes. The investigation should be continued and steps taken to bring it down.

(b) During the year under review, a larger number of bulls were issued for stud purposes throughout the State for development schemes and other livestock improvement schemes. It is noteworthy that the number of bulls issued for distribution from all the farms, is comparatively greater than in any of the previous years. This, with the systematic culling of uneconomic and unwanted animals, kept the number of animals in the farms low, to the advantage of the rest of the herd in the farms.

(c) There was a fall in the average milk yield of cross-breeds in the Livestock Research Station, Hosur, of all breeds in the District Livestock Farm, South Kanara, of the murrh in the District Livestock Farm, Malabar, and of the Sahiwal and other cross-breeds at the District Livestock Farm, Pudukkottai. The average yield of the Umblacheri breed at the Orthanad farm is also quite low. Steps should be taken not only to arrest the deterioration in the yield, but also to eliminate avoidable causes for the large variations in the yields. No fodder was purchased during the year for the Hosur Livestock Farm. But the Livestock Farms at Pudukkottai and Orthanad have still not acquired self-sufficiency in fodder. As pointed out in the previous year's review, the Director of Animal Husbandry should take adequate steps to make these farms self-sufficient in fodder.

(d) The Kangayam Cattle Improvement Scheme which has been functioning at the Palayakottai farm from 1942 has been extended for a period of three years from 1954. But the daily individual average yield is still quite low, i.e., 5.5 lb. though there has been a slight increase when compared with that of the previous year, viz., 5 lb. It should be reviewed whether the scheme is worth continuing and if so what improvements should be made in the technique.

(e) The receipts in all the farms are still much below the expenditure incurred on them. Endeavours should be made to make the farms as far as possible self-supporting.

6. Breeding Schemes and Key Village Plans.—(a) The Key Village Scheme is further expanded during the year. In addition to the 7 Key Village Centres which were functioning at the commencement of the year, 2 Key Village Centres were opened during the year under report. At the end of the year there were 9 Key Village Centres with 36 Key Villages attached to them. The number of artificial inseminations carried out in these centres has shown an appreciable increase over that of the previous year. In addition, the 6 Key Farm Centres in private institutions also continued to function during the year. The number of artificial inseminations carried out in all these centres except the centres of Madras, Coimbatore and Palayakottai has increased, the total number of inseminations being 32,525 as against 21,294 of the previous year.

(b) The salvage farm for dry cows at Kambakkam, Chingleput district, did not attract as many cows as it did last year. One hundred and ninety-five animals were salvaged and returned to their owners during the year as against 254 of the previous year thereby registering a fall of 23 per cent. The cause for the decline in the popularity of the salvage farm should be investigated and reported to Government. Steps should also be taken to give greater publicity to the working of this farm, so that more livestock owners in Madras City could take advantage of the facilities offered there, for proper care of cows during their unproductive periods.

(c) During the year under the financial assistance offered by the Government of India a calf subsidy scheme was sanctioned and a subsidy of Rs. 5 per calf were given to a total number of 147 calves in selected Key Village Centres.

(d) One other new scheme taken up for implementation during the year was the cross-breeding scheme for cattle in the hilly and heavy rainfall areas. This is at present being tried in the Ootacamund area from January 1955. It is too early to assess the results of the working of the scheme.

(e) There were eight co-operative cattle breeding societies in the State though one society did not function during the year (South Kanara Cattle Improvement Association). Only the societies at Madurai, Anchetti and Mecheri, seem to have done some substantial work in the matter of livestock improvement. The Director of Animal Husbandry should in consultation with the Registrar of Co-operative Societies see that the existing societies are revitalised and that new societies are opened in other districts also.

(f) The premium scheme, malestock distribution scheme, the District Board Scheme, etc., continued to function during the year. Though there has been an increase in the number of bulls maintained and distributed under these various schemes the services performed are less than that of the last year. The reasons for the fall should be investigated. Besides, these schemes, a number of bulls were purchased during the year under the Local Development Scheme in the rural development areas.

7. Sheep and goats.—(a) The sheep farm at Ootacamund continued to fare well during the year, the number of animals at the end of the year being 475 as against 394 at the beginning. The position in respect of the sheep section, in the

Livestock Research Station, Hosur, is however disappointing. The mortality among the flock at the Livestock Research Station, Hosur, has shown further increase during the year, despite the instructions issued in the last year's review to take timely measures to investigate and control the incidence of deaths due to anaemia and debility. Investigation into this has already been taken up by the Government separately. As regards the mortality among the goats maintained at the District Livestock Farm, Malabar, there has been an improvement over that of last year. The scheme for the improvement of milch goats in South Kanara district was also in progress and preliminary survey indicates that the progeny of the distributed bucks have given more yield than their dams.

(b) Sheep shearing and demonstration units continued to function satisfactorily at Coimbatore, Cuddalore and Madurai.

8. *Poultry.*—(a) Poultry breeding has gained importance during the year as the work on the Government farms are not quite satisfactory. Exotic breeds of poultry were continued to be reared in the Poultry Research Station, Madurai in the Poultry Farm, at Cannanore, in the units attached to the District Livestock Farms at Koila and Hosur, and in the Veterinary institutions where poultry breeding and demonstration is being carried on. The mortality of birds in the Hosur Cattle Farm was still alarmingly high and is attributed to the spread of Avian Leucosis. The mortality of the birds in the District Poultry Farm, Cannanore, was also very high which is stated to be due to paralysis among chicks. Unless special and effective steps are taken to control the diseases in both these farms the position will get worse. The average egg yield of Rhode Island Red at the District Poultry Farm, Cannanore, is very poor. The Director of Animal Husbandry has not indicated whether any research has been done at the Livestock Research Station, Hosur and whether any breeding and distribution programme has been drawn up for each station as suggested in the previous review.

(b) The receipts at the District Poultry Farm, Cannanore, were less this year. This is said to be due to the lesser number of birds again available for sale.

(c) Twenty-two Poultry Units were maintained in the different veterinary institutions in this State and one experimental poultry unit was opened at Androth Island.

9. *Cattle shows and propaganda.*—Ninety-six cattle shows, 13 calf rallies, 1 sheep and goat shows were held during the year. The department participated in 13 exhibitions and the exhibition at the Madras Veterinary College was opened by the Prime Minister of India. As pointed out in the last year's report, the Animal Husbandry staff should carry on extension schemes in the villages, and in the city for the milk producers, by holding meetings, distributing leaflets and exhibiting film shows wherever possible.

10. *Livestock Improvement Board Meetings.*—The 32nd and 33rd meetings of the State Livestock Improvement Board were held at Hosur on 20th June 1955 and at Idayakottai on 2nd February 1955 respectively and various important subjects were discussed. Action has been taken on all the recommendations of the Board as far as possible.

11. *Veterinary hospitals and dispensaries.*—(a) The Veterinary hospitals attached to the Madras Veterinary College continued to do good work. There were 94 Veterinary institutions in the State at the end of the year excluding minor Veterinary dispensaries. The Corporation of Madras maintained four dispensaries in the city.

(b) Seven new touring billets were opened during the year. At the end of the year, there were 23 touring billets and 67 minor veterinary dispensaries in the State. The number of castrations done at these institutions has shown a fall this year, the reasons for which should be investigated.

12. *Disease investigation and research.*—The number of deaths from various contagious diseases has increased during the year under review. Several departments of Madras Veterinary College were engaged in the various researches in their respective fields. As directed in the last year's review Nutrition section did not take up investigation of the nutritive value of different varieties of grasses and the prescription of an adaptable schedule of rations for cattle for different periods and under different conditions. The Director of Animal Husbandry should see that necessary action is taken.

13. *National Extension Service and Community Project.*—The Animal Husbandry extension officers in the selected blocks carried out substantial work in respect of breeding and Veterinary activities and in the prevention of diseases. As pointed out in the previous year's review the development of dairying in rural development units should be encouraged.

14. *Veterinary Council.*—The Government have ordered the opening of an interim authorised register of all Veterinary practitioners and the first batch of 401 Veterinary practitioners have been registered. Steps have been taken to bring forward legislation for registration of Veterinary practitioners.

15. *Statistics.*—Statistics section started functioning from 26th May 1955 and the preliminary work on the collection of data in all the Livestock Farms in this State was undertaken to evolve the standard basis with which the production capacity, etc., of each breed in different lactations could be evaluated. On the disease side also investigations have been carried out to forecast the diseases in advance. The investigations should be extended to the yields of sheep and poultry also. The work in the evaluation of achievements of livestock farms should be expedited.

16. *Five-Year Plan.*—The following are the important schemes included in the Plan: "Opening of more Veterinary dispensaries and touring billets; establishment of clinical laboratories; improvement of Institute of Veterinary Preventive Medicine; distribution of malestock; expansion of Key Village Scheme Artificial Insemination Centres; starting of poultry demonstration units. The progress of the schemes was satisfactory.

17. *Finances.*—The receipts of the department continued to be poor and require to be improved.

18. *General.*—The record of work during the year under review was on the whole satisfactory. There is however considerable scope for reducing the mortality of cattle and poultry in livestock and poultry farms and increasing the milk and egg yields by paying greater care and better management. As pointed out in the previous report, greater attention should be paid to extension work for the benefit of small cattle owners. Sheep breeding should be encouraged in favourable tracts, greater importance should be attached to milk production round urban areas particularly by introducing cross-breed animals and heavy yielders and encouraging the growing of suitable grasses. One disconcerting feature which has been observed is the lack of co-ordination between the livestock, and the disease investigation staff on one side and the Biological Institute and the Veterinary College. The result is that breeding and nutrition policies continue to be empirical and not much research is brought to play on such problems. Similarly problems of animal health like environmental hygiene, disease prevention and cure are treated apart and not as an integral part of the livestock improvement.

The Government trust that this co-ordination will be effected very soon so that the large schemes for livestock improvement and Veterinary research to be worked under the Second Five-Year Plan will yield better results and contribute to a successful and efficient animal husbandry in the State.

(By order of the Governor)

T. K. SANKARAVADIVELU,  
Secretary to Government.

To the Director of Animal Husbandry.

- .. Secretary, Ministry of Food and Agriculture, Government of India, New Delhi.
- .. Secretary, Industries, Co-operation and Labour Department, Government of Andhra, Kurnool.
- .. Secretary, Indian Council of Agricultural Research, New Delhi.
- .. Director of Agriculture, Madras.
- .. Commissioner of Food Production, Madras.
- .. Director, Community Project.
- .. Director, Rural Welfare.
- .. Registrar of Co-operative Societies.
- .. Board of Revenue.
- .. Director of Information and Publicity.
- .. Controller of Stationery and Printing.

Public (R.D.P.) Department.

Public (Information and Publicity) Department.

Industries, Labour and Co-operation Department.

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