

செப்பனிடவதற்காக எடுத்திக
 கொள்ளப்பட்ட
 மார்ச்சு மாதம் 1900 வருடம்
 செப்பனிட முடித்த
 மார்ச்சு மாதம் 1900 வருடம்
 கிராமச்சி உதவியாளன்
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REPORT ON THE OPERATIONS OF THE DEPARTMENT OF AGRICULTURE,

MADRAS PRESIDENCY.

FOR THE OFFICIAL YEAR

1902-1903.

REPORT

ON THE

OPERATIONS OF THE DEPARTMENT OF AGRICULTURE

FOR

1902-1903.

I.—PREFATORY.

The post of Director of Agriculture was held by the Hon'ble Mr. Atkinson in the first week of April 1902 and then by Sir F. Nicholson till the 4th November 1902, when he went on privilege leave, on the expiry of which he was placed on special duty. The Hon'ble Mr. Weir was in charge of the Department for the remainder of the year. Mr. Benson, the Deputy Director, continued to do duty till the 4th October 1902, when he went on nine months' leave, the Sub-Assistant Director, M.R.Ry. C. K. Subba Rao, being in charge of his office. The office of the Superintendent, Civil Veterinary Department, was held throughout the year by Veterinary-Major Gunn, and that of the Government Botanist by Mr. Barber.

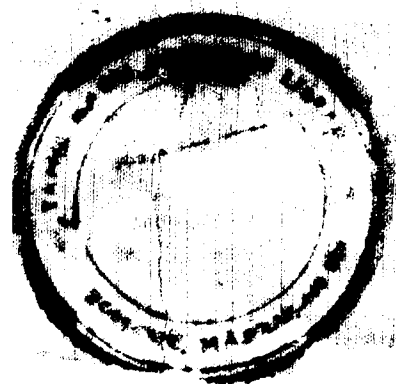
2. In July and August 1902 Sir F. Nicholson was on tour in the Salem and Coimbatore districts to inspect the Barur Tank Project and examine the programmes of famine-relief works. In March 1903 the Hon'ble Mr. Weir inspected the Koilpatti farm and thence proceeded to Tinnevely to ascertain whether a Veterinary dispensary could be established at the place. Mr. Benson inspected the experimental farms at Bellary and Koilpatti frequently and the Samalkot farm in September 1902. M.R.Ry. Subba Rao besides visiting the said farms and the Government fibre plantation at Hindupur from time to time, was frequently on tour in several districts to ascertain the native methods of reclaiming saline soils. Towards the close of the year, he accompanied the Inspector-General of Agriculture in his tour of agricultural enquiry through Southern India.

II.—SCIENTIFIC AND NATIONAL ENQUIRY UNDER IMPERIAL DIRECTION.

3. *Geology*.—The annual report has not yet been received from the Director Geological Survey.

4. *Chemistry*.—Dr. Leather's report shows that during his stay at Saidapet he did not perform any analytical work.

5. *Entomology*.—Specimens of locusts which appeared in the Bellary and Tanjore districts were sent to the Superintendent, Indian Museum, who found that those from the former district belonged to the species *Acridium Succinctum* Linn which was frequently reported as doing damage to crops in the Deccan. The specimens from Tanjore were identified as belonging to the species *Hieroglyphus furcifer* Sauss, family *Acrididae*. The Superintendent suggested poisoning by means of traps, the leaves of any plant to which the insects are partial being suitably poisoned and scattered through affected tracts. Caterpillars which caused damage to gingelly crops in the Madura district were examined and found to belong to the family *Aretidae*; but could not be exactly identified in the absence of the moths into which they transform. The Collector was unable to send specimens of the moths. Three kinds of



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insects which caused damage to the tobacco crop in the Tanjore district were examined by the Superintendent. One was identified as being the mole cricket belonging to the genus *Gryllotalpa* and species, probably, *Africana*. The Superintendent stated that the insects could be caught at lamps exposed at night in the fields and also in tobacco or other tins sunk into the soil till the edge is level with the ground, or lengths of the big bamboo with some water at the bottom if tins are not available. He also suggested the watering of the plants with a solution of soap in water (1 oz. to 1 gallon). The other insects were presumed to be grubs of a noctuid moth, but could not be determined without a specimen of the moth. Certain small insects found in patches on the leaves of the tobacco were *aphidæ*, *Plantice* and were sent to a specialist for determination. Spraying with London Purple or other arsenical poison was recommended as the treatment for the caterpillars and similar treatment with kerosine emulsion for the *aphidæ*.

6. *Imperial Institute*.—The department continued to supply specimens of economic products to the Reporter on Economic Products. Specimens of 34 articles were forwarded to him during the year, besides fifty baskets of living specimens of *dioscoreas* (yams). Other articles forwarded were seeds of certain local varieties of the indigo, for transmission to Japan for experimental cultivation; dried leaves of *Cassia Montana* on the requisition of the Reporter on Economic Products who wished to determine whether the plant represents a species cultivated as a possible substitute of *Senna* (*Cassia angustifolia*) and specimens of carved coconuts from Miniooy.

7. At the instance of the Inspector-General of Agriculture enquiries have been started regarding (1) the various methods of increasing fodder supplies and (2) natural vegetable foods gathered and used by poor people especially in years of scarcity or famine. Reports are being received from district officers and will be dealt with in due course.

III.—SCIENTIFIC AND LOCAL ENQUIRY UNDER PROVINCIAL DIRECTION.

8. Four agricultural probationers were appointed during the year, two of whom were deputed to Bombay to receive practical training in the farms worked in that Presidency. The two experimental farms at Bellary and Koilpatti continued to work during the year.

9. At the former place the farm has been thoroughly cleaned and every field made accessible to cart. It was enclosed with a wire fence to prevent cattle trespass and the farm buildings were all finished. Owing to heavy rain the yield of the several varieties of early *sorghum* was poor; but the crops of white cholam, cotton, Italian millet and Bengal—gram did well. The outturn of the first three grown on the plots intended for experimental tillage and manuring, though more uniform than in the previous year, was not sufficiently so to allow of the commencement of the experiments. Thirty-nine varieties of cotton forwarded by the Inspector-General of Agriculture and a local variety were dibbled in plots varying from 6 to 10 cents. Four of them did not germinate; 14 varieties did very well and yielded not less than 50 lb. of lint per acre. The other varieties grew sparsely, the growth of individual plants being, however, generally good. Cotton was also sown on 23.87 acres in the usual way by the drill and yielded on an average 133 lb. of seed-cotton per acre equivalent to 33 lb. lint. The question of hybridizing the South Indian varieties with imported and other superior varieties is engaging attention. The vines of three varieties of American sweet potato, viz., Virginia, Nanseimond, and New Jersey were forwarded by the Director of Agriculture, Bombay; but they were received so late as the 1st December in a rather fermented condition. Only the Nanseimond variety sprouted; but it was eaten up by *harm*. Cattle manure was collected according to the local method and the byre and *lass*-box systems.

10. At the Koilpatti farm, there was drought during the south-west monsoon, followed by heavy rain in the north-east monsoon. The black soil was eroded in many places and nearly a fourth of the red soil block was submerged by a neighbouring tank. When the rains ceased, there was keen competition for skilled labour and building work was much retarded. The Inspector's quarters were, however, finished before the close of the year, though the roofing of the outhouse remained to be done.

Owing to excessive rain, the crops practically failed, but cotton sown at the end of October grew fairly well. Fodder cholam yielded well, the outturn being nearly a ton per acre. The cultivation of ragi was instructive. Twenty cents of land were laid out into ridges and furrows and the seedlings were planted on the ridges, while 80 cents were laid out into flat beds as usual. In spite of the rain, the crop on the ridges gave an outturn of 925 lb. of grain and 3,005 lb. of straw per acre against 640 lb. of grain and 3,380 lb. of straw per acre from ragi planted on flat beds. One acre of poor soil was manured with 600 cart-loads of tank silt and yielded 818 lb. of grain and 3,075 lb. of straw, while on a plot of unmanured land planted at the same time, the outturn was 515 lb. of grain and 2,010 lb. of straw. Sweet potatoes were planted on 10 cents and yielded notwithstanding the adverse nature of the season at the rate of $3\frac{1}{2}$ tons of good tubers worth Rs. 63 and nearly $6\frac{1}{2}$ tons of vines fit for stock consumption per acre. When the tubers began to form, the vines were lifted in accordance with the suggestion of the Inspector-General, in order to prevent them from striking root at too many places and forming numerous thin tubers instead of a smaller number of well-developed ones. During the current year the advantage of lifting the vines will be tested by planting two plants of equal size and quality. Mango, jack, guava, pumplemoose, pomegranates, satghur oranges, lemons, custard apples and figs have been planted and about 300 coconuts were planted in a nursery for forming a plantation. Most of them have sprouted.

11. *Samalkot experimental station*.—As stated in paragraph 13 of the previous year's report, this farm was opened for experimental cultivation of sugarcane in order to facilitate the investigation of the precise nature and mode of propagation of sugarcane disease. Fourteen varieties were cultivated, seven being local varieties and the remaining seven having been obtained from outside the district, principally from Poona. Owing to late arrival of instructions there was not time for preparing the land and the plants were put in a month too late. The season was a trying one, there being a prolonged drought followed by heavy rains. But much attention was paid to the matter of thorough drainage with the result that the plantation as a whole was the best in the neighbourhood. Owing to changes in the character of the soil even in the same field and to differences in level, there was considerable variation in the growth of the canes in different parts. The crop was cut in March 1903 and the varieties grown were analysed by the Chemist of Messrs. Parry & Co.'s Sugar Factory at Samalkot. The results obtained from the foreign canes were on the whole inferior to those of the local ones; but it is probable that the new kinds will take a year or two to declare their true value. Owing to the inequality in growth of the introduced kinds it was impossible to obtain comparative yields per acre. All the varieties grown have been replanted and to these nine acclimatised Mauritius canes from the Vizianagram plantation have been added. There are now sixty plots planted containing over 100 experiments against 38 plots in the last season. The health of the canes was on the whole good; but certain diseases were noticed in the canes introduced from Poona. The two most serious diseases were a smut, which affected five plots, and secondly a large coccid which appears to be new to this country. It was at first considered to be new to science but has since been identified. For these and other reasons it was decided not to distribute cane to the ryots, though in two cases 1,500 sets were entrusted to cultivators under written agreements that they should not use them for planting purposes next year without the consent of the Government Botanist. Paddy being the chief crop of the delta, it was thought worth while to introduce a short sixty-day variety from Tanjore, so that two crops could be taken off in the season instead of one. Three quarters of an acre were accordingly planted with this variety as first crop and successfully reaped, and then a second crop was raised on the same land.

12. *Durian plants*.—In paragraph 23 of the report for 1900-1901 it was stated that 150 durian seedlings were received from the Agri-Horticultural Society and distributed to certain officers for experimental cultivation. From reports obtained during the year it was ascertained that owing to want of attention to the conditions necessary for the successful growth of the plant, 133 seedlings died and only 17 were alive. According to the Government Botanist the plant thrives on the alluvial banks of rivers or in high forests at an elevation not exceeding 2,000 feet above the sea level. It also requires a humid climate with a rainfall of 80 to 100 inches.

13. *Ground-nuts*.—A report was submitted to Government in October 1902 on the results of the further experiments with the East African varieties of the ground-nut. It was found that in South Arcot, the largest ground-nut producing district in the Presidency, the East African variety was considered to be inferior in productivity to the Mauritius seed and that the ryots preferred the latter. Further experiments were made in the Government farms at Koilpatti, Saidapet and Bellary. At the first of these farms four varieties—Japan, Sine, Gambie and Haut Saloum—were sown on beds measuring $6\frac{1}{2}$ cents each. The crops suffered first from heavy rain and then from drought. The outturn was at the rate of 850, 880, 971 and 900 lb. per acre. At the Bellary farm the only land suitable for ground-nut proved to be saline. Of the six varieties cultivated in beds of 36 square feet each, only the Mauritius and the East African variety named Gambie, being on comparatively good land, succeeded. Seven pounds of pods of these varieties have been obtained and reserved for seed.

14. *Indigo plant*.—It was brought to the notice of Government that *Indigofera arrecta* is a superior kind of indigo containing up to one per cent. indigotino as against .58 maximum of the *tinctoria*, that it stands both drought and rain better, produces more leaf and yields more cuttings per annum and that being a perennial, it should stand for five years or more. A small quantity of the seed of this variety was obtained and arrangements were made for its experimental cultivation at the Saidapet farm with such local varieties as could be found by the Government Botanist. A small quantity of the seed was forwarded to the Superintendent, Demonstration Farm, Trivandram. On the report of Major Prain that *indigofera racemosa* has the greatest reputation of all the varieties and that it is preferred in Madagascar to all other kinds, Government have directed that arrangements should be made for the collection of specimens of all the varieties of the indigo plant grown in the Presidency and that the Government Botanist should examine the specimens in order to determine whether they comprise the *racemosa* variety. Arrangements have been made accordingly.

15. *Paspalum dilatatum*.—A small quantity of seed of this plant obtained from Australia was sent to this Presidency for experimental cultivation by the Superintendent Royal Botanical Gardens, Calcutta. It was sown at the Bellary and Koilpatti farms, but did not germinate.

16. *Aloe plantation*.—The further expansion of the Government plantation at Hindupur was not found possible in the last season. Owing to heavy rain, a sort of disease appeared among the sisal hemp plants characterized by the dying of the tips; but it soon disappeared. The plants have grown well. About 500 suckers have been put forth. 200 plants of *Agave vivipara* died owing to excess of rain. The attempts of the department to obtain a supply of the seeds or plants of *Agave tequilana* have proved unsuccessful, as it is not cultivated in Europe.

17. *Saline soils*.—The existence of saline lands under the Periyar project having attracted attention, Mr. Keeling, Executive Engineer, Madura, was authorized to conduct experiments for reclaiming 200 acres of such lands. The experiment is proceeding. A general investigation of the methods usually adopted by ryots for the reclamation of such lands was being conducted by the Sub-Assistant Director during the year. To encourage reclamation, Government have, on the recommendation of the Board, sanctioned the grant to select ryots, remission of assessment for three years on certain conditions.

18. *Meteorology*.—As usual the rainfall registered at the rain-gauge stations was tabulated and the results published by the Meteorological Reporter to the Government of Madras. The total number of stations in the Presidency at the end of the year was 432 (inclusive of 61 in the Native States) or 6 more than at the end of the previous year; of these 340 stations were inspected during the year.

19. *Statistics*.—The following returns were published in connection with local enquiries under provincial direction:—

(1) Report on the operations of the establishments for stamping weights and measures submitted to Government in July 1903.

(2) Season reports in three sections (rainfall, cultivation and prices of food-grains and salt) monthly.

(3) Quarterly reports of cattle mortality.

20. *The Madras Agri-Horticultural Society*.—The income of the Society from various sources, including the Government grant of Rs. 4,000, amounted to Rs. 14,534. The usual flower-show was held on 22nd February in the Nursery gardens and was well up to the average of the previous years, the annuals being perhaps better than in the two previous shows.

IV.—BOTANY.

21. As stated in the previous year's report, the office of the Government Botanist, which was originally sanctioned for five years, was made permanent, and his headquarters were removed from Ootacamund to Madras. An assistant for entomological work was added to his staff. A detailed report on the work done by the Government Botanist is appended. The chief tour undertaken in connection with the *Botanical survey* of the province was in the Gôdâvari gorges in November and December 1902; the dry flora along the banks of the river and a number of species among the ever-green forests of the Eastern Ghats near Bison Hill were collected. Under *economic botany*, besides his work in connection with sugar-cane disease at the sugar-cane station at Samalkota, Mr. Barber investigated the spike disease in the sandalwood plantations in Mysore and Coorg under the orders of the Government of India. An interesting report was submitted by him and published in the *Indian Forester*. He also examined the disease in pepper vine plantations in the Wynad, collected and transmitted to Dehra Dun thirty-two varieties of fungus flora, and has been asked to examine specimens of the indigo plant as stated in paragraph 14.

V.—VETERINARY.

22. The detailed report on the operations of the Civil Veterinary Department is appended. The question of establishing a Veterinary school or college in this Presidency was under consideration in view mainly of the difficulty in obtaining qualified subordinates for Veterinary duties. Towards the close of the year, the Board submitted proposals for the establishment of a veterinary institute in connection with the infirmary belonging to the S.P.C.A. at Vepery. They have been approved by Government and detailed proposals have recently been submitted to Government. The establishment of a few veterinary dispensaries at carefully selected centres, which was sanctioned in 1900, continued in abeyance, owing to the difficulty of obtaining qualified men for charge of them. The District Board of Trichinopoly secured the services of a veterinary officer and opened a dispensary at Trichinopoly in February 1903. The Court of Wards is making arrangements for opening another in Pittapur, the head-quarters of a zamindari state under its management.

23. *The pony-breeding operations*.—A stallion was destroyed during the year and three were lent to private breeders. Of the remaining 8 stallions 6 stood in Coimbatore and 2 in Salem. Four stallions were purchased towards the close of the year. The total number of coverings was 352 against 425 in the previous year, giving an average of 32 mares per pony against 35 in the previous year. The decrease is attributed to the prevalence of plague, bad season and also to the instructions issued that only approved mares in season should be covered. Of the 425 coverings of the previous year, 101 cases were successful including 18 that aborted giving an average of 23.8 per cent. Two hundred and thirty-nine cases were empty, 9 mares died and the results were not ascertained in 76 cases. The condition of the operations formed the subject of a report by the Superintendent, who proposed that they should be conducted on new lines and that the spontaneous action of the owners of mares should be relied on, no pressure of any kind being put on them. He recommended that the arrangement should be tried for five years, at the end of which, if success was not achieved, the operation should be discontinued. His proposals have been approved. On the recommendation of the Superintendent, the Board has abandoned the proposal to increase the staff of salustries.

24. *The mule-breeding operations*.—These operations were discontinued during the year (G.O., No. 626, dated 18th July 1902) and the four donkey stallions were sold. Prior to their sale they covered 113 mares.

25. *Castration*.—Thirty-one entire ponies in the Coimbatore district and 34 in the Salem district were castrated against 56 and 82 in the previous year.

26. No pony shows were held during the year.

27. The Cattle Disease Act (II of 1866) was put in force in connection with cattle fairs in eight places in the Tinnevely district. In six of these a Veterinary Assistant assisted the local authorities in carrying out the provisions of the Act. The reintroduction of the Glanders and Farcy Act into the Madura district was held in abeyance for want of professional men to supervise its working.

An important item of work done under this head during the year was the inoculation of 117 cattle in the Kistna district and of 260 in the Tinnevely district against anthrax. This operation would have extended to other places also, but for want of serum. During the last quarter of the year, Mr. Stockman, Bacteriologist of the Muktesar Laboratory, visited this Presidency and conducted a series of experiments in inoculations with anti-rinderpest serum at Bechaupur and Ongole. This opportunity was taken to attach the veterinary assistants to him by turns to be trained in the method of inoculation.

VI.—AGRICULTURAL EDUCATION.

28. Orders were passed by Government during the year regarding the reform of primary education. It has been directed that in all schools in which there is a trained teacher competent to give instruction in elementary science, that subject should in future be compulsory; that, where village maps of suitable size are available, a copy should be hung up in the village school and the more intelligent pupils should be taught map-reading from it; that a passed student of the Agricultural College should be attached to every training school as an additional teacher after he has undergone a short course at the Teachers' College; and that a school garden should be attached to the district training school wherever it is possible to do so.

Arrangements were made during the year for imparting instruction in Agriculture and Botany to the minors under the Court of Wards at Newington. A member of the staff of the College of Agriculture, Saidapet, taught Botany twice a week and the wards attended the practical field class at Saidapet twice a week.

29. *Higher education.*—The College of Agriculture continued to work and the number of students rose from 33 to 50. Government passed orders on the report of the Special Committee and the revised curriculum recommended by it was introduced at once. The salient features of it are that all mornings should be devoted to outdoor work, viz., every description of farm work in the first year, cultivation of given areas in the second year, and specific kinds of work such as dairying in the third year, and that the afternoons should be devoted to theoretical instruction; that Agricultural Chemistry should be taught as a separate subject; and that students should pass in general Chemistry, Botany, Meteorology and Geology, Anatomy and Physiology before they can appear in practical Agricultural Chemistry.

In order to encourage agricultural studies, an appointment on Rs. 10 per mensem has been guaranteed annually to the best student of the college in the year, and the diploma in agriculture has been prescribed as a necessary qualification for Assistant and Deputy Commissioners and Supervisors in the Settlement Department, native assistants to the Director of Agriculture, Agricultural Inspectors and Farm Superintendents and teachers of agriculture. The results of the final examinations were fair.

Dr. Leather, Agricultural Chemist to the Government of India, did duty at the college from the 10th March to the 15th April. He delivered 21 lectures and spent several hours every day giving instruction in quantitative chemical analysis to class III. As the Government of India have found it inconvenient to spare his services from Dehra Dun, his annual lectures at the college will cease from the current year, and the Principal of the College will deliver the special course of lectures hitherto assigned to Dr. Leather pending the appointment of an Agricultural Chemist in this Presidency. The usual lectures on veterinary matters to the agricultural students were delivered by Veterinary Major Gunn, Superintendent, Civil Veterinary department between 11th November and 12th December 1902. He took two practical classes weekly and lectured once a week. His lectures were confined to the various forms of contagious disease and their prophylactic treatment. Five lectures were given on these subjects and ten with practical demonstrations on the more simple diseases and injuries.

The Veterinary Hospital continued to increase in popularity, the total number of cases treated having risen from 867 to 1,162.

The students of the College of Agriculture made two tours of agricultural enquiry, the first in October in the Cuddapah district and the second in January in the Coimbatore district.

VII.—THE PUBLICATION OF AGRICULTURAL INFORMATION.

30. A note on simple machines for extracting plantain fibre by Mr. Proudlock, Curator, Government Botanical Gardens and Parks, the Nilgiris, was published as a bulletin of the department. It has been decided to translate the note into the vernaculars and publish it, with suitable modifications and additions for the information of ryots.

31. The Industrial Monograph on "Wood-carving" prescribed for the preceding year was not completed by Mr. Thurston, owing to non-receipt of certain photographs from the Travancore Darbar and of certain exhibits sent to the Delhi Exhibition from the Madras School of Arts.

The subject chosen for the monograph for the year under report is "Tanning and working in leather." The work has been entrusted to Mr. A. Chatterton, the Officer in charge of the School of Arts, Madras. The monograph is, however, not due before October next.

32. The number of papers received from and communicated to other Provincial departments was as follows:—

PAPERS received from and communicated to other Provincial Departments during 1902-1903.

Subject.	Received.							
	Reports.		Books.		Pamphlets.		Journals.	
	Indian.	Foreign.	Indian.	Foreign.	Indian.	Foreign.	Indian.	Foreign.
1	2	3	4	5	6	7	8	9
Agriculture	17	20	1	17	133	138	82	287
Statistics .. { Crop	..	..	2	..	..	..	..	..
.. { Trade	..	..	3	..	..	..	4	3
Forest	18	..	..	..	..	..	14	..
Arts and Industries ..	..	..	..	..	2	..	56	..
Botany	3	..	2	..	..	..	..	..
Entomology	..	..	..	..	..	..	..	..
Geology and Minerals ..	4	..	..	..	..	..	..	..
Meteorology	19	..	..	..	..	..	..	..
Live-stock	..	..	..	..	..	..	50	..
Veterinary Science ..	10	..	..	..	3	..	..	..
Total	71	20	8	17	138	138	136	290

Subject.	Received—cont.				Sent.			Total.
	Other papers.		Total.		Reports.	Pamphlet.	Other papers.	
	Indian.	Foreign.	Indian.	Foreign.	14	15	16	
10	11	12	13	14	15	16	17	18
Agriculture	23	34	436	496	..	1	..	1
Statistics .. { Crop	..	..	2	..	..	..	17	17
.. { Trade	..	..	7	3	1	..	..	1
Forest	..	..	32	..	..	..	..	..
Arts and Industries ..	..	..	58	..	..	..	..	..
Botany	..	..	5	..	..	..	..	..
Entomology	..	..	..	..	..	..	..	..
Geology and Minerals ..	..	..	4	..	..	..	..	..
Meteorology	..	..	19	..	..	..	..	..
Live-stock	..	..	50	..	..	..	..	..
Veterinary Science ..	..	..	13	..	..	..	..	..
Total	23	34	436	496	1	1	17	18

APPENDIX I.

ANNUAL REPORT OF THE GOVERNMENT BOTANIST, MADRAS.

I have the honour to forward the following report of the work of my office during the year 1902-1903.

2. Owing to the transfer of my head-quarters to Madras the ordinary course of touring was considerably interfered with. The following were the chief places visited:—

Ootacamund.—This was my head-office until 1st July and some two months were spent there in arranging the collections for the transfer.

Madras.—After 1st July my office was located in the Board's buildings at Chempak. For reasons given below, only two months of the remaining nine were spent in Madras, the rest being devoted to travelling.

Samalkot.—Nine visits were made during the year to the experimental sugar station. The longest of these was for the month of March during which the crop was reaped.

Coorg.—The first half of June was spent, chiefly at Fraserpet, in the investigation of the sandalwood disease known as "spike".

Kistna district.—A general agricultural tour was made through the dry taluks of this district, from the end of September to the beginning of November.

Goddavari gorges.—A plant-collecting tour was made up the river during the latter part of November and the first half of December.

South Wynaad.—A fortnight in January was devoted to a tour through the planting districts of the Wynaad, most of the time being spent in the investigation of the pepper disease.

3. An important change was made during the year in the work of the Government Botanist. By G.O., No. 202, Revenue, dated 25th March 1902, he was transferred to the Agricultural Department and his work became mainly economic. As a consequence of this, his office was moved from Ootacamund to Madras. The collections were safely transmitted at the end of June. The rooms in the Board's offices are ill-suited for microscopic and general laboratory work, and, pending the erection of suitable quarters, the Government Botanist found it advisable to spend a considerable part of the year on tour.

4. The only tour devoted definitely to the botanical survey was the short one in the Godavari gorges. The dry flora along the banks of the river were carefully collected, and a number of species were also obtained on a five days' trip among the evergreen forests of the Eastern Ghats near Bison Hill.

Besides this main tour, smaller collections were made in the Kistna district, in Coorg, around Coonoor and Ootacamund, at Gudalur, in the Wynaad and down the Tapiracherry ghat. No great effort was, however, made to increase the collections, since the preparing work was completely disorganised by the removal of the herbarium.

5. A commencement was made towards collecting a fungus flora of the Presidency, the Cryptogamic Botanist to the Government of India having expressed a desire for Madras specimens. Thirty-two collections were made and forwarded to Dehra Dun during the year.

6. Among the numerous specimens received for identification, five parcels of grasses were sent in by different Forest officers. The work of naming these is proceeding, but little progress has been made in this direction because of other work. About 120 sheets of grasses have been named during the year and 500 more await attention.

A collection of 102 sheets of plants was received from Calcutta, but, owing to press of work, none have been sent in return. About 250 sheets have, however, been prepared for this purpose and will be forwarded as soon as they can be dealt with.

7. On the initiative of the Officiating Reporter on Economic Products to the Government of India, considerable attention has been paid to the different varieties of sorghum grown in the Presidency. Altogether 94 sets of sorghum heads have passed through the office for transmission to Calcutta, duplicates being retained in all cases for future reference.

8. The Superintendent of the Royal Botanical Gardens in Calcutta and the Reporter on Economic Products having decided to work up the varieties of yams, wild and cultivated, throughout India, the somewhat delicate task of forwarding living specimens of the tubers for growth in the Calcutta gardens devolved on this office. Fifty baskets of these have been despatched during the year. The importance of having such sendings passed through a Central office may be gathered from the fact that many have had to be rejected because of small size, decay en route, or because they were not yams at all but tuberous plants of other orders.

9. An attempt has been made to collect information regarding the wild indigos of the Madras Presidency. It is supposed that among these there is one at least of great economic value, and the search has been commenced for it. A number of plants have already been received in this office, but, since their state of preservation on arrival has been almost uniformly bad, little progress has been made in the enquiry. Such indigos as the Government Botanist was able to collect on tour have been carefully examined and sent for checking to the Superintendent of the Royal Gardens in Calcutta, and several interesting species have been found among them. The cultivated forms so far collected have been uniformly referred to *Indigofera sumatrana*, and not to *Indigofera tinctoria* as had been supposed.

10. The sandalwood plantations of Mysore and Coorg have recently developed a new and alarming disease called "spike". In this the plant slowly or rapidly alters the character of its foliage, the leaves becoming smaller and less numerous as the disease advances. Ultimately the affected plant dies out altogether. Large areas where the sandalwood was formerly abundant are now completely devoid of these trees, the disease having made a clean sweep of them. The sandalwood of commerce is entirely collected from dead trees. While therefore the visible supply is not likely to decrease during the next few years and might indeed be greatly increased with little difficulty, there is some prospect of this profitable source of revenue being lost to the State. Considering the importance of the product, the Government Botanist was lent to the Government of India to examine the plants *in situ*. No trace of any parasite was found in the tissues, but a number of interesting facts were brought to light in the investigation, the report on which was reproduced in the *Indian Forester*.

11. A fortnight was devoted to an examination of the pepper plantations of the South Wynaad. After some years of phenomenal success, many of the vines are seen to be dying out. A number of diseases were met with, but there was no one which was universally found. The plants were extremely liable to cankerous growths, and in some cases severe attacks of celworms on the roots were met with. In certain vines a hyphal infestation was found throughout the vessels in the fibrovascular bundles, but the presence of this fungus did not appear to have any relation to the relative "sickness" of the vines. A preliminary report was issued and the investigation postponed until the Government Botanist should have the opportunity of examining the plants during the dry weather.

12. The peckchafers of the Nilgiris continued to receive attention, although the completion of the work was interfered with by the removal of the Government Botanist's office to Madras.

13. By far the most important economic work of the year was that in connection with the Samalkot experimental sugar station. The complete management of this passed into the Government Botanist's hands on 28th April, and throughout the year its affairs have occupied much of his time.

In spite of the hurried manner in which the land was acquired, and the lateness of the time of planting, the year's work may be considered generally as successful. A change was unfortunately necessary in the Agricultural Inspector in charge, and the land proved in most cases to be in very poor physical condition, but the growth of the canes was, on the whole, satisfactory. Some of the fourteen varieties showed remarkable growth, and the results obtained from the "methods" plots were interesting. The manurial plots were on the other hand of little value, in that the physical condition of the soil was quite unfit for this line of work. A second large piece has been taken up, a number of varieties have been added to the station, the manurial experiments have been simplified, while the different methods of growing the cane have received far greater attention. At the close of the official year the whole station was planted up and over 100 experiments were being carried out in sixty separate plots. The work of reaping the crop and planting the station up was very heavy, and the bulk of the office staff were employed during the month of March in the necessary counting and weighing operations. The varieties grown were analysed through the kindness of Messrs. Parry & Co. at the Doocan Factory. As was perhaps to be expected at first, the local varieties proved to be superior to those introduced from Bombay and elsewhere. The unoccupied land was laid out in paddy of which several varieties were tried. At the instance of the Deputy Director of Agriculture the short "two-months" paddy of the Tanjore district was successfully introduced and the seed sold to the ryots.

14. A short visit was paid to the sugarcane experimental garden at Vizianagram. Here a number of Mauritius canes have been grown for several years in comparative isolation. These were inspected, and the planting for the current year was superintended by the Agricultural Inspector stationed at Samalkot. By the kindness of the authorities nine of the varieties were planted at Samalkot and subjected to a preliminary analysis, forming a valuable addition to our set of varieties there. It is proposed to pay occasional visits during the year to this interesting little garden.

15. An important innovation in the usual touring arrangements was made, in that a tract of country was selected for detailed agricultural examination. The Government Botanist toured for about six weeks through the upland taluks of the Kistna district, studied the crops and modes of cultivation and collected examples of the various pests.

The chief crops thus submitted to detailed study were indigo, chillies, cotton, cholam, maize, tobacco, dry paddy, sazza, korra, white variga, the various grams and other crops were also noted where met with. It is proposed to devote one tour each year to the study of the crops of a district in this manner.

Among the many fungus and insect pests collected during this tour, perhaps the most interesting was a *Colletotrichum* so closely allied to the existing species attacking the sugarcane that it was not possible to distinguish the two under the microscope. It was abundant on dying cholam leaves and appeared to be saprophytic. It is probably widely distributed; and, if so, attempts to stamp out the sugarcane disease must take the proximity of cholam into account. The matter has been referred to the Cryptogamic Botanist to the Government of India. Most of the remaining pests have been merely "recorded" in the office collections until such time as may allow of their being worked out in detail.

16. During the year under review the following additions were made to the office staff. An entomological assistant, an artist, an additional plant-collector and an extra peon. These officers, who joined at the commencement of March were employed during that month at the Samalkot sugar station, the artist making careful paintings of all the varieties of sugarcane grown.

17. No useful purpose would be served by giving references to the many minor matters which have engaged the Government Botanist's attention during the year. Suffice it to say that the number of subjects brought before him was far in excess of what could be properly dealt with, and the wideness of the field of study has never been more keenly felt than during the period under review.

MADRAS,
13th June 1903.

(Signed) C. A. BARBER,
Government Botanist.

APPENDIX II.

ANNUAL REPORT OF THE SUPERINTENDENT, CIVIL VETERINARY DEPARTMENT, MADRAS.

I have the honour to submit a report on the work done by the Civil Veterinary Department, Madras, during the official year 1902-1903.

2. I continued to be in charge of the department throughout the year. For 128 days I was on tour, and at Saidapet Agricultural College I delivered lectures in Veterinary Science for over fourteen days. In obedience to instructions of the Board, I had been to Mysore to select elephants for the Agency of Gódvani district, and afterwards visited Berhampur to examine an elephant of the Police Department.

During the year my attention was chiefly directed in drawing up a scheme for the organization of a Veterinary College at Madras, and it is expected that Madras will soon be in possession of one.

I interviewed the Collector of Madura regarding the reintroduction of the Glanders and Farcy Act in the Madura district, but for want of professional men the matter was left in abeyance. During the latter part of the official year I was with Mr. Stockman supervising the progress of the rinderpest experiments.

3. *Pony-breeding.*—(a) There were twelve pony and four donkey stallions at the commencement of the official year. In Coimbatore there were eight and in Salem four pony stallions. Three of these stallions were lent to private breeders and stallion Euphrates, which was suffering from confirmed paraplegia since the commencement of the year, was destroyed on the 14th July 1902. There were therefore only eight stallions at work—six in Coimbatore and two in Salem. At the end of the year in March four new pony stallions were purchased by me at Bombay. The health of the stallions during the year was good, excepting stallion "Baby" which is now under treatment at Madras for lameness. This stallion was unfit for work for the greater part of the year.

Another stallion "Hector," at Kollegal, had to be removed from that place to Pollachi, where he has been working since owing to prevalence of plague in the suburbs of Kollegal. Had it not been for this unavoidable transfer the work of this stallion would have been much better. The stallion "Abdullah" is old and, under my instructions, he was given only light work. In Coimbatore district there were 224 coverings as against 314 in the preceding year. This gives an average of 32 per stallion.

The work was actually commenced only after the middle of June. The decrease in the number of coverings is mainly due to the reasons quoted above and also to the fact that only approved mares that are in season are allowed service and the services are given to those mares which are brought by the owners voluntarily. It must also be understood that the number of stallions in stud was below the number in the previous year.

(b) In Salem district stallion "Juma" was lent to a planter on the Shevaroy Hills and another to the mittadar of Pagalpatti. These stallions did excellent work, though the number of coverings may be considered small. Only one stallion "Tigria" continued to work in the Salem sub-division where there used to be in former years at least three stallions. This is again attributed to the prevalence of plague in these parts. He was removed for a short period to Hosur, but as plague broke out at this place also he was brought back to Hosur.

Stallion "Sunshine" was stationed at Harur in Salem taluk where for the first time pony-breeding operations were introduced. Many of the ryots are reported to be ignorant of the object with which these operations are undertaken by Government and some of them are of the belief that the foals when dropped become the property of Government.

Still some of the ryots have purchased mares solely for breeding purposes, and it is interesting to note that most of the mares covered during the year are said to be in foal. One drawback is the ignorance of these owners as to the proper time of service. They regulate it by the time the mares actually come into season but by the phases of the moon. It is proposed to issue general instructions in this matter. The total number of coverings in the Salem district is 128 as against 111 in the preceding year. The comparatively small work is due to bad season and the care that is taken in allowing only mares in season. But the stoppage of the pony shows

accounts in a large measure for the apparently poor work of the pony-breeding operations. A report regarding the prospects of the pony-breeding operations and the manner in which the operations should be conducted was submitted to the Board. Hitherto the progress of pony-breeding operations has been estimated by the number of coverings. This is a mistake. The progress should be estimated by the results of the foals dropped. It is anticipated that the system now adopted will show considerably better results and the owners will not be subjected to the annoyance and worry of periodical inspections of their mares.

During the year I interviewed the Collector of Bellary and the zamindar of Tuni. In the former place there is considerable scope for extending the operations, but owing to the appearance of plague the experiment had to be postponed. In Tuni the zamindar owns a large number of suitable mares and it could be tried there with great success. The matter was however not taken up for want of a stallion. The subjoined statement will show where the Government stallions were located and also the work done by each. The average number of coverings per stallion was 32 as against 35.4 in the previous year:—

Coimbatore district.

Number and name.	Number of coverings.	Place where worked.
6 Abdullah	31	Karur, Kángayam.
11 Parel	28	Palladam.
16 Selim	30	Erode.
17 Hector	40	Kollegal, Pollachi.
18 Baby	19	Aravakurhi, Karur.
19 Nile	28	Pollachi, Dhárápúram.
22 Ophir	48	Kángayam, Palayakott.
	224	

Salem district.

7 Carbon †	32	Pagalpatti.
13 Sunshine ‡	29	Dharmapuri (4), Harur.
20 Tigria	40	Hosur.
23 Juma	27	Dharmapuri (17), Shevaroy (10).
	128	

(c) *Results of coverings of previous year.*—Four hundred and twenty-five mares were served, of these 101 cases proved successful including 18 mares that aborted, and 76 cases were not ascertained. This gives a percentage of 23.8 of successful coverings. The remaining contains 239 empty cases and nine casualties. Of the cases not reported, 61 were enquired into, but the mares were not forthcoming and the remaining certificates were not returned by the Revenue authorities, to whom under recent orders the work of ascertaining these results has been transferred.

4. *Mule-breeding.*—Out of the four stallions, one was stationed at Kollegal, Coimbatore district, two in Hosur, Salem district, and one was lent to Devanahalli farm, Mysore. These stallions were sold by public auction during the year and the proceeds were debited to Government. There had been 113 coverings for all the stallions and it may not be necessary to write details as mule-breeding operations were finally abandoned—G.O., No. 626, Revenue, dated 18th July 1902. In the previous year there were 97 coverings for the same four stallions, and the results were ascertained in 61 cases only. It is reported that 19 foals were dropped.

5. *Castration.*—In the Coimbatore district there was only one salustri at work, and he castrated 31 entires against 56 in the preceding year. The one that was working in the previous year resigned his appointment owing to ill-health, and the present incumbent was transferred from Salem. The decrease in the number of castrations is due to the fact that the salustri was required to remain with stallion "Baby" at Aravakurhi for four months.

In the Salem district 34 entires were castrated and there also there was only one salustri. The number of castrations in the previous year was 82, but this was the work of three men.

During the year one more was added to the staff.

6. *Cattle-breeding.*—I travelled through all the important breeding centres in the Northern Circars, in the Kurnool and in the Nellore districts; first, for obtaining materials for the monographs of the different typical breeds for the information of the Inspector-General, Civil Veterinary Department, and secondly, to ascertain the custom that is prevalent in those parts for raising good breed of cattle. My report on the subject is under preparation, but from my experience I may be permitted to state that some help should be given by Government in the matter. Yearling and two-year old young bulls should be purchased of the very best type and distributed among the herds of the best breeding localities. In Nellore, particularly in the

* Lent to the mittadar.

† Lent to mittadar from 5th July 1902.

‡ Left Dharmapuri on the 13th July 1902.

Ongole taluk, excellent cattle are bred and the zamindars recognise the value of placing none but the best bulls in their herds; but elsewhere common bulls are considered good enough. I would submit that Government should purchase a few young bulls of the typical breeds, brand them with a serial number, and turn them loose among herds of other localities than those from which they have been purchased, but they should be kept in the same district.

The Madras breeds of cattle are known to be excellent and in order to preserve their traditional value, it should be our object to secure good bulls at important centres and, indeed, in all districts. Only a small sum will be required annually and, considering the advantages to be derived by the agricultural population in general, the money would be well spent.

7. *Cattle Fairs*.—Tinnevely was the only district in which cattle fairs were held during the year. One of the Assistants was always on duty at these fairs and his duty was to assist the Revenue officials in carrying out the provisions of the Cattle Disease Act. At all these fairs the Act was enforced and there were no cases of disease among the cattle that were presented for sale.

The reports of the Assistants on the cattle fairs were forwarded to the Collector of the district. They complained that the arrangements for cattle and people were generally defective.

The cattle fairs in the other districts are perhaps stopped owing to the danger of persons proceeding there from the infected areas. I attended the cattle fair at Azhvar Tirunagari, but the majority of the cattle had disbursed before I arrived there and which was unusually earlier. The list of cattle fairs at which the Act was enforced is furnished below under a separate paragraph.

8. *Cattle Disease*.—(a) Appendix "F" gives a summary of the figures for five years and "G" for the current year for each district.

(b) On the whole there were 88,976 deaths among cattle from diseases. Of these a vast majority is put down under unspecified diseases. Though the figures point to a slight decrease numerically, yet the loss was almost the same as last year. It was suggested last year that diarrhoea and dysentery should be included under rinderpest, but the question was not touched by the Board.

In this Presidency as elsewhere rinderpest and anthrax are excessively severe and particularly in the Ganjam and the Godavari districts. Inoculation was tried during the year for both rinderpest and anthrax, but only on a small scale. Separate reports were submitted to the Board regarding these inoculations with particulars of cattle inoculated. The method is simple and inoffensive and consequently there was no opposition. The cattle-owners were perfectly willing to have their cattle inoculated. A comparatively large amount of work could have been shown if I had more Assistants and more facilities of obtaining the serum especially for anthrax.

(c) The deaths from anthrax were markedly lower than in the previous year, and the majority of deaths was reported from Godavari, Tanjore, South Arcot and Nellore as in the preceding year, with the exception of Chingleput district, which appears to have been almost free from this disease. There, however, epizootic apthia did considerable havoc and young calves, which are more susceptible to this disease, were carried away in large numbers. This is greatly due to neglect as the disease is amenable to treatment, and only an extremely small percentage of attacks generally end fatally. The deaths from epizootic apthia during the year were more than twice the number reported in the preceding year and the largest on record for the past five years. Chingleput, North and South Arcot districts alone contributed more than half of the total number of deaths.

(d) Under other causes 13,117 deaths were reported including 71 cases from criminal poisoning. The cases reported under criminal poisoning have always to be received with certain amount of suspicion, as generally subsequent reports reveal that they had been either wrongly classified under that head, or they are not traceable, generally the former. This only goes to show that no pains are taken to furnish correct information.

The statistics on cattle mortality are reviewed every quarter and I have therefore very little more to add to this report.

9. *Veterinary Dispensaries*.—There are only two dispensaries at present in this Presidency: one is attached to the Saidapet Agricultural College and the other to the District Board of Trichinopoly. To the former, when I am at Madras, I make weekly visits and the latter was twice visited by me during the year under report. This commenced work regularly from the 18th February 1903 and has been well organised under a local committee. The premises are spacious and situated next to the cattle mandi. Although it was only started on the 18th February 1903, it has already become popular and advantage is being taken of it by cattle-owners and Ekka proprietors. It was suggested that efforts might be made to start similar dispensaries in the Madura, the Bellary and the Coimbatore districts. The Collectors of these districts were completely in favour of establishing these institutions, but owing to the difficulty of procuring qualified men I submitted to the Board to defer the consideration of the question. I also inspected Rajahmundry and Pithapuram of the Godavari district to consider what advantages existed for starting veterinary dispensaries at these two places. The latter place I visited at the request of the Court of Wards. A passed student of the Lahore Veterinary College has been obtained for charge of this dispensary. Rajahmundry is also a suitable place in which to establish an institution of the kind. There are a large number of places where these institutions may be started with advantage, but to get proper men it will be necessary to wait

until they have been trained at the Madras Veterinary College. In the meantime the one or two institutions that are now at work will serve as tests to judge how far their benefits are accepted by the ryots. In order to ensure their proper working it may be desirable to bring them in closer contact with the Superintendent of the Civil Veterinary Department regarding their professional work, and the Court of Wards will be asked to permit this officer to make periodical inspections when he is in the neighbourhood of these institutions.

To this effect I intend submitting proposals separately for the favourable consideration of Board.

10. (a) The department consisted of three Veterinary Assistants during the year, of whom one was appointed on the 10th June 1902. One of the Assistants, V. P. Subramania Mudaliyar, was primarily employed in the inspection of the pony-breeding operations, to which the major portion of the time, i.e., 8½ months, was devoted. It was considered necessary to utilise his services for the inspection of cattle fairs also whenever the services of either of the other Assistants could not be spared. During the year he attended in addition to his duties in connection with pony-breeding operations the cattle fair at Kalugumalai, Tinnevely district, where the Cattle Disease Act was enforced and also investigated a large outbreak of foot-and-mouth disease in the Chingleput district; and while Mr. Stockman was conducting his second series of experiments with rinderpest serum at Ongole, he was detailed there to receive some practical instruction in the manipulation of instruments in connection with inoculation. His work in connection with pony-breeding operations consisted in supervising the work of the stallions, their condition as well as the checking of the results of the coverings of the previous year which has subsequently been transferred to the Revenue authorities—vide G.O., Mis. No. 676, Revenue, dated 21st March 1903. He however inspected in all 114 cases during the year.

(b) M. Hassan 'Ali Sahib was for the most part of the year on cattle fair duty and he was deputed to the following cattle fairs at the request of the Collector of the Tinnevely district:—

Kalugumalai.	Azhvar Tirunagari.
Sivalaperi.	Muthalaiparam.
Kanniseri.	Sankaranayinarkoyil.

While attending these fairs opportunities were taken by him to inspect the several ponies plying in the dawk lines in the Tinnevely district in order to ascertain if there were cases of glanders, and he reported that the animals were free from disease. His presence at Palamecottah and Tuticorin was made use of by the municipal authorities of these places for inspecting the conservancy bullocks which were suffering from disease.

At the instance of the lessees of Sivaganga, he was sent to Sivaganga for a few days in May to render them professional help in treating certain disease which was then prevalent among their horses. His diagnosis revealed that two of their animals were suffering from paraplegia.

He further investigated an outbreak of anthrax that was reported from Conjeeveram and Ponnéri taluks of the Chingleput district and proceeded to Ootacamund to report on an outbreak of rinderpest; but in the former place ryots complained that the time of the year was not suitable for carrying out the inoculations and he was obliged to return. He, however, explained to them the efficacy of the new treatment and enlisted their co-operation for a future occasion. In the latter place the disease subsided when the Veterinary Assistant actually went there.

(c) H. C. Sampathu Aiyangar, who was intended to assist the Superintendent in carrying out the prophylactic experiments with serum on joining his appointment, was ordered to work under Hassan 'Ali Sahib at two of the cattle fairs in order he might learn the duties connected with the management of these fairs and afterwards he was engaged for about two months in inspecting the dawk lines in the Madura and Tinnevely districts to detect if there were cases of suspected glanders. His report was that in the absence of Mallein test it was not possible to assert precisely that glanders existed, though he noticed several animals suffering from ulcers which, however, is one of the symptoms of the disease. He accompanied the Superintendent to the Northern Circars, Nellore and Kurnool districts in order to inspect the local breeds of cattle, while at the same time he also advised the ryots on the treatment of simple diseases among cattle and also on the benefits conferred by inoculation in cases of rinderpest and anthrax. When he visited Godavari district anthrax was prevailing in Tanuku taluk, and though the ryots were ready to submit their cattle for inoculation, yet for want of serum nothing was done, except advising them as to the sanitary precautions that they should observe at the time of an outbreak of contagious disease. For the same reason inoculation was not carried in Tiruvallur taluk of the Chingleput district. Subsequently serum was obtained from the Muktesar laboratory, and he inoculated about 117 cattle in Bapatla taluk and in a village in Ongole taluk bordering on Bapatla; and in Srivaikuntam taluk where I was also present he inoculated another 260 cattle for anthrax.

In the end of December last Mr. Stockman arrived at Madras and two Assistants were first sent with him to Berhampur for the conduct of the experiments which was sanctioned by the India Government, and they were employed with him till the end of the official year. Their duty consisted in taking the temperature of the animals inoculated both morning and evening and assisting him generally in the conduct of the work. While at Ongole, Subramania Mudaliyar was detailed and Hassan 'Ali Sahib continued to remain at Berhampur to settle the accounts in connection with the experiments and deliver over the cattle to the owners as they recovered from the effects of these experiments.

11. Veterinary Assistants Subramania Mudaliyar and Hassan 'Ali Sahib were on privilege leave for two and one and-a-half months, respectively, during the year.

12. The statements J, K, L and O are blank for the year under report.

CAMP, KANGAYAM,
27th June 1903.

(Signed) W. D. GUNN, Vety.-Major,
Superintendent.

APPENDICES.

MADRAS FORM A.

RETURN of pony and donkey stallions for the official year 1902-1903.

	Pony stallion.	Donkey stallion.
Balance on 1st April 1902	12	4
Increase { Purchased	4	..
.. .. { By transfer from	..	..
Total	* 16	4
Decrease { Died	..	..
.. .. { Destroyed	† 1	..
.. .. { Sold	..	4
Total	1	4
Balance on 31st March 1903	15	..

* Arab ponies.

† For confirmed paraplegia on the 14th July 1902.

MADRAS FORM B.

RETURN of pony and donkey stallions struck off the list during the official year 1902-1903.

Name.	Class.	Why struck off.	If sold, price realised.
1. Kachara	Country-bred ..	Mule-breeding operations were abandoned—G.O. No. 639, Revenue, dated 18th July 1902.	No. 1 was sold at Madras for Rs. 40. Nos. 2, 3 and 4 were sold at Bangalore for Rs. 215.
2. Angora	Do.		
3. Shikar	Persian		
4. Cyprus	Arab		

MADRAS FORM C.

RETURN of services and produce of pony and donkey stallions during the official year 1902-1903.

	Number at stud.		Number of mares covered.		Average of mares covered per stallion at stud.		Results of previous year's covering.			Average result of previous year's covering per stallion at stud.		
	Year report.	Previous year.	Year report.	Previous year.	Year report.	Previous year.	Number of pro. foals.	Number not held.	Number not known.	Average of pro. foals.	Average of not held.	Average of not known.
Ponies	11	12	252	425	32	35	101	239 †	78	8	2.0	6
Donkeys	4	6	112	97	28	24	19	12	30	6	2.4	10

* The average is calculated for three stallions only. The results of coverings effected by "Cyprus" at Devanhi are not ascertainable.
† Excluding the mares due

MADRAS FORM D.

RETURN of cost of feed, keep, attendants, etc., of pony and donkey stallions during 1902-1903.

District.	Number of stallions.		Total annual cost.		Average cost per stallion.		Remarks.
	Pony.	Donkey.	Pony.	Donkey.	Pony.	Donkey.	
Coimbatore	8	1	Rs. 1,933 0 4	Rs. 285 12 4	Rs. 242	Rs. 285 12 4	* Includes feed, keep, etc., of stallion Euphrates for a part of the year, i.e., up to the middle of July.
.. ..	4	..	Rs. 73 15 0	Rs. 600 15 9	Rs. 20	Rs. 230 0 0	† Excludes feed, keep, etc., of stallion lent to Mr. Morgan of the Carrara estate for two months.

MADRAS FORM E.

RETURN of ponies castrated by Veterinary Assistants and Salustis during 1902-1903.

District.	Number of ponies castrated.	Number of known deaths from effects of castration.	Remarks.
Coimbatore	31	None.	These entire were castrated by salustis. There is one in each district.
Salem	34	Do.	

MADRAS FORM F.

COMPARATIVE statement on cattle mortality for five years ending 1902-1903.

Causes of death.	1898-99.	1899-1900.	1900-1901.	1901-1902.	1902-1903.
	No.	No.	No.	No.	No.
Diseases.					
Hinderpest	21,755	19,623	16,062	9,034	8,167
Diarrhoea and dysentery	20,853	14,439	11,326	9,610	8,358
Anthrax	17,318	16,480	16,106	15,215	13,496
Malignant sore-throat	3,871	6,089	7,341	7,662	9,063
Black quarter	1,170	1,621	2,482	2,421	2,989
Epizootic apthæ	3,725	3,038	5,283	4,722	11,456
Varicella	..	..	..	..	..
Others	88,770	40,239	38,951	37,333	35,417
Total	107,448	101,529	97,541	88,997	88,976
Other causes.					
Snake-bite	2,050	2,010	2,028	1,761	2,109
Wild animals	11 0	11,840	11,564	10,841	10,837
Criminal poisoning	9	74	47	34	71
Total	17 9	13,933	13,639	12,606	13,117
Grand total	120,923	115,462	111,180	101,603	102,093

STATISTICS OF MORTALITY AMONG CATTLE, HORSES AND PONIES IN THE SEVERAL DISTRICTS OF THE MADRAS PRESIDENCY FOR THE OFFICIAL YEAR 1902-1903.

[illegible]

showing the Provincial cost of the Civil Veterinary Department during 1902-1903.

Imperial.				Provincial.																	
Salary and exchange component allowance of Superintendent, Civil Veterinary Department.				Prizes at horse fairs and shows.		Establishment.		Travelling allowances.		Contingencies.		Purchase of stallions.		Stable, feed and keep.		Total.					
1				2		3		4		5		6		7		8		9		10	
R.S. A. P.				R.S. A. P.		R.S. A. P.		R.S. A. P.		R.S. A. P.		R.S. A. P.		R.S. A. P.		R.S. A. P.		R.S. A. P.		R.S. A. P.	
Salary—				C.V.D.		C.V.D.		C.V.D.		C.V.D.		C.V.D.		C.V.D.		C.V.D.		C.V.D.		C.V.D.	
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SHOWING results of preventive inoculation during the year 1902-1903.

Province.	Against rinderpest.					Against anthrax or other diseases specifying disease under separate heads.				
	Number of outbreaks in which inoculation was undertaken.	Number of animals (if ascertainable) which died uninoculated in course of outbreak.	Method of inoculation followed.	Number of animals inoculated.	Number which died after inoculation.	Number of outbreaks in which inoculation was undertaken.	Number of animals (if ascertainable) which died uninoculated in course of outbreak.	Method of inoculation followed.	Number of animals inoculated.	Number which died after inoculation.
1	2	3	4	5	6	7	8	9	10	11
Madras	None.	None.	None.	None.	None.	3	72	Serum alone.	• 117	None reported.
						3	163	Method.	• 260	Do.

SHOWING total strength of subordinate Veterinary Staff employed during 1902-1903.

Province.	Paid from Provincial or District Funds.	Number of Veterinary Inspectors.	Number of Veterinary Assistants			Total.
			Employed in veterinary dispensaries.	Employed in work connected with horse and mule breeding.	Employed in work connected with cattle-breeding and cattle disease.	
1	2	3	4	5	6	7
Madras	Provincial ..	3		1	2	3
	District ..	1	1			

Resolution—Mis. No. 2543, dated 29th July 1903.

The Board begs to submit to Government its report on Department of Agriculture during 1902-1903.

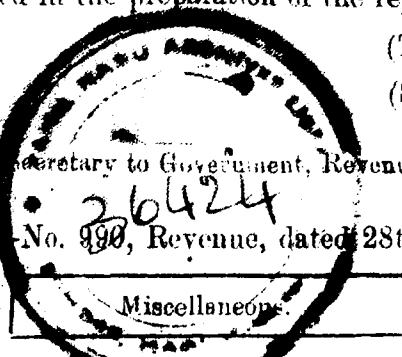
2. The orders issued in G.O., No. 582, Revenue, dated 5th July followed in the preparation of the report.

(True Extract.)

(Signed) V. K. RAMANUJACHARI,
Acting Secretary.

To the Secretary to Government, Revenue Department with report.

Order—No. 990, Revenue, dated 28th September 1903.



The report deals with the work of the Agricultural Department in all its branches, the reports of the Government

botanist and of the Superintendent, Civil Veterinary Department, being printed as appendices.

2. The experimental farms at Bellary and Koilpatti were still in the preparatory stage and it is too early to look for results. The experiments made in growing rag on ridges are however promising; and those to be undertaken in the hybridization of indigenous with imported varieties of cotton may prove of great importance. The report on the sugar station at Samalkot tends to show that the local canes are richer in sugar than the imported varieties. But, as Mr. Barber points out, it will take some years to determine the true value of the foreign kinds.

3. The many minor investigations and experiments referred to in the report indicate the wide scope of the work before the Department. The Government hopes now that a beginning has been made, that it will be practicable to find the men and the funds necessary for the proper development of a Provincial Department of Agriculture.

4. *Civil Veterinary Department.*—After several years of unsuccessful effort it has been decided to abandon departmental mule-breeding operations. The work of the Civil Veterinary Department in this Presidency will, for the future, be mainly directed towards combating cattle disease. An institute has recently been opened in Madras where instruction in Veterinary Science and practice will be given to students with the object chiefly of obtaining a supply of qualified subordinates for the charge of rural Veterinary dispensaries. The course of instruction will extend over three years, so some time must elapse before such dispensaries can be opened on any considerable scale. In the meantime, however, as the present report shows, there is some scope for useful work in popularising methods of inoculation. Attempts to improve the breed of country ponies will be persevered in under the advice of Major Gunn whose proposals to try new centres, to circulate leaflets among the ryots, and to place the stallions in charge of Tahsildars have been approved.

(True Extract.)

(Signed) M. HAMMICK,
Ag. Secretary to Government.

To the Board of Revenue (Revenue Settlement, Land Records and Agriculture).

.. the Educational Department.
.. the Inspector General of Agriculture (three copies).
.. the Minister of Agriculture, Argentine Republic.
.. the Entomologist to the Government of India.
M. Chatterjee Esq.

Enclosure No. 990A.

Copy to the Government of India, Revenue and Agricultural Department.

N. E. MAHJORBANK