M.R.C. 1—30,000—16-10-29.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT

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Not to be folded or roughly handled

Read the following papers:—

No. 401. From J. W. BREEKS, Esq., Commissioner of the Neilgherries, to the Secretary to Government, Revenue Department, Madras, dated Ootacamund, 28th May 1870, No. 25.

I HAVE the honour to forward the Superintendent's Annual Report on the Government Cinchona Plantations and Botanical Gardens of Ootacamund for 1869-70.

2. I have lately seen the plantations at Dodabetta, Neddivattum, Pycarah, and Mailkoondah, and the three former retain their high character, and do great credit to Mr. McIvor's horticultural skill and to the zeal and industry of all connected with the plantations. I regret I cannot speak so satisfactorily of the Mailkoondah plantation, which I shall refer to more particularly by-and-by.

3. During the year the Superintendent reports that 354,367 plants were planted out against 153,145 in 1868-69, and 17,526 plants were propagated against 19,703 in 1868-69.

Since the receipt of Government Order, dated 9th November 1869, the Superintendent has devoted his attention to the propagation of the Pitayo variety and the newly discovered variety of *Cinchona officinalis*.

4. The Government will observe that 1,200 acres, the area originally fixed as the limit to which the Cinchona plantations were to extend, have now been planted up as follow:—

	Acres.
At Dodabetta	375
Neddivattum	450
Pycarah	300
Mailkoondah	75
Total ...	1,200

The Superintendent estimates that adjoining the three plantations of Neddivattum, Pycarah, and Mailkoondah, about 1,000 acres suitable for Cinchona are still available if wanted.

5. Up to 31st March 1870 the total expenditure on account of Cinchona on the Neilgherries amounted to Rupees 5,57,699, which may be sub-divided as follows:—

		Rs.	Rs.
Superintendent and Office			65,860
Propagation and nursery			54,198
Dodabetta ...	Establishment	68,371	
	Buildings, etc.	22,486	
	Plantation work	37,689	
			1,28,546
Neddivattum.	Establishment	79,274	
	Buildings, etc.	27,958	
	Plantation work	94,602	
			2,01,834
Pycarah ...	Establishment	11,746	
	Buildings, etc.	6,188	
	Plantation work	46,762	
			64,696
Mailkoondah..	Establishment	9,005	
	Buildings, etc.	3,778	
	Plantation work	29,392	
			42,175
	Total ...		5,57,699

This gives a total expenditure of Rupees 464 per acre.

6. I believe the Government of India have in Sikkim about 1,250 acres under Cinchona, the total cost of which, up to 31st March 1870, has reached Rupees 3,43,518-10-5. It would be interesting to have the acreage and expenditure verified, so as to institute a comparison between our plantations and theirs. The information would aid towards forming some conclusion as to the probable cost per pound of bark at which each species can be grown in different parts of India.

It is very probable that the Sikkim plantations, from climate and other reasons, will be unable to compete with ours in the growth of the officinalis and such species; while they will outstrip us in the rapid and cheap growth of the Calisaya and Succirubra.

7. 4,000 Succirubras and 2,000 Condamineas have been mossed. Under Mr. Broughton's hands the value of this process will in due course be effectually tested by periodical analysis.

8. Up to 31st March last Rupees 42,175 have been spent upon the Mailkoondah plantation. The plantation consists of two clearings in the great forest which covers the hills to the south-west of the village of Mailkoondah. The clearing on which the jail and the Superintendent's cottage have been built is at a higher elevation than the other, and may contain 20 or 30 Acres. The Superintendent's cottage has tumbled down; the few acres planted seemed to be eaten off by the sambar. I saw nothing but here and there a few Cinchona sticks without leaves.

The jail walls are cracked in every direction, and the approaching monsoon will, I fear, bring the building to the ground.

The lower clearing is about 1½ miles from the jail, and is situated on the slope of a spur of the Koondah hills.

Here the Succirubra seemed to be doing fairly well; the trees were about two feet high, but suffer greatly, I was informed, from the violence of the monsoon winds. With reference to my remarks in paragraphs 4 and 5 of my letter to Government, dated 18th October 1869, I am still of opinion that it is not worthwhile incurring further expense on this plantation.

9. I am disposed to recommend that the Government should cease all further outlay whatever on the plantation, and endeavour to sell the upper clearing with its buildings and materials as they stand.

The lower plantation, if the Government thought proper, might be left as an experiment to see how the Cinchona trees will fare when left entirely to themselves in a clearing in the heart of the forest.

10. The Botanical Gardens have received some important contributions from Messrs. E. B. Thomas and Deschamp, Colonel Denison and Major Beddome. Some improvement has, I think, been made in the general up-keep of the gardens under the immediate direction of Mr. Jamieson.

It would be desirable, in future years, to keep the Report of the Botanical Gardens altogether distinct and separate from the Cinchona Report, so as to admit of more detail as to the number of hands employed in the gardens during the year, the nature of the work performed, the introduction of new species by exchange or otherwise, and the stock of plants available for distribution and sale, etc., etc.

A statement of the year's receipts and disbursements should also be given. Without such a detailed report it is impossible to institute a satisfactory system of exchange with other gardens in other parts of the world, nor can we say whether the utility of the Ootacamund gardens is properly maintained, nor can the public know what facilities exist of stocking their gardens with useful and ornamental plants.

OOTACAMUND,
28th May 1870.

(Signed) J. W. BREEKS,
Commissioner.

REPORT ON THE GOVERNMENT CINCHONA PLANTATIONS AND BOTANICAL GARDENS, OOTACAMUND, NEILGHERRIES, FOR THE OFFICIAL YEAR 1869-70.

DURING the past year we have completed planting the sanctioned extent of our Cinchona plantations, namely, 1,200 acres; a few additional acres are reserved for planting with the new varieties recently introduced and the lanceolate-leaved variety of officinalis.

2. During the year twelve cooly, seventy-six bullock, and twenty-one cart-loads of fresh bark were supplied for manufacture to Mr. Broughton, the Government Quinologist. At present we are supplying that gentleman with about 2,000 lbs. of fresh bark weekly. We may therefore calculate the yield this year of fresh bark from the plantations to be upwards of 100,000 lbs., or about 45 tons.

3. The past season has been very favourable for planting-operations, and the growth of the plants very satisfactory.

4. The plants permanently planted out in August and September 1862 have attained heights varying from 20 feet to 25 feet, the circumference of the stems, at one foot above the ground, measuring from 25 inches to 32 inches.

5. The number of plants planted out during the year were 254,867, making the total number 1,148,434. The number of plants propagated were 17,526 against 19,703, the result of the last year. Our propagation has lately been principally confined to the Pitayo varieties and the new variety of officinalis.

6. The number of plants distributed to the public during the year were 7,755, making the total number 178,605. Private planters now prefer seeds, and a large quantity of those have been distributed.

7. With the foregoing observations I shall proceed to the details of this report, which are arranged under the following heads:—

I. Condition and growth of plants.
II. Propagation.
III. Cultivation.
IV. Results obtained by private planters.
V. Cinchona, new varieties, remarks on.
VI. Formation of alkaloids.
VII. Establishment.
VIII. Progress of operation.
IX. Botanical Gardens.
X. Tea plantation.
XI. Fresh-water fish.
XII. Appendix A., Accounts from commencement to 31st March 1870.
XIII. Do. B., Meteorological observations at Neddivattum.
XIV. Do. C., do. do. at Ootacamund.

I. Condition and growth of plants.—The red bark *(Cinchona succirubra)* continues to be the most luxuriant of all the species we have introduced. The grey barks also maintain a very luxuriant growth, while the crown-barks and our new varieties of yellow bark rank third. The new lanceolate-leaved variety of *Cinchona officinalis* ranks fourth in its rate of growth. These facts are important in determining what species will be most profitable in cultivation, as the most hardy and luxuriant species, although yielding a bark somewhat inferior, may nevertheless be the most profitable plant to grow, in consequence of the greater produce of bark in the same space of time; and this more especially when the species is hardy and not liable to be injured by wild animals or adverse seasons, as is the case with the red bark, which does not appear to be injured by wild animals, even in situations where they entirely destroy the crown-barks. We have collected this season a large quantity of seeds, and again raised some very interesting hybrid varieties. Cinchona are particularly easy to hybridize, and in this way varieties may be obtained possessing the highest degree of excellence as regards the quality of the bark, the rapidity of the growth of the plant, its ability to endure extremes of seasons, etc.

To develop a variety in this way, such as will meet all requirements with regard to rapidity of growth, hardiness, and value of bark, will occupy some years; but the subject appears to be one well worth undertaking, and, if carefully carried out, could not fail in securing a plant much superior to any of our original species. About 50 acres of grass-land has been planted out this year with *Cinchona officinalis* and *Cinchona succirubra*. These plants continue to grow nearly as well on the grass-land as they do on the forest-land. One thousand five hundred plants of *Cinchona Condaminea* have been planted out at three feet apart, in order to test what effect close planting may have upon the bark. When plants are placed close together, if not thinned out in a few years, the stronger-growing will overtop and destroy the weaker plants. During the year 4,000 plants of *Cinchona succirubra* and 2,000 of *Cinchona Condaminea* have been mossed in order to test the value of this process when applied on a large scale. All our species of Cinchona, with the exception of *Cinchona lancifolia* and the Pitayo barks, have produced abundance of seeds; these have been extensively distributed, and large numbers of plants are now produced from seeds. The weather during the past year has been most favourable for planting operations; we have had rain during every month of the year, except February. Our frost has not been severe, and done no damage whatever to the plants.

As suggested by Mr. Brougluton a number of trees have been manured with Guano, Sulphate of Ammonia, and stable-manure, in order to ascertain what effect these manures have upon the secretion of alkaloids. The bark of the *Cinchona Pahudiana* has very much improved in appearance. The *Cinchona lancifolia*, received from Java, flourishes well in this climate and promises to be a very valuable species; this plant has somewhat the habit of *Cinchona officinalis*, but is of slower growth.

II. Propagation.—During the present year our stock of plants for filling up failures has been entirely raised from seeds; some of these have been successfully grown when sown in open beds and shaded with fern only. The more valuable species are now propagated by cuttings, such as the lanceolate-leaved variety of

Proceedings of the Madras Government, Revenue Department,
21st December 1870.

Cinchona officinalis, *Cinchona lancifolia*, and some of the more valuable of the yellow barks. The number of plants of these kinds were, on the 31st March, as follow:—

Lanceolate-leaved variety of *C. officinalis*	1,563
Cinchona lancifolia	279
Pitayo barks	123
The varieties of yellow bark	52,395
Total ...	54,360

III. Cultivation.—The system of cultivation described in previous reports has been carried out without variation in our operations of this season. All the species of Cinchona have been found to thrive best when planted in the open; when the plants are first planted, they are protected for about a year with turf, wood, or fern. The plants originally planted as an experiment under the shade of living trees have made unsatisfactory growth, especially where the shade has been dense. During this season we therefore found it necessary to destroy the forest trees by depriving them of their bark.

IV. Results obtained by private planters.—Cinchona cultivation, as a private speculation, has, during the last two years, made very little progress in this district; the value of estates, whether of Tea, Coffee, or Cinchona, have fallen greatly in the market, and become almost unsaleable: thus there is no inducement to speculators to invest their capital in these undertakings. Among the plantations which are still maintained may be mentioned Deva Sholah, the largest private plantation in Southern India, and next in extent to this the Ossington Estate, which contains nearly 400 acres of promising young Cinchona plants. Among smaller estates those of Mr. James Morgan, Dr. Colvin Smith, Colonel Scott, Captain Jennings, Colonel Fyers, and Mr. R. F. Phillips, deserve mention. A large quantity of our Cinchona seeds have been sent to private planters in the Himalayas and Ceylon, where private plantations appear to be making considerable progress.

V. Cinchona, new varieties.—Perhaps the most valuable variety in our possession is the lanceolate-leaved sort of *Cinchona officinalis*, from which Mr. Broughton has procured the unprecedented quantity of quinine, 10·13 per cent. of the weight of the bark. This variety is being propagated as rapidly as possible, and plants have already been distributed to private planters on the Neilgherries, also to Mr. Clark, Acting Superintendent, Cinchona Plantations, Bengal, and to Mr. Thwaits, Superintendent, Cinchona Plantations, Ceylon. These plants have yielded a few seeds, from which we have raised a number of seedlings; but as the seeds may or may not possess the properties of the parent plant, they have been kept separate. To perpetuate this plant in a manner so as to secure all its qualities, it can only be increased by cuttings, layers, or grafting.

The Pitayo barks, received from Mr. Cross during last year, have now been increased to 123, and we trust that during the present season we will be able to increase the varieties of this very valuable species to at least 1,000 plants. Some of the varieties of this species have the appearance of a hybrid between the red and crown-barks; they are all rich in alkaloid, and appear to be hardy and well suited to this climate. The new variety of *Cinchona Calisaya*, presented to the Indian Government by Mr. Howard in the autumn of 1867, has now been increased to 1,500 plants; it is one of the most robust and free-growing of all the varieties of Calisaya, and in consequence is a great acquisition to our collection. Of the plants

raised from the Calisaya seeds procured from Mr. Money, three of the varieties are very free-growing and hardy. Mr. Broughton has procured from the bark of these young plants 4·53 per cent. alkaloids. Among our crown-barks we have this year discovered a very interesting and apparently a new species, with soft downy leaves and a rough corky bark, but deficient in alkaloid; this plant was raised from the original seeds introduced by Mr. Cross, through Mr. Markham, and must have been gathered by accident. The hybrids raised from the seeds produced here have not attained a sufficient age to pronounce authoritatively upon the quality of the bark. The plants, however, are highly ornamental; some of the varieties very robust and free-growing, and no doubt may ultimately prove of value.

VI. Formation of alkaloids.—This subject has been fully treated in the able reports of Mr. Broughton, the Government Quinologist, and it only remains for me to notice the very interesting fact that the yield of alkaloid in our barks still continues to increase with the age of the trees. Another fact noticed in my Report of the 27th April 1867—namely, that trees with "abundant and luxuriant foliage "always yield more alkaloid than trees with spare foliage," also that "trees with "foliage freely exposed to light and air, while their stems are under dense shade, "are rich in alkaloids"—seems to be fully established by subsequent experience, and indicates a course of inquiry which may prove both interesting and profitable.

VII. Establishment.—I have much pleasure in being able to report the willing co-operation and the zeal with which my Assistants have carried out the various duties entrusted to their care. Mr. Jamieson, the Deputy Superintendent, has now been seventeen months in the country, and has, during that time, had charge of the gardens and the propagating establishment. Mr. Dawson, Assistant Superintendent in charge of Neddivattum, has carried out the various works connected with this plantation to my entire satisfaction. Mr. Rowson, the Assistant Superintendent in charge of Dodabetta Plantation, has taken a considerable interest in carrying out the operations entrusted to his charge. The Head Overseer, S. Narrainsawmy Naidoo, has been placed in charge of the Hooker and Wood Plantation under Mr. Dawson. In the Office Establishment, Mr. McNair, the Office Manager, has given every satisfaction in the performance of his duties.

VIII. Progress of operations.—No new buildings have been erected during the past year. The principal work performed being the completion of the roads, drains, and pitting of the Napier Estate at Neddivattum, and finishing the planting at Dodabetta; the establishments have been principally occupied in filling up failures and maintaining the plantations.

IX. Botanical Gardens.—During the present year no new works have been undertaken in the Botanical Gardens. Some very interesting plants, however, have been introduced and cultivated. The Quinoa, a plant of great economic value, has been successfully cultivated in the gardens, and the seeds thus produced were distributed by the Commissioner to the Native cultivators, and the plant is now pretty extensively grown throughout the district. The dry Burmese paddy or rice, the seeds of which were kindly furnished to me by Captain Seaton, the Conservator of Forests, British Burmah, has been grown in the garden, but not successfully, the climate being apparently too cold. Among economic plants which grow luxuriantly may be mentioned the Jalap, Scammony, Rice Paper plant of China, and the New Zealand flax. Our plants of the Ipecacuanah still continue stunted and of unsatisfactory growth; I therefore took the opportunity of forwarding by Mr.

Proceedings of the Madras Government, Revenue Department,
21*st December* 1870.

Broughton two plants to Mr. Ferguson, the Assistant Conservator of Forests of Nelamboor. We are indebted to Mr. E. B. Thomas, late Collector of this district, for seeds of numerous European trees and shrubs, as also for plants of the true olive, currants, and other fruit-trees; to Major Beddome we are indebted for numerous new ferns and orchids; to Colonel Denison, for a fine collection of ferns and rose-cuttings; and to Mr. Deschamps, for a very select collection of ornamental flower-seeds. The various species of Japanese trees and shrubs, introduced in 1867, continue to grow well. Many of the more valuable and handsome species have been propagated to a considerable extent.

The following table shows the distribution of plants and seeds from the garden for 1869-70:—

Months.	Fruit-trees.	Timber-trees.	Flowers and Shrubs.	Packets of Seeds.	Amount. Rs.	A.	P.
April 1869...	2	200	246	90	124	4	0
May ,, ...	...	604	194	98	129	14	0
June ,, ...	40	650	338	187	202	4	0
July ,, ...	80	412	449	187	198	6	0
August ,, ...	10	72	156	487	147	5	0
September ,, ...	...	220	286	272	127	6	0
October ,, ...	108	301	595	234	247	12	0
November ,, ...	7	2	655	113	142	0	0
December ,, ...	...	158	390	54	127	8	0
January 1870	..	25	38	20	15	13	0
February ,, ...	12	...	639	16	16	2	0
March ,, ...	...	2,040	135	79	106	7	1
Total Distribution ...	259	4,684	4,121	1,837	1,585	1	1

X. Tea plantation.—The Tea plantation has not been further extended, but a large number of the more valuable varieties of the Assam and Chinese Tea have been raised from cuttings, as only by this method of propagation can the qualities of the parent plant be perpetuated.

XI. Fresh-water Fish.—The experiment of acclimatizing and breeding European fresh-water fish has been most successful: the Trout, Tench, (the common sort and also the beautiful golden German variety;) Rudd, Carp, gold and silver fish are all increasing rapidly and making very satisfactory growth; we may therefore shortly hope to be able to stock the rivers of the district with these valuable fish.

Concluding remarks.—The extent of land having been planted, to which the Government limit their operations in Cinchona cultivation, the principal work now to be done is to maintain the plantation, to plant out annually a few acres of our recently introduced and more valuable varieties, and to collect the harvest of bark. In concluding this report I beg to tender my gratified acknowledgments to the Madras Government for the liberal support they have given in bringing this national undertaking to its present satisfactory condition; to Mr. J. E. Howard, for his valuable contributions; and to Mr. Clements R. Markham of the India House, for the active interest he has taken in the development of Cinchona cultivation.

(Signed) W. G. McIVOR,
Superintendent Government Cinchona Plantations.

OOTACAMUND,
10*th May* 1870.

A.

SANCTIONED estimate cost of each Cinchona Plantation

Particulars.	Superintendent and office Establishment.				Nursery Department.				Dodabetta Plantations.			
	1860 to 1867.	1867-68.	1868-69.	1869-70.	1860 to 1867.	1867-68.	1868-69.	1869-70.	1860 to 1867.	1867-68.	1868-69.	1869-70.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Establishment, including salaries, etc.	42,151	8,804	8,672	8,532	28,945	4,684	3,636	2,510	40,151	8,044	4,284	2,760
Buildings	.....	.....	.....	.....	4,000	100	250	800	10,550	3,650	1,950	700
Tool and Store-rooms ...	.....	.....	.....	.....	.....	.....	.....	.....	700	100	50	50
Coolies' quarters... ...	.....	.....	.....	.....	.....	.....	.....	.....	900	200	200	.....
Felling	.....	.....	.....	.....	.....	.....	.....	.....	2,850	.....	1,950	.....
Clearing and weeding, etc.	.....	.....	.....	.....	.....	.....	.....	2,634	2,620	1,000	3,000	5,800
Pitting	.....	.....	.....	.....	.....	.....	.....	.....	3,250	500	1,000	.....
Carriage of plants ...	.....	.....	.....	.....	.....	.....	.....	.....	1,700	700	500	300
Planting and shading ...	.....	.....	.....	.....	.....	.....	.....	.....	1,950	700	500	250
Trenching...	.....	.....	.....	.....	.....	.....	.....	.....	2,200	.....	100	.....
Enclosing	.....	.....	.....	.....	750	.....	.....	.....	6,900	.....	150	.....
Road-making	.....	.....	.....	.....	.....	.....	.....	.....	2,825	.....	250	350
Tools	.....	.....	.....	.....	400	200	200	150	3,525	200	200	300
Contingencies	95	100	200	250	1,500	200	500	400	8,200	1,000	800	600
Clothing	.....	.....	100	60	100	30	50	50	350	100	100	80
Total...	42,246	8,904	8,972	8,842	30,797	5,214	4,636	6,750	85,201	14,144	14,184	10,990

Particulars.	Superintendent and office Establishment.				Propagation and Nursery Department.				Dodabetta Plantations.			
	1860 to 1867.	1867-68.	1868-69.	1869-70.	1861 to 1867.	1867-68.	1868-69.	1869-70.	1860 to 1867.	1867-68.	1868-69.	1869-70.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Establishment, including salaries, etc.	40,050	8,116	8,499	5,573	23,346	6,832	3,159	2,436	33,663	6,389	4,855	2,549
Buildings	.....	.....	.....	.....	12,229	650	260	689	15,038	3,200	707	676
Tool and Store-rooms ...	.....	.....	.....	.....	.....	.....	.....	.....	450	300	.....	30
Coolies' quarters... ...	.....	.....	.....	.....	.....	.....	.....	.....	1,059	350	137	.....
Felling	.....	.....	.....	.....	.....	.....	.....	.....	4,207	.....	361	.....
Clearing and weeding, etc.	.....	.....	.....	.....	.....	.....	.....	1,000	3,578	1,160	1,300	5,000
Pitting	.....	.....	.....	.....	.....	.....	.....	.....	5,493	1,611	2,567	.....
Carriage of plants ...	.....	.....	.....	.....	.....	.....	.....	.....	1,785	1,330	140	60
Planting and shading ...	.....	.....	.....	.....	.....	.....	.....	.....	4,686	1,168	360	150
Trenching...	.....	.....	.....	.....	.....	.....	.....	.....	2,400	289	70	.....
Enclosing	.....	.....	.....	.....	.....	548	.....	.....	4,707	590	49	.....
Road-making	.....	.....	.....	.....	.....	.....	.....	.....	6,395	641	120	50
Tools	.....	.....	.....	.....	170	70	204	50	3,264	350	1,250	150
Contingencies	350	.....	222	209	1,583	120	320	300	4,077	932	250	250
Harnessing	.....	.....	.....	.....	.....	.....	.....	.....	400	604	.....	.....
Clothing	.....	.....	44	67	.....	54	75	43	.....	120	80	50
Furniture	.....	.....	.....	.....	.....	.....	852	.....	.....	1,200	310	.....
Total ...	40,419	8,116	8,765	5,849	37,278	8,824	4,889	4,518	84,690	20,220	13,167	8,950

ORDERED,

16th May 1870.

rom commencement of operations to 31st March 1870.

Neddiyuttum Plantations.				Pykara Plantations.				Mailkondah Plantations.				Total.
1861 to 1867.	1867-68.	1868-69.	1869-70.	1862 to 1867.	1867-68.	1868-69.	1869-70.	1863 to 1867.	1867-68.	1868-69.	1869-70.	
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
70,300	17,120	4,872	2,923	20,471	3,033	1,440	1,800	12,945	4,376	1,320	660	2,99,450
14,680	2,500	2,000	1,500	3,530	.....	400	700	4,325	200	400	300	50,545
650	250	100	80	975	200	100	50	675	100	50	40	4,170
3,000	200	500	.....	1,200	150	100	.....	950	.....	70	.....	7,370
7,700	.....	1,500	.....	3,950	500	1,500	.....	7,950	300	1,000	.....	28,250
7,550	1,500	4,000	8,800	3,650	500	3,000	4,000	1,700	100	2,000	4,000	56,964
8,300	500	2,000	.....	2,600	500	1,000	.....	1,700	300	1,000	.....	22,650
3,200	1,600	500	400	1,000	150	500	350	350	100	200	150	11,100
3,250	1,000	500	450	2,500	150	500	350	100	100	200	150	12,650
9,000	.....	200	.....	9,950	.....	100	.....	1,792	.....	50	.....	21,400
5,850	.....	300	.....	1,500	.....	200	.....	1,835	.....	50	.....	17,531
3,079	.....	250	300	2,600	.....	200	150	3,103	.....	50	50	13,109
4,332	400	400	350	2,382	150	200	150	2,441	100	100	100	16,460
6,934	1,600	1,000	2,500	3,396	300	300	450	1,895	400	200	300	28,816
200	200	150	150	50	70	50	70	50	100	50	40	2,000
1,45,016	26,370	18,173	17,453	59,854	6,736	9,390	8,970	41,807	6,176	6,740	5,730	5,92,465

Neddiyuttum Plantations.				Pykara Plantations.				Mailkondah Plantations.				Total.
1861 to 1867.	1867-68.	1868-69.	1869-70.	1862 to 1867.	1867-68.	1868-69.	1869-70.	1863 to 1867.	1867-68.	1868-69.	1869-70.	
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
54,838	15,861	5,993	7,592	7,309	1,686	1,132	1,419	5,092	2,163	679	489	2,39,213
18,401	2,117	1,024	900	1,083	87	773	620	2,182	375	426	100	62,321
1,969	.....	35	50	845	.....	20	20	300	.....	.....	20	3,419
3,650	.....	309	.....	1,990	.....	240	.....	250	.....	125	.....	8,019
7,263	720	1,244	.....	5,750	430	1,350	.....	3,251	101	1,500	.....	26,233
5,600	1,614	9,883	7,686	5,697	405	5,002	4,000	2,865	597	4,937	3,000	66,376
7,653	659	6,405	.....	2,955	630	2,082	.....	1,728	856	1,964	.....	34,360
3,611	849	120	80	1,215	264	125	60	150	641	140	50	10,629
4,877	1,673	330	400	915	435	344	150	230	446	294	100	15,763
6,491	.....	151	.....	2,000	35	20	.....	400	175	.....	.....	13,041
3,430	887	90	.....	1,620	166	40	.....	1,050	.....	30	.....	13,257
5,457	100	70	100	3,060	275	30	50	2,100	90	32	50	18,628
3,737	441	1,300	300	2,950	50	700	100	1,350	81	500	50	17,957
5,722	978	450	450	1,760	207	257	190	910	190	150	116	19,081
1,196	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,289
.....	150	100	80	.....	48	30	40	.....	35	40	10	1,136
.....	2,250	328	.....	.....	200	190	.....	.....	235	60	.....	5,823
1,38,735	27,013	27,903	12,378	39,274	4,929	14,845	6,649	22,277	5,734	10,398	3,976	5,37,509

(Signed) W. G. McIVOR,

Superintendent Government Cinchona Plantations.

C

APPENDIX B.

Meteorological observations from 1*st April* 1869 *to* 31*st March* 1870, *made on the Government Cinchona Plantations at Neddivattum.*

Months.	Monthly mean of dry bulb Hygrometer.				Monthly mean of wet bulb Hygrometer.				Minimum observed during the month.	Rain-fall.			
	7 A.M.	2 P.M.	6 P.M.	Daily mean.	7 A.M.	2 P.M.	6 P.M.	Daily mean.		Inches.	Cents.	Days with rain.	Days without rain.
April 1869	63·23	74·60	69·70	69·17	56·89	65·40	62·66	61·62	58·00	1	35	4	26
May ,,	62·48	75·12	69·77	69·12	64·38	67·54	64·12	65·34	59·96	5	41	17	14
June ,,	59·26	64·63	59·56	61·18	54·83	62·93	59·66	59·14	51·66	20	03	25	5
July ,,	59·45	61·61	55·48	58·84	58·48	63·32	57·58	59·76	50·57	32	54	28	3
August ,,	59·06	65·70	60·96	61·90	57·90	64·03	59·96	60·63	56·29	18	29	30	1
September ,,	59·10	66·43	62·29	62·91	64·36	63·56	59·70	62·54	56·20	12	77	26	4
October ,,	56·74	62·25	63·09	60·69	53·96	59·39	56·06	56·47	52·00	...	07	1	30
November ,,	57·63	61·96	59·40	59·66	54·20	58·03	56·10	56·11	52·13	...	63	5	25
December ,,	57·16	69·87	64·38	63·80	53·48	58·93	55·12	55·84	52·70	...	...	...	31
January 1870	51·70	63·03	59·67	58·13	54·70	59·64	54·83	56·39	52·06	...	...	...	31
February ,,	56·21	75·92	69·53	67·22	53·39	62·67	54·67	56·91	48·00	...	...	...	28
March ,,	55·16	71·22	65·05	63·81	52·06	59·16	56·06	55·74	44·35	1	28	5	26
Total...	..	...	...	...	...	...	...	...	.....	92	37	141	224
Annual Mean...	58·09	67·69	63·23	62·03	56·54	62·05	58·03	58·87	53·40	..	...	...	...

Ootacamund,
16*th May* 1870.

(Signed) W. G. McIVOR,
Supt. of Govt. Cinchona Plantations.

APPENDIX C.

Meteorological observations from 1*st April* 1869 *to* 31*st March* 1870, *made at the Government Gardens, Ootacamund.*

Months.	Monthly mean of dry bulb Thermometer.				Monthly mean of wet bulb Thermometer.				Maximum observed during the month.	Rain-fall.			
	7 A.M.	2 P.M.	6 P.M.	Daily mean.	7 A.M.	2 P.M.	6 P.M.	Daily mean.		Inches.	Cents.	Days with rain.	Days without rain.
April 1869	57·00	72·05	61·70	63·58	53·20	60·90	57·20	57·10	79·28	4	54	8	22
May ,,	58·05	71·26	61·53	63·61	55·32	62·37	58·21	58·63	73·90	6	37	16	15
June ,,	55·67	62·29	56·33	58·10	54·54	60·00	56·62	57·05	65·22	5	41	24	6
July ,,	54·36	62·73	56·77	57·95	54·14	60·09	55·82	56·68	65·22	4	91	23	8
August ,,	55·41	64·88	57·35	59·21	54·65	61·71	56·53	57·63	68·67	4	82	20	11
September ,,	54·91	66·39	56·83	59·38	54·09	62·13	55·61	57·28	69·11	2	37	16	14
October ,,	53·92	65·29	56·79	58·67	52·79	69·71	55·21	56·24	68·87	5	38	8	23
November ,,	52·18	62·41	54·41	56·33	51·00	58·59	53·05	54·21	65·79	4	44	15	15
December ,,	53·30	67·00	55·57	58·62	49·91	59·30	53·65	54·29	69·73	3	28	12	19
January 1870	53·41	66·65	55·59	58·55	47·41	57·82	50·53	51·92	70·92	...	53	3	28
February ,,	52·29	70·93	56·79	60·00	45·57	57·14	49·86	50·86	73·35	...	...	...	28
March ,,	55·11	69·44	58·06	60·87	51·00	60·94	53·50	55·15	74·21	2	25	5	26
Total...	...	...	...	...	...	...	...	...	.....	44	30	150	215
Annual Mean...	54·63	66·78	57·31	59·57	51·97	60·14	54·65	55·59	70·36	...	...	...	...

Ootacamund,
16*th May* 1870.

(Signed) W. G. McIVOR,
Supt. of Govt. Cinchona Plantations.

No. 402. From J. W. BREEKS, Esq., Commissioner of the Neilgherries, to the Secretary to Government, Revenue Department, Fort Saint George, dated Ootacamund, 14th September 1870, No. 46.

I have the honour to forward the report of the Superintendent Government Cinchona Plantations for the half year ending 31st July 1870.

2. I regret the delay in forwarding the report, but the very unsatisfactory result of the half year's propagation rendered necessary a reference to the Superintendent, whose reply, dated 10th September, I enclose.

3. In my letter to Government of the 5th March, No. 18, forwarding the previous half yearly report, I stated, on the authority of the Superintendent, that since the receipt of the Government Order, 9th November 1869, No. 2,936, attention had been devoted to the Lancolate-leaved *C. Officinalis** and the *C. Pitayensis*, and that they were being propagated as fast as possible.

* The valuable variety discovered by Mr. Broughton.

4. I regret to say, by the return now forwarded, that this appears not to have been the case. None of the Officinalis, only 161 of the Pitayo, and 1,500 of the Calisaya varieties, have been propagated during the half year; a highly unsatisfactory outturn, considering that there are six propagators on the establishment.

Enclosure No. 1.

From the Superintendent Government Cinchona Plantations, to the Commissioner of the Neilgherries, dated Ootacamund, 10th September 1870, No. 225.

In reply to your letter of the 23rd ultimo, No. 162, I have the honour to inform you that 1,661 Cinchona plants of the most valuable kinds have been propagated during the half year ending 31st July last, viz., 161 of Pitayo, and 1,500 of the best Calisaya varieties. This result is certainly unsatisfactory. Mr. Jamieson has hitherto had charge of the propagation of the Pitayo and Lancolate-leaved Cinchonas, and I regret the want of success in the management of these plants now renders it necessary to remove the propagation from under his care.

2. With reference to paragraph 2 of your letter under reply, I beg to inform you that the 3,500 plants were planted out on the Pykara and Neddivuttam Plantations. All these plants were of the valuable Calisaya varieties.

Report on the number, distribution, and condition of Cinchona plants on the Neilgherries, for the half-year ending 31st July 1870.

Species.	Botanical Names.	Commercial Names.	No. of plants.	Value per lb. of dry bark in the London market.
				s. d. to *s. d.*
1	C. Succirubra	Red bark	1,215,963	2 6 to 8 9
2	C. Calisaya	Yellow bark	41,895	2 10 to 7 0
	C. ,, Frutex			
	C. ,, Vera			
	C. Officinalis	Original loxa bark ...	1,183,159	2 10 to 7 0
3	C. Var Condaminea	Select crown bark ...	8,7509	2 10 to 7 0
	C. ,, Bonplandiana ...	Fine crown bark	43,56	2 10 to 6 0
	C. ,, Crispa	Pitayo bark	279	1 8 to 2 10
4	C. Lancifolia	Genuine grey bark ...	2,786	1 8 to 2 9
5	C. Nitida	Fine grey bark	8,500	1 8 to 2 10
6	C. Species without name ...	Grey bark	46,730	1 8 to 2 9
7	C. Micrantha	Finest grey bark	3,389	1 8 to 2 10
8	C. Peruviana	Unknown	425	Unknown.
9	C. Pahudiana	Seedlings	1,100	
10	C. Lancedate leaved variety of C. Officinalis.	Rooted cuttings	463	Do.
11	C. Pitayo, from the seeds sent by Mr. Cross	Seedlings	196	
		Rooted cuttings	88	Do.
		Total Number of Plants...	2,596,837	

Table showing the growth of the different species of plants planted out in the plantations, for the half-year ending 31st July 1870.

No. of Plants.	Species.	Where planted.	When planted.	Maximum growth.	Average growth.	Height of the tallest tree.	Girth near the ground.
				Inches.	Inches.	Feet.	Inches.
12	C. Succirubra ...	Neddivuttum.	30th Sept. 1862.	23	14	26	34½
12	C. Micrantha ...	Do.	1862	18	13	24½	26
12	C. Officinalis ...	Dodabetta ...	,, ,, 1863.	16½	8½	18¾	13¾

Table showing the propagation, distribution, etc., of plants and seeds during the half-year ending 31st July 1870.

Date.	Total number of plants propagated.	Total number permanently planted out.	Total number of plants distributed to private individuals.	Total quantity of seeds distributed.
Feb. 1870...	...	...	...	...
March ,, ...	340	...	...	...
April ,, ...	261	...	...	6
May ,, ...	450	..	108	...
June ,, ...	300	1,200	524	2
July ,, ...	310	2,300	...	...
	1,661	3,500	632	8
Previously...	2,595,176	1,148,424	178,605	295
Grand Total...	2,596,837	1,151,924	179,237	303

Remarks.—The number of plants permanently planted out in the plantations is 3,500, making the total 1,151,924.

The increase by propagation is 1,661, the monthly average being 277, making the total 2,596,837.

The number of plants distributed to private individuals is 632, giving the total distribution of 179,237.

Eight ounces of Cinchona seeds have also been gratuitously distributed, making the total 303 ounces.

Ootacamund,
18*th August* 1870.

(Signed) W. G. McIVOR,
Supt. Govt. Cinchona Plantations.

No. 403. Order thereon, 21st December 1870, No. 2,083.

Miscellaneous.

The Commissioner of the Neilgherries, in submitting Mr. McIvor's report for 1869-70, testifies generally in favour of the results attained during the year, but, on the other hand, calls attention to the serious decline of the Mailkoondah plantation, the state of which contrasts most unfavourably with the outlay expended on it.

2. The expense of the plantations has varied considerably: the Pykara estate having cost Rupees 215, the Dodabetta plantation Rupees 346, and that at Neddi-

vuttum Rupees 448 per acre, but the cost of the Mailkoondah plantation (Rs. 562 per acre) has exceeded that of all the rest. The cause of this large excess and of the unsatisfactory condition of the estate should be explained. The Government do not now consider it expedient to incur any further expense on the Mailkoondah plantation; but they wish to have Mr. McIvor's opinion as to the best mode of utilizing the outlay already incurred, and to be informed what extent of land has been cleared and prepared for planting. Mr. McIvor should also explain why the buildings have not been kept in repair.

3. The Government regret that in another important respect the results of the year have not been satisfactory. In his letter, dated 14th September 1870, No. 46, Mr. Brecks remarks on the very unfavourable results of propagation during the half year ending 31st July 1870; and in addition to this he observes that "none "of the Officinalis, only 101 of the Pitayo, and 1,500 of the Calisaya varieties "have been propagated during the half year referred to."

4. The Government regret the unsatisfactory nature of this report, and they are unable to account for Mr. McIvor's non-compliance with the marginally noted orders, in which it was enjoined that the planting of red bark trees should be discontinued in favour of the varieties mentioned by Mr. Brecks. An early and full explanation should be sent in by the Superintendent.

G. O., dated 19th June 1869, No. 1,710.
" " 9th Nov. " " 2,936.
" " 22nd Feb. 1870, " 268.

5. In other respects there is much that is encouraging to note regarding the state of the plantations. The aggregate increase by planting out during the year was 2,54,367, and by propagation 17,526; the former number representing an increase of more than 1,00,000 over the number planted in the preceding year. The Government are gratified to learn that the trees are now sufficiently advanced to permit of the supply to the Government Quinologist of 100,000 lbs. of fresh bark per annum.

6. Last year His Excellency the Governor in Council recorded with satisfaction the fact that the Lanceolate-leaved variety of *C. Officinalis* had yielded the then unprecedentedly large proportion of 9·75 per cent. of quinine. The yield of this bark of this variety has increased with its growth, and during the year under review has yielded 10·13 per cent., a result which fully justifies Mr. Broughton's anxiety that the propagation of the "Lanceolate-leaved *C. Officinalis*" should be extended.

7. Several experiments have been conducted during the year, in order to determine the conditions most favourable to the growth of Cinchona. Of these the most important is the "mossing process," to which 6,000 trees have been subjected. Manuring the plants with guano, sulphate of ammonia, and stable manure, has also been tried. The results of all these experiments should be carefully noted and reported.

8. The extent of land originally sanctioned for Cinchona planting (1,200 acres) has now been fully occupied, but it is estimated that about 1,000 acres, adjoining the three outlying plantations are still available for the same purpose if required. The Government do not consider it advisable that the plantations at Pykara and Mailkoondah should be increased in size, and any additions to those

Proceedings of the Madras Government, Revenue Department,
21st December 1870.

at Dodabetta and Neddivuttum must be limited to the cultivation of those varieties of Cinchona, the superiority of which has been, and may hereafter be determined by Mr. Broughton's analysis. The Commissioner is requested to state the area of land available at Neddivuttum, and what expense will be involved in taking it up.

9. From Appendix A. of the report it appears that the actual expenditure on the Cinchona plantations during the year under review was Rupees 45,106, being Rupees 13,684 less than the Budget-estimate (Rupees 58,790).

10. The report on the Botanical Gardens does not specify with sufficient distinctness the work which has been performed during the year under review. The fresh-water fish introduced from Europe by Mr. McIvor have thriven and largely increased in number. The lake at Ootacamund has already received a stock of them, and there is every reason to hope that some, if not at all, of the different species will succeed in the Hill streams.

11. The Government approve of Mr. Brecks's suggestion that the Government Gardens should, in future, form the subject of a separate report from that relating to the Cinchona plantations, and that details of the nature of those adverted to by the Commissioner, in paragraph 10 of his letter,* should be inserted in it.

* Dated 28th May 1870.

(True Extract.)

(Signed) W. HUDLESTON,
Secretary to Government.

To the Commissioner of the Neilgherries.
" the Government Quinologist.
" the Board of Revenue.

Exd. F. R. Bantleman.

GOVT. OF CEYLON.
REVENUE.
To
THE COMMISSIONER OF THE
SETTLEMENTS,
&c. &c. &c.
Dated December 21st
Read
Ent.
G. G. 21st December 1877, No. 2,082.
CEYLON PUBLICATIONS.
Nos. 101–103.
Ceylon Plantations and Botanical Gardens.—Letter from Commissioner of Settlements forwarding the Superintendent's Annual Report for 1876-77, received

No 225.

Government Gardens
Colaccamund 10th September 1870

From,

W. G. McIver Esq.
Supt. Govt. Chinchona Plantns

To,

J. N. Brooks Esq.
Commissioner of the Settlements
Colaccamund

Sir,

In reply to your letter of the 28th Ultimo, No 162, I have the honor to inform you that, 1661 Chinchona plants of the most valuable kinds have been propagated during the half year ending 31st July last, viz 161 of Pitayo, and 1500 of the best Calisaya varieties. This result is certainly unsatisfactory Mr Jamieson has hitherto had charge of the Propagation of the Pitayo and Succirubra Chinchonas, and I regret the want of success in the management of these plants, now renders it necessary to remove the propagation from under his care.

2. With reference to para 2 of your letter under reply, I beg to inform you that, the 3000 plants were planted out on the Pupkara and Deeldinnetenne Plantations — All these plants were of the valuable Calisaya varieties.

I have the honor to be
Sir
Your most obed.t Servt.

W. G. McIver
Supt. Govt. Chinchona Plantns

Revenue 1870. Oct.
Dom. No 2583

To The Commissioners
of Education

To
The Secretary
to Government &
Prov. Dept of
Madras

Dated 28
Rec'd 30
& 1-0 } Dlay 8/70

I am directed by the Commissioners of Education to forward herewith a Copy of a Letter from the Director of Public Instruction, dated 21st December 1870 No 2082, with its enclosures, on the subject of the Annual Report on the Schools and Colleges under the Department of Public Instruction.

2. I am to request that the Report may be submitted to the Governor in Council at the earliest practicable date.

I have the honor to be
Sir
Your most obedient Servant
Secretary to the Commissioners of Education

Madras 28th December 1870

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Revenue Department

Proceedings of the Madras Government
Under date the October 1870.

Read the following
letter from the Commissioner
Neilgherries.

Forwarding report from the
Supt. of Govt. Chinchona Plantations
for the half year ending 31st
July 1870 with Commissioner's remarks

C.H.E. 14th September 1870 No 2340

Copies of the re-
port received with this
letter will be forwarded
to the Secretary of State,
to the Supreme Government
to the other Governments
in India and to the Supt-
-intendent of the Chinchona
Plantations

Plantations in Lawa.

2 Mr Inspector is re-
quested to explain his non
compliance with the (repeated) ?
orders of Government that
the lanceolate leaved variety
of C. Officinalis should
be cultivated.

omit ll

3 His Lordship in
Council regrets the un-
satisfactory character
of the report. In future
the tabular statement
of plants propagated
during the half year should
particularize the number
of each species

Etc.

R. 23

Pro. of the Madras Govt.
under date the
Read the following
letter from the Commrs.
of the Fisheries

(M. E. 28th May 1870
No. 25)

The Commissioners
of the Fisheries
in submitting Mr.
Ivor's report for
1869-70, while fully
recally testifying
to the ~~favorable~~ attained
results ~~obtained~~
during the year,
calls particular attention to ~~the~~ ~~unsatisfactory~~
condition of the
Madhavandah Cin-
chona plantation

The Commissioner's letter also shows that at Mailkoondah a total of Rs. 42,175 has been expended in establishments, buildings & labour [~~for the purpose of planting~~] only 75 acres, have been planted. while at Pykara where a plantation of 300 acres is still in excellent order, the expenditure in proportion to the average planted has been much smaller. With these figures before them and considering that no less than Rs. 6,740 was spent on the Mail Koondah plantation during 1868-69 and Rs. 5,790 during the year under review, the Govt are surprised to receive so unsatisfactory a report of it. The Commissioner is requested to call upon Mr. Marshall for an immediate Explanation of the state of the plantation. In future the Supt. in submitting his Annual Report should refer more particularly to the progress of each plantation.

2. The year has on the whole produced successful results: and it is gratifying to learn that the trees

The Sylvan Retreat having cost Rs. 215 the Mailkoondah plantation Rs. 346 & that at Kadamanum Rs. 448. The Mailcondah plantation has cost Rs. 562 per acre. The cause of this large excess should be explained. The Govt must decide it Expedient to form a [illegible] on the Mailkoondah plantation

they will obtain the Conservator's opinion as to the best mode of utilising the outlay already incurred. and be informed what extent of land has been cleared & prepared for planting. The Mr. Marshall also Explain why the buildings have not been kept in repair.

14

are now sufficiently advanced to permit of the supply to the Govt. Quinological Estt. of 100,000 lbs of fresh bark per annum. - 254,367 plants have been planted out and 19,526 propagated, the former number representing an Excess of more than 100,000 plants over the number planted in the preceding year. -

2. - Mr. McIver's reports most favorably of the C. succirubra variety of Cinchona in point of luxuriance of growth

Should any further extension of planting eligible be limited to the variety known as the Bengal type - C. Pitayensis and the other planted varieties the desirability of which has been or may be. after be determined by the Bengal trials only. For the purpose, as well as for experiments in any kind varieties, the land stated in para 4 of the Commissr's letter No available at Nedivattum & Pycarah should be reserved.

growth and ability to withstand adverse seasons. The Govt. however, have decided that a sufficient attention has already been bestowed on the cultivation of this species [and Mr. Broughton's reports on the analyses of the various barks] and if no future determine the preference, to be assigned to a particular species in planting any portion of the sanctioned area which may hereafter become vacant. - It is unnecessary to enlarge further on this subject

subject, regarding which separate orders have been passed.

4- Last year Q. the Lyons Council recorded with satisfaction the fact that the lanceolate-leaved variety of C. officinalis had yielded the then unprecedented large proportion of 9.75 per cent of quinine - The yield of the bark of this variety has increased with its growth, and during the year under review has yielded 10.13 per cent - The plants is now being rapidly propagated both in the Lyons gardens & in the private plantations.

5. The Cinchona as reported to three letters when planted in the open (air frame under shade) Manuring the trees with guano, sulphate of Ammonia & stable manure has been tried, and 6000 plants have undergone the manuring process. ——

6. In accordance with the suggestion of Mr. Brooks, the Govt. of Ceylon will be addressed with a view to the comparison of the results of putting on

on Cinchona planting
in this Presy. with
those attained in
other parts of India
7.— The extent of
land originally sanc-
tioned for Cinchona —
viz 1200 acres is
now fully occupied,
& the Govt do not con-
sider that any increase,
in the area of the plan-
tations is called for,
especially if the
method of cropping
advocated by Mr.
Broughton proves
a success.—
8. From Appendix
A of the Report it
appears that the
actual Expenditure
on the Cinchona
plantations during
the year under

save for the temptation
mentioned in para —

[illegible]

Shimla 1/9

was Rs. 45,106, 8 —
leaving a saving
of Rs. 13,684 on the
Budget estimate
(Rs. 58,790). —
9.— The Botanical
Gardens are still
maintained in good
order. But there is
apparently not much to
report in the way of
scientific horticulture
or experiments conduc-
ted with a view to the
improvement of agri-
culture on the hills

Ver.

I would omit para 6 &
para 7 as I am unable to
see the value of them
& would omit
[illegible]

I would in line 1
for "in this Presy" &
substitute "in the hills"
& would omit "still"
before "maintained" &
substitute "kept up"
& would omit "not"
before "much" in line 4
& would substitute
"in the way of" for
"on" in line 5
& would omit "& experi-
ments conducted with a
view to the improvement
of agriculture on the hills"
in line 6
& would substitute
"Cinchona plantations"
for "Gardens" in line 7
& would omit para 8
& would substitute
"Cinchona plantations, the
area under which is
now fully occupied,
& the Govt do not
consider that any
increase in the
area of these
plantations is called for"
for para 7

Shimla 1/9

I would omit para 9.
I would separate orders
on the Gardens
from the Cinchona
plantations

[illegible]

Revenue Department

№ 2082

Proceedings of the Madras Government
Under date the 21st December 1870.

Read the following
letters from the Commissioner
Neilgherries.—

Forwarding Superintendent's Annual Report on the Govt. Chinchona Plantations and Botanical Gardens of Ootacamund with remarks.— } (R. & C. 28th May 1870 № 25)

Forwarding Report from the Supdt. of Govt. Chinchona Plantations for the half year ending 31st July 1870, with Commissioner's remarks.— } (R. & C. 14th Septr. 1870 № 46.)

№

Read

The Commissioner of the Neilgherries in submitting Mr. McIvor's Report for 1869-70 testifies generally in favour of the results attained during the year, but on the other

other hand calls attention to the serious decline of the Mailkoondah plantation, the state of which contrasts most unfavorably with the outlay expended on it.-

2. The expense of the plantations has varied considerably: the Pykarra estate having cost Rs. 215, the Dadabetta plantation Rs. 346, and that at Nedalimuttum Rs. 448 per acre: but the cost of the Mailkoondah plantation (Rs. 562 per acre) has exceeded that

that of all the rest.

The cause of this large & of the unsatisfactory condition of the estate excess should be explained. The Govt do not now consider it expedient to incur any further expense on the Mailkoondah plantation; but they wish to have Mr McIvor's opinion as to the best mode of utilising the outlay already incurred, and to be informed what extent of land has been cleared and prepared for planting. Mr McIvor should also explain why the buildings have not been kept

kept in repair.

3. The Government regret that [~~some of the features in Mr. McIver's arrangement of the plan therein called for~~] in grace commenced] In his letter dated 14th Sept. 1870, No. 46. Mr. Brooks remarks on the very unfavorable unsatisfactory results of propagation during the half year ending 31st July 1870; and in addition to this he observes that "none of "the Officinalis, only 161 "of the Pitayo, and 1500 "of the Calisaya varieties

I would say "in one important respect the result of the year has not been satisfactory"

"have been propagated "during the half year referred "to."

4. The Govt. regret the unsatisfactory nature of this report, and they are unable to account for Mr. McIver's non-compliance with the marginally noted orders* which it was enjoined that the planting of red barks trees should be discontinued in favor of the varieties mentioned by Mr. Brooks. Any [~~early explanation~~] explanation [~~of the course adopted by him~~] should be sent in by the Superintendent.

5. [~~These features in the~~ year's report exhibit in any thing but a favorable light the supervision maintained

* G.O. dated 19th June 1869, No. 1740.
" " 9th Nov. " " 2936.
" " 22nd Feb. 1870, " 268.

I would say "Early & full"

I would not

I should omit, file, in lieu the ex- planations called for - infra 181

mentioned over the Neilgherry Chinchona plantations.

In other respects there is much that is encouraging to note regarding the state of the plantations. The aggregate increase by planting out during the year was 254,367 and by propagation 17,526, the former number representing an increase of more than 100,000 over the number planted in the preceding year. The Govt are gratified to learn that the trees are now sufficiently advanced to permit of the supply to the Govt Quinologist of 100,000 lbs of fresh bark per annum

6. Last year His Excellency the Governor in Council recorded with satisfaction the fact that the lanceolate leaved variety of C. Officinalis had yielded the then unprecedentedly large proportion of 9.75 per cent of quinine. The yield of this bark of this variety has increased with its growth, and during the year under review has yielded 10.13 per cent, a result which fully justifies Mr. Broughton's anxiety that the propagation of the "lanceolate leaved C. Officinalis" should be extended.

Several

7. several experi-
=ments have been conducted
during the year in order
to determine the condi-
=tions most favorable to
the growth of Cinchonas.
Of these the most im-
=portant is the "mossing
process" to which boo
trees have been subjected.
manuring the plants with
guano, sulfate of am-
=monia and stable manure
has also been tried. The
results of all these experi-
=ments should be carefully
noted and reported.

8. The extent of land

originally sanctioned
for Cinchona planting
(1200 acres) has now been
fully occupied, but it
is estimated that about
1000 acres adjoining the
three outlying plantations
are still available for the
same purpose if required.
The Government do not
consider it advisable
that the plantations at
Lykovah and Mailkoon-
=dah should be increased
in size, and any additions
to those at Dodabetta
and Neddiewuttum must

be limited to the cultiva-
tion of those varieties of
Cinchona, the superiority
of which has been and
may hereafter be determined
by Mr. Broughton & anon-
lyses. The Commissioner
is requested to state the a-
mount of land available at
Keddiemtlum, and what
expense will be involved
in taking it up.

9 From Appendix A
of the report it appears
that the actual expendi-
ture on the Cinchona planta-
tions during the year
under review was Rs. 45,106
being Rs. 13,684 less than
the Budget estimate

10 The report on the
Botanical gardens does
not specify with suffi-
cient distinctness the work
which has been performed
during the year under review.
The fresh water fish intro-
duced from Europe by
Mr. Anderson Lance thrives
and largely increased in
number. The lake at
Ootacamund has already
received a stock of them,
and there is every reason
to hope that some if
not all of the different
species will succeed
in the N. E. streams.

11 The Government approve of Mr. Breeks' suggestion that the Govt Governor should in future form the subject of a confidential report from that Colony to the Secretary of State on the working of the Rules and Regulations framed by the Commissioners in para 10 of his letter, & dated 28th May 1870. should be inserted in it.

RFe.

JB.

Report on the Co.
Room 113 Front
& Chestnut
Sts Property