M.R.O. 14—10,000—21-4-22.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 2259 Press / ~~Mis.~~

274, 276

Dated 22 - 10 - 1862

Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department, 22nd October 1862.

Read the following papers :—

No. 274. MINUTE BY THE HONORABLE THE PRESIDENT.

1. It appears to me that Dr. Anderson has mistaken the conditions of the experiment now making upon the Neilgherries as to the cultivation of the different species of Chinchona. The object has been to ascertain whether, in a climate differing in many respects from that in which the Chinchona is found, it may not be possible, by care and attention, to acclimatize the plant so as to perpetuate and cheapen the supply of a medicine, the importance of which in a country like India it is impossible to over-estimate.

2. The Government and its agents are perfectly cognizant of the difference between the climate of the Neilgherries and that of the slopes of the Himalayas; they did not depend upon the brief experience of Dr. Anderson, who in a residence of about a week on the Hills in the depth of winter could hardly be supposed to have acquired sufficient knowledge of the plan to have been able to lay down dogmatically either the laws which regulate the weather, or the action of this upon plants raised from seed or cuttings in the locality itself, but they feel that there are quite sufficient grounds both in the statement of Mr. Markham who selected the site, and in those of others who have visited the experimental plantations in Java, to justify a belief that the Chinchona in some of its most valuable species may be profitably cultivated on the Neilgherries, and they see nothing in the present paper of Dr. Anderson which would induce them to stop the experiment which has been commenced in such a satisfactory manner by Mr. McIvor.

3. This report should be sent to Mr. McIvor with a request that he would examine and give an opinion upon the various statements made.

(Signed) W. T. DENISON.

No. 275. Report on the number and condition of the Chinchona plants in cultivation on the Neilgherries, on the 30th April 1862.

	Botanical Names.	Commercial names.	Number of plants.	Value in the London Market per lb. of dry bark.	Remarks.
				s. d. s. d.	
1.	Chinchona Succirubra	Red Bark.....	14,450	2 6 to 8 9	The whole of the plants are in the finest possible state of health, with the exception of C. Lancifolia and C. Chahuarguera. Our plants in the open air within the last two months in rapidity of growth, general health, and luxuriance, having much exceeded those in our glass houses.
2.	,, Calisaya.	Yellow Bark..... ...	237	2 10 to 7 0	
3.	,, Condaminea VarUritusinga.	Original Loxa Bark	1	2 10 to 7 0	
4.	,, Condaminea Var Chahuarguera.....	Rusty Crown Bark.	8,000	2 10 to 7 0	The C. Lancifolia, lately imported from Java, being affected by fungi at the roots, it is doubtful if we will be able to save it. As several cuttings of this sort although successfully rooted, the fungi which apparently spreads along the pith has attacked these rooted cuttings and killed them.
5.	,, Condaminea Var Crespilla.	Fine Crown Bark...	105	2 10 to 6 0	
6.	,, Lancifolia from Java	Crown Bark	1	1 8 to 2 10	The C. Chahuarguera only lately imported and has suffered much during the voyage, the whole of the leaves and part of the young shoots having been dried up, still as it seems not to have contracted any disease, I hope it will recover.
7.	,, Nitida.....	Genuine Grey Bark.	2,922	1 8 to 2 9	
8.	,, Species without name... ...	Fine Grey Bark.....	1,211	1 8 to 2 10	In the portion of our nurseries under the protection of the shade of living trees layers made in this position on the 3rd of January were found not to have rooted on the 27th of April, while layers made at the same time in the open sunshine were found rooted by the end of the same month or in 28 days. The growth under the shade has also been unsatisfactory not having in any case exceeded four inches in the last two months, while in Nothing can exceed the luxuriance and bright healthy
9.	,, Micrantha.....	Grey Bark.....	3,786	1 8 to 2 9	
10.	,, Peruviana.....	Finest Grey Bark ...	357	1 8 to 2 10	
11.	,, Pahudiana from Java... ...	Unknown.....	425	Worthless.	
		Total number of plants.....	31,495		

the same period many hundreds of the plants in the open ground have grown from 12 to 16 inches. look of the leaves in the open sunshine, while the leaves on the plants under the shade are pale, and covered with small hairs.

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

Government Gardens,
Ootacamund, 12th May 1862.

Opinions on the proposed method of cultivating Chinchona on the Neilgherries.

Mr. Howard's opinion.—"I have read and carefully considered the proposed plan of cultivation in India; and have no hesitation in saying, I think Mr. McIvor is right in his views as to the best mode of planting out the Chinchona; always supposing sufficient care is used to protect them for a year or two. With reference to the yield of Quinine and Bark which may be obtained by lopping and pruning the branches, I will let you have a specimen of C. Calisaya, which must have been grown as a shrub, and contains 4 per cent. of Quinine, so that a large produce may be realized in this way."

Dr. Weddel's opinion.—"I have no doubt that the Indian plantations will amply compensate the trouble and expense of maintaining them. With respect to conducting them we have as yet little or no experience. The only reason I can adduce for planting the young Chinchona trees under the protection of a slight shade afforded by other trees, is that these plants, in their native country, have appeared to me never to grow beyond the state of shrubs when under other conditions. It may thence be inferred that the safest way of proceeding would be to plant the Chinchonas at convenient distances in a quincunx alternately with some more fast growing trees, which may be cut away when no longer required. It is evident that the advantage to be reaped from this disposition must mainly depend upon the proper choice of these intervening strangers, it being kept in mind that they are placed there to protect and not to choke."

"Perhaps an equally good result might be obtained by planting the Chinchonas without any intermixture, but very close together, so as to make them run up, and then thinning them out as might be required. At all events it seems to be an essential point that, for a certain period, the soil and trunks of the young trees should be protected from the direct influence of the scorching sun, as plants so exposed have generally appeared to me to have a stunted growth."

"My reason for recommending the young plants to be placed in the open field, jointly with young trees of some other order, and rather more fast growing than them, originated from the fact of my having always seen the Calisaya tree dwarf and stunted when growing in exposed or entirely open situations, whether the same thing takes place with other species seems doubtful, as Mr. Spruce says that the Red Bark tree thrives in open ground."

"At all events I should never recommend planting any of these trees in the dense shade of the forest. In such a situation the greater part of them would evidently soon be smothered."

"If I have said that shade appeared indispensable to the trees at an early age, I never meant that they should have too much of it. I think that the trees in India ought to be planted in open ground, and close enough (if unmingled with other trees) to oblige each other to run up, sufficient space and air being gradually provided by judicious pruning and thinning out. A most important condition of success may be found in the choice of the proper time for planting out; the best being probably the beginning of the rainy season, 9th March 1862."

Mr. Markham's opinion.—"There can be no doubt that the correct method of cultivating the Chinchonas is planting them out in the open with plenty of light and air, they may require slight shade from the direct rays of the sun at first, the only really fine, well-grown plant of C. Calisaya that I saw in Caravaya was one that had been planted in the middle of a clearing, entirely exposed, those in the forests were poor struggling things in comparison."

Mr. Spruce's opinion.—"The ridges on which the Red Bark grows all deviate a little from an easterly and westerly direction. It is far more abundant on their northern than on their southern slope, nor did I see a single tree with flowers or fruit in a southern aspect. The northern and eastern sides of the trees themselves had borne most flowers, and except on one tree of more open growth than the rest scarcely a capsule ripened on their southern or western sides. These phenomena are explained by the facts that, in the summer season the trees receive most sun from the east and north, for the mornings are generally clear and sunny, whilst the afternoons are almost invariably foggy, and the sun's declination is northerly. Another notable circumstance is that the trees standing in open ground, pasture, cane-field, &c., are for healthier and more luxuriant than those growing in the forest, where they are hemmed in and partially shaded by other trees, and that while many of the former had flowered freely, the latter were without exception sterile. This plainly shows that, although the Red Bark may need shade whilst young and tender, it really requires (like most trees) plenty of air, light and room, wherein to develope its proportions."

Mr. Cross' Opinion.—"In forming plantations of the Red Bark, I would cut down wholesale the entire forest, and allow it to deaden and dry, and then set it on fire. This should be done immediately before the rainy season, the plants should then be planted about 2½ or 3 yards distant. By the time that the rains are over, the plants will be large enough to shade each others roots, it is the roots that require shading (not the tops) to prevent the too rapid evaporation of moisture from the ground during the sunshine. If done in this way, the Red Bark plants would soon grow up into a magnificient ever green forest. Only that portion of the forest required for planting should be cut down and burned. By burning, the land is cleared of all noxious insects and will be in a fine healthy state for receiving the plants: and by the time that insects begin to accumulate again, the plants will be established and fully developed; and so will be beyond the attack of insects."

(True Extracts.)

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

Read again the following papers:—

From Mr. McIvor dated 5th and recorded in Proceedings of Government 16th April 1862, No. 847.

From do. dated 9th May and recorded in Proceedings 25th June 1862, No. 1,400.

From do. 31st May and recorded in Proceedings 11th July 1862, No. 1,509.

From do. 6th September and recorded in Proceedings 2nd October 1862, No. 2,125.

No. 276. ORDER THEREON, 22nd October 1862, No. 2,259.

1. The foregoing papers have reference to the experiments now being made upon the Neilgherries in the cultivation of the different species of Chinchona. The Government resolve to bring them to the notice of the Secretary of State.

2. The following table shows the number of plants of each kind on the 31st August 1862:—

TABLE.

Botanical names.	Commercial names.	Number of plants and date of receipt.	Number of plants on the 30th April 1862.	Number of plants on the 31st August 1862.	Value per lb. of dry bark in the London Market.
1. C. Succirubra	Red Bark	457, April 1861 ...	14,450	30,150	s. d. s. d. 2 6 to 8 9
2. C. Calisaya	Yellow Bark ...	6, April " ... 48, Dec. " ...	237	1,050	2 10 to 7 0
3. C. Condaminea Var Uritusinga...	Original Loxo Bark ...	1, April 1862	1	41	2 10 to 7 0
4. C. Condaminea Var Chaharguera.	Rusty Crown Bark ...	Seeds, Feb. " ...	8,000	20,030	2 10 to 7 0
5. C. Condaminea Var Crespilla ...	Fine Crown Bark ...	" Feb. " ...	105	236	2 10 to 6 0
6. C. Lancifolia	Pitayo Bark... ...	4, Dec. 1861 ...	1	1	1 8 to 2 10
7. C. Nitida	Genuine Grey Bark ...	Seeds, Feb. " ...	2,922	8,500	1 8 to 2 9
8. C. Species without name	Fine Grey Bark ...	" Feb. " ...	1,211	2,440	1 8 to 2 10
9. C. Micrantha... ...	Grey Bark	" Feb. " ...	3,786	7,400	1 8 to 2 9
10. C. Peruviana	Finest Grey Bark ...	" Feb. " ...	357	2,295	1 8 to 2 10
11. C. Pahudiana	Unknown	250, Dec. " ...	425	425	Worthless.
Total number of plants...	.....	766	31,495	72,568	

Note.—Average present propagation about 10,000 per mensem.

3. The Dodabetta plantation extends at present over 60 acres, of which 15 have been already occupied, while the remaining 45 are in various stages of preparation and will be planted before the end of the current year.

4. The Neddivattam site comprises 150 acres, of which 21 have been planted, and the remainder more or less prepared. The actual plantation will be extended from 21 to 100 acres in the course of the present calender year.

5. The Government are much gratified at the decided success attained in the propagation of the plant. Mr. McIvor's mode of culture from the outset is explained in full detail in the fifth of the papers recorded above, paragraphs 22 to 40, and nothing can be more satisfactory or promising than its results.

6. In the early part of last season the experiment of planting out was first tried, and has been attended so far with marked success. Six plants were placed out in a cleared spot on the highest part of the Neddivattam site about 6,200 feet above the level of the sea. These plants, including the most delicate variety C. Succirubra, have stood the cold of the winter, the drought of the spring, and the rain of the monsoon, and are now in the most vigorous and healthy condition, ranging in height from 36 to 42 inches, although only fifteen months old. In fact there seems little reason to doubt that by proper care and attention the plant may be cultivated in the open air on the Neilgherries with success.

7. The Government will not enter upon any lengthened discussion of the different views entertained by Dr. Anderson and Mr. McIvor as to the culture of the plant. The system adopted by McIvor has the support of Messrs. Markham, Cross and Spruce, who alone have seen the plant growing in its natural habitation. It is consistent with the recognized principles of horticulture and, above all, has proved eminently successful in practice. The cultivation of the Chinchona is still an experiment, but, so far as present experience extends, the plan of open planting has been most successful, and the Government will not abandon a system which has in every respect been attended with such satisfactory results. At the same time the experiments under shade will not be discontinued, 55 acres on the Dodabetta site and 15 at Neddivattam having been reserved for that purpose.

(Signed) P. P. HUTCHINS,
Acting Deputy Secretary to Government.

I happened to see that Dr Anderson has given taken the conditions of the Experiment very much depending upon the Peculiarities of the cultivation of the different species of Cinchona — The Government accepted whether in a Climate different from that in which the Cinchona is found they may not be profitably by care and attention to acclimatize the Plant to perpetuate and do away the necessity of importing a Medicine the import of some portion in a country like India it is impossible to over- -estimate — The Government and its agents are perfectly convinced of the difference between the Climate of the Neilgherries and that of the slopes of the Himalayas — they did not depend upon the brief experience of

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regulate the distribution
of the various species
upon the surface of
the earth or the
principles of
Geology but they feel
that there are grounds
sufficient to warrant the
determination of
Sir Charles Lyell and
others who have
thought otherwise
under the experimental
philosophy of Bacon
to justify a belief that
the Siberian remains
do not invalidate the
theory maybe profitably
cultivated under Miles
of frozen and they
do not form an insuperable
barrier to Mr Anderson's

which would induce them
to close the experiments
which had been carried
on in a manner
satisfactory in many
by Mr Lyell on a
subject which deeply
interested both he would
request that he would
examine upon the various
opinions upon the various
statements made

JHD

I concur in the President's remarks

JHD

Copy as a Letter to Emigrant
dated 23rd Oct. N. 45 of 1862

Rec'd 1862 Oct. 31st
Pro. of Govt. for Qubec
No. 615.

Minute by the
Hon'ble the President.

Dated
Received } June 1862.

S.O. No. 2259. 22 Oct.

Communication upon
the Report of Dr. Anderson on the Cholera Epidemic
in the Mediterranean.

Cholera

Report

Cholera

C.S. March 1863

Table A

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Note. Average present propagation about 10,000 per Mensem.

Revue de Jardinage

No. 2254

Proceedings of the Board of Examiners held on the 22nd October 1862

Read the following Report

Prizes to the Nilgherry Plantations

Read the Report

Read again the following Report from Mr. Rhedden dated 6th Oct. received in Ootacamund on the 12th Oct. 1862

Read again the Report

Ordered that a Prize of Rs. 25 be awarded for the best Plantation

Ordered that a Prize of Rs. 15 be awarded for the second best Plantation

Ordered that a Prize of Rs. 10 be awarded for the third best Plantation

The Board of Examiners having examined the Plantations in the Nilgherries, and having made inquiries from the Residents in the neighbourhood of the Gardens, are unanimously of opinion that the Plantation of Mr. Rhedden is the best, and that the Plantation of Mr. Hooper is the second best.

The Board are also of opinion that the Plantation of Mr. Hooper is the third best.

(Signed) J. Cleghorn M.D.

Superintendent Hort. Gardens

(Signed) W. Graham

Superintendent Botanical Gardens

(Signed) A. Rhedden

Superintendent Government Plantations

(Signed) W. A. Hooper

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(Signed) W. Graham

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(Signed) A. Rhedden

Superintendent Government Plantations

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Site

site and 15 at Kodiaikanal
having been reserved
for that purpose -

WM

JP

1 Phy Lette Supdt-Govt Cinchona &
Plantations Dept 24th

4 " Conservator of Forests. ✓

Copy in a Letter to England
dated 23d Octr No 75 of 1862

Cinchona Cultivation

Revenue 1862 Despth
Pro: of Govt for October

No 2259

Pro: of the Madras Govt
Dy 22d October 1862.

Passing orders on
papers relating to the
cultivation of the different
species of Cinchona on
the Neilgherries.

No 274 @ 276