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(1)

FINANCIAL DEPARTMENT.

MISCELLANEOUS.

No. 162T–F.

DARJEELING, THE 25TH AUGUST 1891.

GOVERNMENT OF MADRAS
*8 SEP 91
REVENUE DEPARTMENT*

FROM H. H. RISLEY, Esq.,

Offg. Secretary to the Government of Bengal,

TO THE SECRETARY TO THE GOVERNMENT OF MADRAS.

SIR,

I AM directed to forward, for the information of the Government of Madras, a copy of the Report on the working of the Government Cinchona Plantation and Factory in Bengal during 1890-91, together with a copy of the Resolution recorded by the Lieutenant-Governor thereon.

I have the honour to be,

SIR,

Your most obedient servant,

H H Risley

Offg. Secretary to the Govt. of Bengal.

H. P.—Reg. No. 4T–34–28-8-91.

(3)

FINANCIAL DEPARTMENT.

MISCELLANEOUS.
No. 158T—F.

DARJEELING, THE 25TH AUGUST 1891.

RESOLUTION.

READ—

The Annual Report of the Government Cinchona Plantation and Cinchona Factory in Bengal for the year 1890-91.

In spite of the heavy rainfall of the year, the number of cinchona plants destroyed by landslips was less than in previous years of smaller rainfall, and no damage at all was done by hail. The policy of replacing the red bark, which though rich in the inferior alkaloids is comparatively poor in quinine, by the *Calisaya* and hybrid varieties which yield a large proportion of quinine, was steadily adhered to; 192,000 of the former kind were uprooted and not renewed, and 200,460 of the latter were put out in the plantation. The number of cinchona plants in the plantation on the 1st April 1891 was 4,515,861, while 234,000 seedlings were in the nurseries. The crop collected amounted to 293,972 pounds of dry bark against 304,705 in 1889-90, of which 106,150 pounds were of red bark, 105,848 of bark of *Calisaya Ledgeriana*, 66,730 of hybrid bark, 13,974 of *Verde* and *Morada*, and 1,270 of Crown or *Officinalis* bark. The whole of this crop, with the exception of a small quantity supplied on indent or sold to Government institutions, was made over to the Febrifuge Factory for disposal.

2. The outturn of the factory, which is generally regulated by the demand, was 4,031 pounds of cinchona febrifuge and 4,010 pounds of sulphate of quinine, against 6,578 and 1,833 pounds respectively in the previous year. The entire quantity was manufactured during the year by the fusel oil process, which has, in the last few years, successfully taken the place of the old acid and alkali method of manufacture. The issues during the year were slightly less than those in 1889-90, as will be seen from the following table:—

	1890-91. lb	oz.	1889-90. lb	oz.
To Medical Depôt, Calcutta	850	0	2,197	0
Ditto, Bombay	1,400	0	2,224	0
Ditto, Meean Meer ..	1,000	0	....	
To Inspector-General of Civil Hospitals, Bengal	222	12	352	8
To Inspector-General of Jails, Bengal ..	110	8	149	9
To Commissariat Department for Port Blair	75	0	....	
Sold to Government officers and the public	3,973	3½	2,756	0
Given as samples	15	1	1	0
Total ..	7,646	8½	7,680	1

The decrease in the quantity of drugs issued to the Medical Depôts at Calcutta and Bombay occurred under the head of cinchona febrifuge. The issues of quinine to these two depôts rose from 674 pounds to 1,050 pounds. Of the total issues during the year, 3,789½ pounds were of quinine, 3,837 of cinchona febrifuge, and 20 of crystalline febrifuge.

3. The revenue derived from the sale of sulphate of quinine, cinchona and crystalline febrifuge, cinchona barks and other products of the plantation, amounted to Rs. 1,18,576, against Rs. 1,13,693-12-6 in the previous year.

	1890-91. Rs. A. P.	1889-90. Rs. A. P.
By sale of febrifuge, sulphate of quinine, &c.	60,885 0 0	43,112 13 0
By credit from the Medical Depôts and the Commissariat Department	52,956 4 0	63,374 11 6
By credit from the Inspector-General of Civil Hospitals, Bengal	3,141 12 0	5,056 2 0
By credit from the Inspector-General of Jails, Bengal ..	1,593 0 0	2,150 2 0
Total ..	1,18,576 0 0	1,13,693 12 6

4. The net profit of the year's working amounts to Rs. 17,040-2, a result which may be considered as satisfactory and quite sufficient. It must be remembered that in starting the cinchona plantations in this country, the Government did not aim at a profit: its object was to secure for the people a cheap remedy for fever, the commonest of all tropical diseases. The quinine manufactured at the Government Factory can now be sold at one rupee per ounce, while, as Dr. King remarks, quinine cost a good many rupees per ounce 29 years ago, when the cinchona enterprize was initiated by the Government of Bengal. This is a matter for much congratulation. Hardly any greater blessing to a fever-stricken country can be imagined than cheap quinine. Dr. King observes that it would be possible still further to reduce the price of quinine if all the charitable dispensaries in the province were to supply themselves with the Government drug instead of buying their quinine elsewhere. The Lieutenant-Governor has ascertained by personal enquiry, since Dr. King's report drew his attention to the subject, that many dispensaries procure their quinine from private stores at Re. 1-2 and Re. 1-4 per ounce, when they could purchase it from Dr. King at Re. 1 per ounce. This is an obvious absurdity. Not only is the Government quinine declared to be purer than much of the foreign quinine imported into the country, but also it is only reasonable that institutions helped by Government should draw their supplies of quinine from the Government factory, and the Inspector-General of Civil Hospitals will be asked to look into the matter and consider what can be done to extend the demand for Government quinine in order to bring about a further reduction of price.

5. The thanks of Government are again due to Dr. King and Mr. Gammie for their efficient management of the Department.

By order of the Lieutenant-Governor of Bengal,

H. H. RISLEY,

Offg. Secretary to the Govt. of Bengal.

H. P.—Reg. No. 2T—656—29-8-91.

(5)

ANNUAL REPORT ON THE GOVERNMENT CINCHONA PLANTATION AND FACTORY IN BENGAL FOR THE YEAR 1890-91.

No. 77C, dated Royal Botanic Garden, Seebpore, near Calcutta, the 9th July 1891.

From—Brigade-Surgeon George King, M.B., F.R.S., C.I.E., Superintendent, Royal Botanic Garden, Calcutta, and of Cinchona Cultivation in Bengal,

To—The Secretary to the Government of Bengal, Financial Department.

I have the honour to forward herewith the annual report of the Cinchona Plantations and Factory for the year 1890-91.

Twenty-ninth Annual Report of the Government Cinchona Plantation and Factory in British Sikkim for the year 1890-91, *by* Brigade-Surgeon G. King, M.B., LL.D., F.R.S., C.I.E., *Superintendent of the Royal Botanic Garden, Calcutta, and of Cinchona Cultivation in Bengal, and Government Quinologist.*

1. The year under review was remarkable for its very heavy rainfall. This occasioned numerous breaks of communication with Darjeeling and with the plains, but the loss of cinchona trees by landslips was less than in years when the total rainfall was considerably less. No damage was caused by hail during the year.

2. *Changes in the Plantation.*—During the year 367,000 trees were uprooted. Of these, 192,000 were red bark trees and 175,000 were yellow, hybrid, and crown. The renewals amounted to 200,460, and consisted of 18,020 hybrids and 182, 440 yellow-barks (calisaya). In accordance with the policy of eliminating the red-barks, which has been followed for many years, no renewals were made of this sort. And the total number of them now remaining in the Plantation stands at under a million-and-a-half; ten years ago they numbered considerably over four millions. On the other hand, the stock of the quinine-yielding sorts (calisaya and hybrids) has risen within the same period from about half a million to three and three-quarter millions. The table printed as Appendix A to this report gives a census of the plants at the end of the year under review. The totals of all sorts there shown are 4,515,861 plants in the Plantation, and 234,000 seedlings in the nurseries.

3. *The crop for the year.*—The total crop harvested during the year was 293,972 pounds of dry bark. This total is made up of 106,150 pounds of red bark, 105,848 of bark of Calisaya Ledgeriana, 66,730 of hybrid bark, 13,974 of verde and morada, and 1,270 of crown or officinalis bark. The proportion of crop yielded by the old or Mungpoo plantation was 199, 670; by the Sittong plantation 57,440, and by the new plantation at Rungjung 36,862 pounds. The bulk of this crop was made over to the Factory; only a small quantity (784½lbs.) having been supplied to Government institutions or sold to the public.

4. *Expenditure on the Plantation for the year.*—The total budget allotment for the year was Rs. 74,020. It was, however, not found necessary to spend the whole of this, and a saving of Rs. 5,390-9-5 was effected. The net expenditure was therefore only Rs. 68,629-6-7, and it was distributed as follows:—

	Rs.	A.	P.
European establishment (including all salaries except that of Dr. King, Superintendent of the Botanic Garden, Calcutta), coolie labour, and office establishment	60,801	6	1
Keep of animals for plantations	900	0	0
Contingencies, &c., including service postage stamps, &c	4,835	9	9
Travelling allowance	279	12	0
Stores from England	1,812	10	9
Total ...	68,629	6	7

In return for this expenditure there was collected, as has just been shown 293,972 pounds of bark. The net cost of each pound of bark was therefore As. 3 pies 8·823.

5. *Factory.*—The whole of the manufacturing operations were conducted by the fusel-oil process, another year's experience of which only increases our previous confidence in its simplicity and efficiency. The budget allotment for the Factory for the year amounted to Rs. 35,950, of which, however, only Rs. 33,007-0-4 were actually spent; and this expenditure includes items of Rs. 4,691-2-5 for stores from England. If to this Factory expenditure there be added the cost of the bark used in the Factory during the year, the amount will stand thus:—

	Rs.	A.	P.
Cash expenditure on Factory (including Rs. 4,691-2-5 for stores from England) ...	33,007	0	4
201,568 pounds of bark (crop of 1889-90) at an average cost of annas 3 pies 4·338 per pound	42,348	2	9
48,662 pounds (crop of 1890-91) at an average cost of annas 3 pies 8·823 per pound ...	11,360	4	8
Total ...	86,715	7	9

The outturn obtained for this sum consisted of 4,031 pounds of cinchona febrifuge and 4,010 pounds of sulphate of quinine. Owing to the larger percentage which is obtained of febrifuge, I reckon that each pound of it cost about Rs. 8, whereas each pound of quinine cost about Rs. 13-9-3·91.

6. *Sales of Febrifuge and Quinine during the year.*—The total issues for the year were 3,837 pounds of febrifuge, 3,789½ pounds of quinine, and 20 pounds of crystalline febrifuge; and these were distributed as follows:—

	lbs.	oz.
To Medical Depôt, Calcutta—		
Cinchona febrifuge	200	0
Sulphate of quinine	650	0
To Medical Depôt, Bombay—		
Cinchona febrifuge	1,000	0
Sulphate of quinine	400	0
To Medical Depôt, Meean Meer—		
Sulphate of quinine	1,000	0
To Inspector-General of Civil Hospitals, Bengal (for district medical officers, Bengal)—		
Cinchona febrifuge	216	0
Crystalline „	6	12
To Inspector-General of Jails, Bengal (for jails and lock-ups in Bengal)—		
Cinchona febrifuge	99	8
Crystalline „	7	0
Sulphate of quinine	4	0
To Commissariat Department for Port Blair—		
Sulphate of quinine	75	0
Sold to Government officers—		
Sulphate of quinine	1,651	11½
Sold to Government officers and to the general public—		
Cinchona febrifuge	2,315	8
Crystalline „	6	0
Given as samples—		
Cinchona febrifuge	6	0
Crystalline „	0	4
Sulphate of quinine	8	13
Total ...	7,646	8½

7. *Stock Account.*—At the end of the year the stock of bark on hand amounted to 469,917 pounds. Part of this (viz. 224,607 pounds) was carried forward from previous years, and its average cost (as per last year's account) was annas 3 pies 4·338 per pound. The remainder (245,310 pounds) is the bark crop of the year under review, which has been shown to have cost annas 3 pies 8·823 per pound. The stock account at the end of the year under review, as well as that of the previous year, is given in the following table.

(13)

APPENDIX F.

Table showing the produce of the Government Cinchona Plantations in British Sikkim since their beginning.

Mungpoo Division.

				lbs.
Dry bark collected by pruning and thinning during			1869-70 ...	2,400
Ditto	ditto	ditto	1870-71 ...	12,500
Ditto	ditto	ditto	1871-72 ...	39,000
Ditto	ditto	ditto	1872-73 ...	*Nil.*
Ditto	ditto	ditto	1873-74 ...	16,000
Ditto	ditto	ditto	1874-75 ...	39,405
Crop of 1875-76	...	...	...	211,931
1876-77	...	...	...	207,781
1877-78	...	...	...	344,225
1878-79	...	...	...	261,659
1879-80	...	...	...	345,740
1880-81	...	...	...	348,560
1881-82	...	...	...	298,780
1882-83	...	...	...	358,100
1883-84	...	...	...	253,270
1884-85	...	...	...	300,125
1885-86	...	...	...	152,460
1886-87	...	...	...	146,979
1887-88	...	...	...	217,780
1888-89	...	...	...	293,750
1889-90	...	...	...	222,025
1890-91	...	...	...	199,670
			Total ...	4,272,140

Sittong Division.

				lbs.
Dry bark collected by pruning and thinning during			1879-80 ...	15,850
Ditto	ditto	ditto	1880-81 ...	28,965
Ditto	ditto	ditto	1881-82 ...	42,790
Ditto	ditto	ditto	1882-83 ...	38,880
Ditto	ditto	ditto	1883-84 ...	51,890
Ditto	ditto	ditto	1884-85 ...	39,076
Ditto	ditto	ditto	1885-86 ...	52,950
Ditto	ditto	ditto	1886-87 ...	78,652
Ditto	ditto	ditto	1887-88 ...	72,630
Ditto	ditto	ditto	1888-89 ...	67,740
Ditto	ditto	ditto	1889-90 ...	50,180
Ditto	ditto	ditto	1890-91 ...	57,440
			Total ...	597,043

Rungjung Division.

				lbs.
Dry bark collected by thinning during		1888-89 ...	...	11,610
Ditto	ditto	1889-90 ...	...	32,500
Ditto	ditto	1890-91 ...	...	36,862
			Total ...	80,972

APPENDIX G.

Table showing the amount of Cinchona febrifuge, Crystalline febrifuge, and Sulphate of quinine, produced from the commencement to 31st March 1891, and the stock at the latter date.

	lbs.	oz.
Manufactured in 1874-75 ...	43	10
Ditto 1875-76 ...	1,940	6
Ditto 1876-77 ...	3,750	12
Ditto 1877-78 ...	5,162	0
Ditto 1878-79 ...	7,007	0
Ditto 1879-80 ...	9,434	13
Ditto 1880-81 ...	9,296	0
Ditto 1881-82 ...	8,010	0
Ditto 1882-83, viz.—		
Cinchona febrifuge ...	10,363	4
Crystalline ,, ...	300	0
Manufactured in 1883-84, viz.—		
Cinchona febrifuge ...	8,464	0
Crystalline ,, ...	250	0
Manufactured in 1884-85, viz.—		
Cinchona febrifuge ...	6,079	0
Crystalline ,, ...	385	0
Manufactured in 1885-86, viz.—		
Cinchona febrifuge ...	4,625	0
Crystalline ,, ...	118	0
Manufactured in 1886-87, viz.—		
Cinchona febrifuge ...	6,641	0
Crystalline ,, ...	149	0
Manufactured in 1887-88, viz.—		
Cinchona febrifuge ...	6,916	0
Crystalline ,, ...	1	0
Sulphate of quinine ...	331	8
Manufactured in 1888-89, viz.—		
Cinchona febrifuge ...	6,384	0
Sulphate of quinine ...	2,191	0
Manufactured in 1889-90, viz.—		
Cinchona febrifuge ...	6,578	0
Sulphate of quinine ...	1,833	2
Manufactured in 1890-91, viz.—		
Cinchona febrifuge ...	4,031	0
Sulphate of quinine ...	4,010	0
Total ...	114,299	7

	lbs.	oz.
Supplied to Medical Depôt, Calcutta, viz.—		
Cinchona febrifuge ...	31,520	3
Crystalline ,, ...	24	8
Sulphate of quinine ...	1,907	8
Supplied to Medical Depôt, Bombay, viz.—		
Cinchona febrifuge ...	15,600	0
Sulphate of quinine ...	874	0
Supplied to Medical Depôt, Madras, viz.—		
Cinchona febrifuge ...	5,730	0
Crystalline ,, ...	20	0
Sulphate of quinine ...	400	0
Supplied to Medical Depôt, Mecan Meer, viz.—		
Sulphate of quinine ...	1,000	0
Supplied to Straits Settlements ...	30	0
Supplied to Colonial Government, Mauritius ...	150	
Supplied to Commissariat Department for Port Blair ...	155	0
Supplied to Inspector-General of Civil Hospitals, Bengal (for district medical officers of Bengal), viz.—		
Cinchona febrifuge ...	5,561	8
Crystalline ,, ...	103	4
Supplied to Inspector-General of Jails, Bengal (for jails and lock-ups in Bengal), viz.—		
Cinchona febrifuge ...	670	8
Crystalline ,, ...	58	8
Sulphate of quinine ...	4	1
Sold to Government officers for cash, viz.—		
Sulphate of quinine ...	2,311	15½
Sold for cash, viz.—		
Cinchona febrifuge ...	43,499	0
Crystalline ,, ...	986	8
Samples, viz.—		
Cinchona febrifuge ...	136	6
Crystalline ,, ...	10	4
Sulphate of quinine ...	9	13
Stock in hand on 31st March 1891, viz.—		
Cinchona febrifuge ...	1,753	4
Crystalline ,, ...	.....	
Sulphate of quinine ...	1,783	4½
Total ...	114,299	7

APPENDIX H.

Cash Income for 1890-91.

		Rs.	A.	P.
Cash received from sale of cinchona febrifuge and paid into the Bank of Bengal and into other treasuries in Bengal, North-Western Provinces and Assam, &c.		32,385	12	0
Cash received from sale of crystalline febrifuge and paid into the Bank of Bengal		108	8	0
Cash received from sale of sulphate of quinine and paid into the Bank of Bengal and into other treasuries in Bengal and Assam		28,125	11	0
Cash received from sale of cinchona bark, &c., and paid into the Bank of Bengal		265	1	0
Credit for cinchona febrifuge supplied to the medical depôts, viz.:—				
Calcutta	2,800 0 0			
Bombay	14,000 0 0			
		16,800	0	0

As much of the bark has now been held for some time, I have taken it at an overhead valuation of annas 3 per pound, which I consider a fair rate—

Stock on 31st March 1890.

	Rs.	A.	P.
Chemicals and stores	3,000	0	0
Cinchona febrifuge, 1,559½ pounds, at Rs. 10-12-3·026 per pound	16,786	13	2
Crystalline febrifuge, 20 pounds, at Rs. 16-6-2 per pound ...	327	11	4
Sulphate of quinine, 1,562 pounds, at Rs. 11-14-3·026 per pound ...	18,583	0	5
Bark, 426,275 pounds, at an average of 3 annas 4·338 pies per pound	89,559	6	1
	1,28,256	15	0
Increase in value ...	100	9	0
Total ...	1,28,357	8	0

Stock on 31st March 1891.

	Rs.	A.	P.
Chemicals and stores ...	2,000	0	0
Cinchona febrifuge, 1,753¼ pounds, at Rs. 8 per pound ...	14,026	0	0
Sulphate of quinine, 1,783 pounds 4½ ounces, at Rs. 13-9-3·91 per pound	24,222	1	0
Bark, 469,917 pounds, valued at an average of 3 annas per pound ...	88,109	7	0
Total ...	1,28,357	8	0

The stock stands, therefore, practically at the same value as it did at the end of the previous year.

8. *Financial result of the year's working.*—If the figures which have been given in the previous paragraphs be collected, a balance sheet can be prepared showing the general result of the year's working. This is as follows:—

BALANCE SHEET.

Dr.	Rs.	A.	P.	Cr.	Rs.	A.	P.
To value of stock on 31st March 1890	1,28,256	15	0	By value of stock on 31st March 1891	1,28,357	8	0
To cash received from the Treasury during 1890-91 for expenditure on the plantations, viz., Rungbee, Mungpoo, Sittong, and Rungjung	66,816	11	10	By cash receipts from sale of sulphate of quinine, cinchona and crystalline febrifuge, and cinchona bark, &c. ...	60,885	0	0
To stores from England for plantations	1,812	10	9	By credit from medical depôts for cinchona febrifuge, viz.—			
To cash received from Treasury during 1890-91 for expenditure on Factory	28,315	13	11	Rs. A. P.			
To stores from England for factory	4,691	2	5	Calcutta ... 2,800 0 0			
Profit on the year's working ...	17,040	2	1	Bombay ... 14,000 0 0			
					16,800	0	0
				By credit from medical depôts for sulphate of quinine, viz.—			
				Rs. A. P.			
				Calcutta ... 11,050 0 0			
				Bombay ... 6,800 0 0			
				Mean Meer ... 17,000 0 0			
					34,850	0	0
				By credit from Commissariat Department for cinchona febrifuge supplied to the Commissariat Store and Shipping Officer for Port Blair	1,275	0	0
				By credit from Inspector-General of Civil Hospitals, Bengal, for cinchona febrifuge and crystalline febrifuge supplied to medical officers of Bengal, viz.—			
				For cinchona febrifuge ... Rs. 3,027 A. 0 P. 0			
				For crystalline febrifuge ... 114 12 0			
					3,141	12	0
				By credit from Inspector-General of Jails, Bengal, for cinchona and crystalline febrifuge and sulphate of quinine supplied to jails and lock-ups in Bengal, viz.—			
				For cinchona febrifuge ... Rs. 1,393 A. 12 P. 0			
				For crystalline febrifuge ... 122 0 0			
				For sulphate of quinine ... 68 0 0			
					1,583	12	0
				By credit from Medical Depôt, Calcutta, for cinchona bark ...	31	4	0
				By credit from Inspector-General of Jails, Bengal, for cinchona bark supplied to the Medical Officer of the Alipore Jail Hospital	9	4	0
Total ...	2,46,933	8	0	Total ...	2,46,933	8	0

The result of the year's working is therefore a profit of Rs. 17,040-2-1. Of this profit, the sum of Rs. 16,939-9-1 is in cash, and only the small sum of Rs. 100-9 represents increase in the value of stock. The largeness of the amount both of raw material and of manufactured product in stock shows that the producing capacity of the Plantation and Factory is greater than the demand for their products. This is a great economic disadvantage, for the best possible results of any producing agency are not obtainable unless it be worked up to its full power. And could the full production of the cinchona estate be taken off, it would be possible still further to reduce the price both of quinine and febrifuge. And I have little doubt that, were all charitable dispensaries to supply themselves with Government quinine, the fullest possible outturn of the Factory and Plantation might be absorbed. But the majority of these dispensaries are now administered by local boards and municipalities, and these bodies appear to prefer in buying their drugs to supplying themselves with quinine from other sources. This practice appears still more unfortunate when it is viewed in the light of the fact that the Government quinine has been shown by repeated analysis to be of the highest possible purity, which is a good deal more than can be said of much of the foreign quinine that is sold in Calcutta.

9. From the beginning of the year that has now been entered upon, the price of febrifuge has been reduced to Government officers to Rs. 10 per pound and the price of quinine to Rs. 16. When the cinchona enterprise was initiated by Government twenty-nine years ago, the price of quinine stood at a good many rupees per ounce, and the repeatedly avowed intention of Government was to reduce its price to one rupee per ounce. That intention has now been fulfilled, and the matter is one, I think, for congratulation.

10. The crop of bark for next year will, as usual, be regulated by the demand for quinine and febrifuge, which, I trust, may be considerably in excess of that of the year under review.

11. The sum of Rs. 2,327-8, received for grazing and land-rent from settlers on the cinchona reserve, was paid into the Darjeeling Treasury, no credit having been taken for it in the cinchona accounts.

12. The progress of the fuel plantation at Mungpoo has been most satisfactory, and a large extension of it above the level of the Sureil bungalow has been arranged for. A great number of Oak thinnings cut out during the previous year were used in the Factory, and proved to make most excellent fuel.

13. The Plantation and Factory have during the year been under the executive charge of the Deputy Superintendent, Mr. J. A. Gammie, whose excellent services require no commendation from me. Mr. R. Pantling, the senior assistant, was absent on furlough during the greater part of the year. His duties were performed to my entire satisfaction by Mr. G. A. Gammie. The other assistants, Mr. Parkes, who is in charge of the Rungjung plantation, and Mr. A. Hartless, who is stationed at Mungpoo, have both done excellent work. And the office staff under Babus Gopal Chandra Datta and Devendranath Basu have worked well.

14. The usual statistical returns are appended.

APPENDIX A.

Table showing the number and distribution of Cinchona plants in the Government Cinchona Plantations, Sikkim, on 1st April 1891.

MUNGPOO DIVISION.

	Plantations.				Nursery.			
	Number in permanent plantation on 1st April 1890.	Number of plants uprooted during the year 1890-91.	Planted during the year 1890-91.	Number in permanent plantation on 1st April 1891.	Number of stock plants for propagation on 1st April 1891.	Number of seedlings and rooted cuttings in nursery beds for permanent plantation.	Number of rooted plants in seed and cutting beds.	Total nursery stock on 1st April 1891.
Cinchona Hybrid	971,750	50,000	18,020	939,770	4,000	20,000	...	24,000
,, Succirubra	893,000	192,000	...	700,000	...	...	...	...
,, Calisaya Ledgeriana ...	1,066,660	55,000	107,840	1,119,400	...	150,000	...	150,000
,, ,, Verde and Morada.	107,300	5,000	...	102,300	...	...	...	...
,, Officinalis	15,000	5,000	...	10,000	...	...	...	...
,, Hard Carthagena ...	1	...	...	1	...	...	...	...
Total ...	3,052,611	307,000	125,860	2,871,471	4,000	170,000	...	174,000

APPENDIX A—*concluded.*

SITTONG DIVISION.

	Plantations.				Nursery.			
	Number in permanent plantation on 1st April 1890.	Number of plants uprooted during the year 1890-91.	Planted during the year 1890-91.	Number in permanent plantation on 1st April 1891.	Number of stock plants for propagation on 1st April 1891.	Number of seedlings and rooted cuttings in nursery beds for permanent plantation.	Number of rooted plants in seed and cutting beds.	Total nursery stock on 1st April 1891.
Cinchona Hybrid	221,940	10,000	...	211,940	...	10,000	...	10,000
,, Succirubra	720,000	...	...	720,000	...	...	...	...
,, Calisaya Ledgeriana ...	114,890	15,000	74,600	174,490	...	50,000	...	50,000
,, ,, Verde and Morada.	12,000	...	...	12,000	...	...	...	...
Total ...	1,068,830	25,000	74,600	1,119,430	...	60,000	...	60,000

RUNGJUNG DIVISION.

Cinchona Hybrid	9,160	...	...	9,160	...	...	...	...
,, Calisaya Ledgeriana ...	517,800	30,000	...	487,800	...	...	...	...
,, Verde and Morada.	34,000	5,000	...	29,000	...	...	...	...
Total ...	560,960	35,000	...	525,960	...	...	...	

APPENDIX B.

Table showing the actual details of the year's planting, 1890-91.

	Hybrid.	Calisaya Ledgeriana.	Total.
Mungpoo Division ...	18,020	107,840	125,860
Sittong ,, ...	...	74,600	74,600
Rungjung ,, ...	...	...	...
Total ...	18,020	182,440	200,460

APPENDIX C.

Table showing the total number of Cinchona trees of all sorts standing in the Permanent Plantations on 31st March 1891.

	Red Cinchona, Succirubra.	Yellow Cinchona, Calisaya Ledgeriana.	Yellow Cinchona, Calisaya Verde and Morada.	Hybrid, unnamed variety.	Other kinds.	Total of all sorts.
Mungpoo Division ...	700,000	1,119,400	102,300	939,770	10,001	2,871,471
Sittong ,, ...	720,000	174,490	12,000	211,940	...	1,118,430
Rungjung ,, ...	.....	487,800	29,000	9,160	...	525,960
GRAND TOTAL OF ALL SORTS	1,420,000	1,781,690	143,300	1,160,870	10,001	4,515,861

APPENDIX D.

Account of dry Cinchona Bark collected during season 1890-91.

	Root bark.	Stem bark.	Branch bark.	Total.	
	lbs.	lbs.	lbs.	lbs.	lbs.
SUCCIRUBRA—					
Mungpoo	23,450	17,570	12,850	53,870	
Rungbee	9,080	8,140	6,540	23,760	
Sittong	11,910	9,360	7,250	28,520	
Total Succirubra ...	44,440	35,070	26,640	106,150	106,150
LEDGERIANA—					
Mungpoo	12,230	8,230	7,080	27,540	
Labdah	13,510	7,520	12,1 0	33,130	
Sittong	5,850	3,360	5,730	14,940	
Rungjung	10,154	6,675	13,409	30,238	
Total Ledgeriana ...	41,741	25,785	38,319	105,848	105,848
HYBRID—					
Mungpoo	17,410	12,030	13,970	43,410	
Labdah	4,780	2,440	4,320	11,540	
Sittong	4,590	2,610	4,580	11,780	
Total Hybrid ...	26,780	17,080	22,870	66,730	66,730
VERDE AND MORADA—					
Mungpoo	2,090	1,380	1,680	5,150	
Sittong	980	590	630	2,200	
Rungjung	2,651	1,428	2,545	6,624	
Total Verde and Morada ...	5,721	3,398	4,855	13,974	13,974
OFFICINALIS—					
Labdah	520	290	460	1,270	
Total Officinalis ...	520	290	460	1,270	1,270
GRAND TOTAL OF ALL SORTS ...	119,205	81,623	93,144	293,972	293,972

APPENDIX E.

Stock of bark on 1st April 1891.

				lbs.
Succirubra	bark	...	...	57,468
Calisaya Ledgeriana	,,	...	...	209,644
Officinalis	,,	...	...	8,990
Hybrid	,,	...	...	162,561
Verde and Morada	,,	...	...	31,254
		Total	...	469,917

APPENDIX H—*concluded.*

	Rs.	A.	P.	Rs.	A.	P.
Credit for sulphate of quinine supplied to the medical depôts, viz.:—						
Calcutta ...	... 11,050	0	0			
Bombay ...	... 6,800	0	0			
Meean Meer ...	... 17,000	0	0			
				34,850	0	0
Credit for sulphate of quinine supplied to Commissariat Department for Port Blair				1,275	0	0
Credit for cinchona febrifuge supplied to Inspector-General of Civil Hospitals, Bengal (for district medical officers of Bengal)				3,027	0	0
Credit for cinchona febrifuge supplied to Inspector-General of Jails, Bengal (for jails and lock-ups in Bengal)				1,393	12	0
Credit for crystalline febrifuge supplied to Inspector-General of Civil Hospitals, Bengal (for district medical officers of Bengal)				114	12	0
Credit for crystalline febrifuge supplied to Inspector-General of Jails, Bengal (for jails and lock-ups in Bengal)				122	0	0
Credit for sulphate of quinine supplied to Inspector-General of Jails, Bengal (for the Superintendent and Medical Officer, Durbhunga Jail Hospital) ...				68	0	0
Credit for cinchona bark supplied to Medical Depôt, Calcutta				31	4	0
Credit for cinchona bark supplied to Inspector-General of Jails, Bengal (for the Alipore Jail Hospital) ...				9	4	0
Total credit in India ...				1,18,576	0	0

GEORGE KING, M.B., *Brigade-Surgeon,*

Supdt., Royal Botanic Garden, Calcutta, and of Cinchona Cultivation in Bengal, and Government Quinologist.

W. M. D'C.—Reg. No. 1767J—472—4-8-91.

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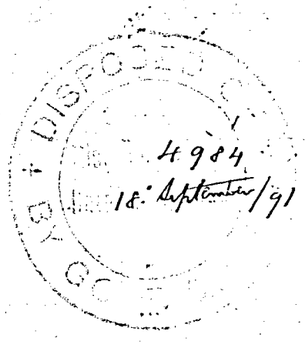
REVENUE DEPARTMENT.

No.

Current number 768

From

The Govt. of Bengal
Financial Dept



Dated 25. 8. 91

Received 8. 9. 91

Enclosures one

No. 162 T. F

SUBJECT.

Forwards, for information, a copy of the Report on the working of the Govt. Cinchona plantation & Factory in Bengal during 1890-91

P. T. O

ABSTRACT.

G.O. Misc. No. 4984 of 18. September 1891

Communicated to the Govt. Botanist and Director of the Govt. Cinchona Plantations.

18.9.91

Lieut

To The Govt Botanist &c

I shall like to have a copy of this & refer to—

Rm

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