

APPENDIX B.

HOOKER ESTATE.

STATEMENT showing the Number of Clinchona Trees enumerated in 1878, and those that were cut since being dead, and the Balance existing on the Government Plantations, Hooker Estate.

Plot.	NUMBER OF TREES AS PER MAJOR WALKER'S REPORT.			CASUALTIES IN 1878-79.			CASUALTIES IN 1879-80.			CASUALTIES IN 1880-81.			TOTAL NUMBER OF DEAD TREES CUT.			BALANCE.			NUMBER OF PLANTS PLANTED IN 1880-81.			TOTAL NUMBER OF TREES EXISTING.		
	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.
1 ..	4,789	2,876	..	..	42	..	87	..	..	130	36	..	217	78	..	4,572	2,798	..	..	..	..	4,572	2,798	..
2 ..	6,735	2,036	..	198	36	..	289	..	..	416	81	..	903	117	..	5,832	1,919	..	..	..	..	5,832	1,919	..
3 ..	7,539	196	..	..	..	..	..	..	..	6,114	..	..	6,114	..	..	1,425	196	..	..	..	..	1,425	196	..
4 ..	390	3,357	..	..	121	..	84	..	..	..	172	..	84	293	..	306	3,064	..	..	..	..	306	3,064	..
5 ..	1,542	207	..	..	9	..	1,784	..	..	..	11	..	*1,784	20	..	..	187	..	..	..	..	..	5,187	..
6 ..	5,271	5,520	..	..	247	..	5,636	..	..	..	284	..	*5,636	531	..	..	4,989	..	..	..	..	..	38,389	2,000
7 ..	4,951	3,910	1	64	89	..	..	..	..	83	179	..	147	268	..	4,814	3,642	1	..	..	..	4,814	3,642	1
8 ..	10,569	2,223	72	..	43	..	6,453	..	..	144	84	..	6,597	127	..	3,972	2,996	72	..	..	..	3,972	24,096	3,432
9 ..	7,448	1,152	..	..	24	..	6,320	..	..	108	28	..	6,428	52	..	1,020	1,100	..	..	..	..	1,020	29,050	..
10 ..	1,320	1,096	..	17	13	..	..	..	..	23	43	..	40	56	..	1,280	1,040	..	..	..	..	1,280	1,040	..
11 ..	4,225	390	777	..	10	..	1,399	..	..	152	11	..	1,551	21	..	2,674	369	777	150	..	..	2,824	369	777
12 ..	3,429	416	..	..	14	..	3,906	..	..	..	15	..	*3,906	29	..	..	417	..	..	..	..	..	16,467	2,000
13 ..	319	4,500	..	..	..	..	..	..	..	..	..	..	..	..	..	319	4,500	..	..	..	..	319	4,500	..
Total ..	58,537	27,909	850	279	648	..	25,958	..	..	7,170	944	..	33,407	1,592	..	26,214	26,317	850	150	105,000	7,410	26,364	131,317	8,260

* Excess 1,084 trees.

NADUVATAM,
20th May 1881.

(Signed) W. ROWSON,
Assistant Superintendent.

APPENDIX C.

WOOD ESTATE.

STATEMENT showing the Number of Chinchona Trees enumerated in 1878, and those that were cut since being dead, and the Balance existing on the Government Plantations, Wood Estate.

Plot.	NUMBER AS PER MAJOR WALKER'S REPORT.			CASUALTIES IN 1878-79.			CASUALTIES IN 1879-80.			CASUALTIES IN 1880-81.			TOTAL NUMBER OF DEAD TREES CUT.			BALANCE.			NUMBER OF PLANTS PLANTED IN 1880-81.			TOTAL NUMBER OF TREES EXISTING.		
	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.	Red.	Crown.	Others.
1	612	607	..	..	..	..	37	..	..	..	..	..	37	44	..	575	563	..	..	..	..	575	563	..
2	6,972	1,682	64	..	..	..	234	..	42	219	228	11	453	228	53	6,519	1,454	11	..	..	..	6,519	1,454	11
3	4,571	4,094	65	184	195	..	176	..	38	210	421	18	570	616	56	4,001	3,478	9	8,430	..	..	12,431	3,478	9
4	2,430	509	657	102	24	83	89	..	115	125	20	347	316	44	545	2,114	465	112	3,210	..	..	5,824	465	112
5	4,888	112	..	..	..	..	143	..	..	225	..	..	368	..	..	4,620	112	..	..	..	..	4,620	112	..
6	5,687	41	..	78	..	..	..	..	..	..	..	..	78	..	..	5,009	41	..	..	..	..	5,009	41	..
7	4,744	117	..	..	..	..	298	..	..	443	..	..	741	..	..	4,003	117	..	..	..	..	4,003	117	..
8	7,208	20	..	..	..	..	1,017	..	..	154	..	..	1,171	..	..	6,037	20	..	160	..	..	6,197	20	..
9	667	..	..	..	..	..	35	..	..	..	..	..	35	..	..	632	..	..	..	..	..	632	..	..
Total	37,779	7,182	786	364	219	83	2,029	..	195	1,376	713	376	3,769	932	654	34,010	6,250	132	11,800	..	..	45,810	6,250	132

NADUVATAM,
20th May 1881.

(Signed) W. ROWSON,
Assistant Superintendent.

259

251

APPENDIX D.

STATEMENT showing the Number of Chinchona Trees on Dodabetta Government Chinchona Plantations, Number of Failures in the coppiced or uprooted, and Number of Plants planted.

Number of Plot.	Date of Planting.	NUMBER OF TREES AS IN MAJOR WALKER'S REPORT.		Number of Failures in the coppiced or uprooted since.	Remain- ing.	Planted since.	Now Existing.	Remarks.
		Crown Bark.	Other Species.					
I ..	1863 A.	1,478	3	..	1,481	..	1,481	
II ..	1863 B.	1,032	..	..	..	1,032	1,032	
III ..	1863 C.	1,930	17	..	1,947	1,700	3,647	
IV ..	1863 D.	662	2	..	664	900	1,564	
V ..	1864 A.	2,835	..	..	2,835	2,500	5,335	
VI ..	1864 B.	5,060	46	..	5,106	6,000	11,106	
VII ..	1865 A.	9,112	117	..	9,289	..	9,289	
VIII ..	1865 B.	11,282	..	..	11,282	..	11,282	
IX ..	1865 C.	12,423	..	..	12,423	..	12,423	
X ..	1866 A.	5,176	..	..	5,176	..	5,176	
XI ..	1866 B.	11,063	..	170	10,893	500	11,393	Coppiced and failed to grow.
XII ..	1866 C.	11,722	..	..	11,722	..	11,722	
XIII ..	1866 D.	10,523	..	..	10,523	..	10,523	
XIV ..	1866 E.	3,583	..	..	3,583	..	3,583	
XV ..	1866 F.	2,922	..	..	2,922	..	2,922	
XVI ..	1866 G.	8,072	..	..	8,072	1,000	9,072	
XVII ..	1867 A.	4,038	..	..	4,038	1,800	5,838	
XVIII ..	1867 B.	5,199	..	37	5,162	..	5,162	Dead trees cut down. Do. Do.
XIX ..	1867 C.	4,333	..	28	4,305	..	4,305	
XX ..	1867 D.	4,258	..	5	4,253	..	4,253	
XXI ..	1868 A.	1,193	..	..	1,193	..	1,193	
XXII ..	1868 B.	4,739	..	..	4,739	..	4,739	
XXIII ..	1868 C.	8,595	..	2	8,593	..	8,593	Do. Do.
XXIV ..	1868 D.	8,755	..	5	8,750	..	8,750	
XXV ..	1869 A.	3,880	..	..	3,880	..	3,880	
XXVI ..	1869 B.	2,633	..	..	2,633	..	2,633	
XXVII ..	1869 C.	10,467	..	..	10,467	..	10,467	
XXVIII ..	1869 D.	11,532	..	400	11,132	400	11,532	Coppiced and failed to grow. Dead trees cut down. Do. Do.
XXIX ..	1869 E.	6,309	..	8	6,301	..	6,301	
XXX ..	1869 F.	10,184	..	11	10,173	..	10,173	
XXXI ..	1869 G.	8,485	..	4	8,481	..	8,481	
XXXII ..	1869 H.	6,446	..	..	6,446	300	6,746	
XXXIII ..	1869 I.	6,754	..	4	6,750	..	6,750	Do. Do.
XXXIV ..	1869 J.	4,019	..	6	4,013	800	4,813	
XXXV ..	1869 K.	5,102	..	..	5,102	..	5,102	
XXXVI ..	1869 L.	1,481	..	4	1,477	..	1,477	Do.
XXXVII ..	1870	4,864	..	..	4,864	..	4,864	
XXXVIII ..	1872	3,949	..	..	3,949	..	3,949	
XXXIX ..	1873	557	44	..	601	400	1,001	
Total ..	..	226,647	289	684	226,252	16,300	242,552	

DODABETTA,
23rd May 1881.

(Signed) T. NARRAINSAWMY NAIDU,
Head Overseer in charge.

c. 1890.

Copy corrected by
C. F. Beddome,
vide letter to H.
15 August 81

These corrections
to be attended to
when the paper
is finally printed
with the C.F.

Printed
1890-12-7-1890-12-7-1890

18-5-51
19-8-51

Office of Conservator of Forests
No. 207. Ootacamund, 6th June 1881.

To, From,

Colonel R. F. Beddome,
Conservator of Forests

To, The Secretary to Government,
Revenue Department,
Ootacamund.

Sir,
Referring to G.O. No. 781 of the
17th ultimo I have the honor to inform
you that I have just sent in a very
long Report on the Cinchona plantations
after a careful inspection and study
of them for about 2 months, - I did
not receive this Government Order until
after my report had been despatched,
nor had I seen Mr. Croft's report before,
but it will be seen that I had arrived
at much the same conclusions as he
had on the question of hybrids, and
various other matters.

I have treated in my report
fully on the subjects of the cultivation
of Pitayo, Calisaya, and other Spe-
cies; necessity of coppicing or uproot-
ing (as the case may be) trees the
decay of which is evident; the ill
effects

effects of the original wide planting,
and the advisability now of immediate
planting as far as possible;
and hybrids, so I need not add
more here.

2. Coppicing. I have been
to such a large area during the
Coppice, and it is clear that the area
have been Coppiced, to some extent
and that 10 to 15 inches of the trunk
or Collar should have been left.
There has always been a difference
in opinion as to the height the
Collar should be, and I find in
my letters to Mr. Rogers, the
Commissioner at the time (also
also G. O. M. of 27th May, 71) that
I was anxious to restrict the area
to about 8 acres, and that I wanted
then to try this as an experiment
for data; 1st to edge the collar flush
with the ground, 2nd to leave about
6 inches of Collar, 3rd not to coppice
without first establishing a shoot.
The Commissioner was in charge of
the Plantations at the time, and that

only been ordered to select the area
to be Coppiced, and these suggestions
of mine do not seem to have carried
weight, as they were not acted up to,
and all the stools were edged nearly
flush to the ground. I have no reason
to find fault with the result as will be
seen from my report, and I think
if Coppicing were again ordered and
in the absence of actual data, which
I was anxious to obtain I would rather
give ^{the} preference to the flush collar
than to a collar several inches high.

I do not think we shall have
more Coppicing as a system over
given areas, I am much opposed to
it for many reasons, and I think
my report will go to prove that it is
not desirable, but if we did again Cop-
pice I should prefer the plan of first
establishing a shoot; it will be seen
by my report, that when this plan
is followed there is not a single
failure, and that this is fully proved
from several blocks of older experi-
ments, which I was quite ignorant
of at the time that I made the pro-
position. Mr. Croft appears to
think that the young Coppice growth

was

was thinned out, & removed, but
I do not understand how it could
give an opinion at this point without
having seen the growth at the time
it was thinned - it is very easy to
tell the proportion, as in specimens
allowed to grow up till time and
several prominent leaders, the growth
of these would then be obvious & be-
-tasted, and in the growth with which
the rest were cut away, and it is
then apparent whether it is advisa-
-ble to leave 2, 3 or 4 stems, & being
off with a rounded top, in my
opinion preferable to a sloping
cut or wedge form of top.

3. I do not agree with Mr.
Cross's remarks as to the climate
of the Nilgiris being unsuited to
the "Pubescens" form of Red Bark,
and I think that he was not well
informed, to make these statements
from his independent observation,
as many of his letters to me quite
contradict them. Mr. Cross is
this time "Pala de Gullinaga" and
he informs me that he found it
at a much higher elevation than

251
"tile" or red bark, - he now considers
it a new and undescribed species,
and I agree with him, but whether
a new species or only a variety of
the "Succirubra" it has evidently
found its home on the plateau
of the Nilgiris, and would proba-
-bly not grow so well at lower ele-
-vations; it succeeds admirably
on Doddabetta, over 7,000 feet, where
"Succirubra" will make no growth,
and on the higher exposed situa-
-tions at Keddawattam and Pykara
where "Succirubra" never grew more
than 3 or 4 feet high, and is now
being uprooted, and Mr. Cross has
himself lately written to me on
the subject of its hardy character
and robust and splendid growth.
I agree with Mr. Cross that the
Nilgiri is too high and cold for
"Succirubra" but still it is grown to
a good profit in the forest soil of
Keddawattam, and exhibits exceedingly
healthy growth.

4. Mr. Cross is inclined to taboo
"Succirubra", altogether on account
of its inferior yield of quinine; its
growth is so rapid compared to
Crown Bark, and its yield in bark

is far greater than that of the
general of the finer kinds, and
its cultivation is recommended,
that I expect it will soon be
own; its yield exceeds in other
alkaloids many others; it may
have to be put in place of its
congener "Purpurea" or the "Indu-
-linga" var. of "Officinaria"; but
this is a question for the sci-
entific, and practical.

5. I cannot agree with Mr.
Ivory's suggestion about
forming a dense sort of underwood
of *Cinchona* in the plantations; it
would be opposed to every system
of arboriculture and would be im-
-ly ruin to the plantations; the
trees that did not get their heads
to the light would come to nothing
and interfere with the root room
of others, and the result would
be little or no bark of any value;
we are not growing *Oleis* or *Serai-
-firwood*.

6. Regarding the remarks on
"Collection of seed" by Mr. Ivory and
the Collector I cannot believe that

this

267
this has not received attention;
this selection of the fittest is the
first aim of all florists, and ar-
-boricultural artists, as well as breeders
of animals, and was so, long before
Mr. Darwin's voluminous writings
on the subject; a practical man,
with the training Mr. Mac Ivor
had before he came to this country,
must have been fully alive to the
importance of this. During my
inspection I observed much, bags
tied round the panicles of seed on
some of the finest trees, which is
proof that attention is paid to the
subject. Regarding the cutting off of
the panicles of flowers, which the
young trees produce so profusely
-ly, I would observe that I long
-ly recommended, many years ago,
when the trees first commenced to
flower so profusely that this
should be done as an experiment
over about an acre, as I thought
it would favor the growth of the
trees and perhaps the ripening of the
bark, and at any rate be a very
interesting experiment, but I was
met by the statements that it

would

would be too expensive to attempt
it in large plantations; and that
expensive work would be necessary,
otherwise the branches would be
much broken and injured.

7. The *Calceaya* is a very
anxious addition, but I
have written fully on this question
in my paper, & there are your ex-
ceptions only, "the ordinary *Calceaya*,"
the *Ledger*, the *Anglica*, and the
Javanica, the 2 former are known
to be most superior, they are
scarcely distinguishable, and
I shall be surprised if the
research proves the *Ledger* to be
very superior, the very favorable
reports on this variety are pro-
bably due to the high cultivation
of a few individuals, however I
may be wrong. Mr. Koster told
me, that *Anglica* and *Javanica*
had been analyzed, and gave a
very poor yield, and this has
been found the case in Java, where
their cultivation is given up, the
last named is only a bushy shrub.

8. I quite agree with Mr. Croft
that grafting could be of no value,
when the object is "bark"; and
Mr. Croft agrees with me that the
art of hybridizing would not be
at all likely to increase the value
of the bark.

9. Mr. Croft appears to be of
opinion that the natural bark
may be picked in a *Raloid*, than
renewed bark, this is opposed to
all the experience hitherto gained;
I believe I am right in saying,
that every analysis has hitherto
proved the great superiority of
the latter, and that it always
fetches a much higher price.

Mr. Croft is also wrong in say-
ing that a tree once barked, will
always require to be wrought after
the same manner, as long as it
lives, as it is a fact that trees
which have been many times barked
are now growing splendidly from
Coppice.

10. We must be careful not to
be guided too much by any re-
port on the analysis of Mr. Croft's