M.R.O. 1—77,006—8-6-37.

(1) Number of pages 22

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(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 1418 Press ~~Mis.~~

Dated 14. 10. 1872

Not to be folded or roughly handled

No. 104. Read the following letter from the Secretary to the Government of India, Department of Agriculture, Revenue, and Commerce, (Agriculture and Horticulture,) to the Secretary to the Government of Madras, dated Simla, 1st October 1872, No. 418:—

I AM directed to acknowledge the receipt of your letter No. 73, dated 11th January 1872, and in reply to forward for the information of His Excellency the Governor in Council copy of a letter* from the Government of Bengal (with enclosures), which, in the opinion of the Government of India, leaves little doubt of the correctness of the assertion that canker "is shown to have existed in the plants originally sent up from the Nilgiris as stock for the Sikkim plantations."

* No. 3,096, dated 6th ultimo.

2. Your letter, together with the reply of the Government of Bengal with the enclosures of both, will now be published in the Supplement to the *Gazette of India*. Paragraphs 3 and 4 of the late Mr. Breeks's letter to your address, No. 91, dated 13th December 1871, will however be omitted, as they appear to the Governor-General in Council to be objectionable, as embodying a personal attack upon a Secretary to Government, based on a statement contained in a letter signed by him in his official capacity.

ENCLOSURE No. 1.

From the Officiating Junior Secretary to the Government of Bengal, General Department, (Industry and Science,) to the Under-Secretary to the Government of India, Department of Agriculture, Revenue, and Commerce, dated Calcutta, 6th September 1872, No. 3,096.

WITH reference to your letter No. 112, dated 18th March 1872, I am directed to submit for the information of His Excellency the Governor-General copies of the correspondence noted on the margin regarding the importation of cankered Cinchona plants from the Nilgiris.

No. 360, dated 12th July 1872, from the Superintendent of the Botanic Garden, and in charge of Cinchona cultivation in Bengal.
No. 363, dated 8th August 1872, from the Officiating Superintendent of the Botanic Garden, and in charge of Cinchona cultivation in Bengal.

From GEORGE KING, Esq., M.B., Superintendent, Botanic Garden, and in charge of Cinchona cultivation in Bengal, to the Officiating Under-Secretary to the Government of Bengal, dated Royal Botanic Garden, 12th July 1872, No. 360.

WITH reference to your memorandum marginally noted, calling for a report on the statements made by Mr. McIvor impugning the correctness of the evidence given by Mr. Munro as to the importation of cankered Cinchona plants from the Nilgiris, I have the honour to state that I have collected fresh evidence on the point from all the persons known to me now in India who were connected with the first Cinchona experiments in Sikkim.

No. 1,259, dated 12th April 1872, with enclosures.

2. I have now the honour herewith to forward for the information of Government copies of the statements of the following gentlemen:—

(I.)—Dr. B. Simpson, Civil Surgeon of Patna, and formerly of Darjeeling. Dr. Simpson was interested in the Pomong plantation on its first being started, and consequently writes from personal knowledge.

(II.)—Mr. Munro, Manager of the Pomong plantation.

(III.)—Mr. Jaffrey of the Government Cinchona plantation. Mr. Jaffrey has been continuously on the Government plantation since its commencement until now.

(IV.)—Mr. Gammie, Resident Manager, Government Cinchona plantation.

(V.)—Mr. Scott, Curator, Botanic Garden. Mr. Scott originally served on the Government Cinchona plantation, but was subsequently transferred to his present appointment.

3. In compliance with Mr. Geoghegan's letter marginally noted I have the honour to submit some remarks on the several matters touched upon in Mr. McIvor's letter to Commissioner of Nilgiris, dated 6th December 1871.

From J. Geoghegan, Esq., to H. Plowden, Esq., dated 6th April 1872.

4. In the evidence taken by the Cinchona Commission during March 1871 no particulars are recorded in regard to the introduction of canker to the Government plantation, none of the witnesses apparently having been questioned on the point. Mr. Munro's statement (page 21, paragraph 41, 4th clause,) that his Association received its first cuttings from the Nilgiris, and that "these were extensively affected with canker," is the only one in which the importation of the disease into Sikkim is specially referred to. From his letter above quoted it appears Mr. McIvor is not inclined to admit that any plants sent by him from the Nilgiri plantations to Sikkim for either the Government plantation or that of the Cinchona Association could, on arrival in Sikkim, have been affected with the disease which he calls "canker."

Report of the Cinchona Commission, dated 30th March 1871.

5. As regards the Government Sikkim plantations Mr. McIvor thinks it improbable (paragraph 2 of his letter) that if cankered plants were received the fact should not have been mentioned until the year 1871. Mr. McIvor's argument is a negative one, and his numerous extracts from the reports of the late Dr. Anderson, while proving that in Dr. Anderson's opinion the success of the Cinchona cultivation under him had been great, do not prove that it had been attended by no drawbacks whatever. Had Dr. Anderson considered the so-called canker such a formidable affection as Mr. McIvor does, he would have doubtless referred to it in his reports. From his not having done so, the natural inference is that he did not think it worth mentioning, and that, on the whole, he considered himself warranted in regarding the Cinchona experiment in Sikkim as a success—a view which is, I believe, shared by most people who have seen the plantations there. Now, however, that the question as to the introduction of canker has been definitely raised, the evidence goes to show that, as a fact, the plants brought from the Nilgiris were on arrival, or very soon thereafter, found to be affected with it. Mr. Jaffrey (in paragraph 2 of his evidence) positively states that the 327 plants received by Government in April 1863 from the Nilgiris were cankered (these are the plants referred to in Mr. McIvor's paragraph 10), and that those received by him in August 1862 were also diseased. Dr. Simpson corroborates Mr. Jaffrey's statement in so far when he says that he saw the disease in the plants in pots under glass at Lebong before a single one had been planted out. Messrs. Scott and Gammie, who joined the Cinchona establishment subsequently to the importation from the Nilgiris, bear testimony to the fact that prior to their arrival canker had been established among the plants. It is therefore quite clear that it did not appear suddenly and for the first time as a widespread epidemic shortly anterior to the visit of the Commission in February 1871.

6. As regards the private plantations in Sikkim Mr. Munro states that his Association got its first cuttings from the Nilgiris, and that these were "extensively affected with canker." Mr. McIvor argues that Mr. Munro's evidence is inadmissible, because he says "it is quite certain from a careful examination of the records that Mr. Munro never received any cuttings from the Nilgiris." Mr. Munro on the contrary states (paragraph 3 of his memorandum) that early in 1864, and a few months after his own arrival in Sikkim, four wardian cases of Cinchona plants were received from the Nilgiris, and that these were the plants described by him in his evidence before the Commission as "extensively affected with canker." Mr. Lloyd, who succeeded Dr. Bourne as Secretary to the Association, of which Mr. Munro is the Manager, corroborates this by explaining how much these plants cost. The evidence concerning this importation is very clear, dates of despatch and arrival of the cases and of the remittance of the money in

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14th October 1872.

payment being given. Mr. Lloyd further shows that prior to this payment Rs. 500 had been remitted to Mr. McIvor for plants, of which Mr. Munro says (paragraph 4) only seven were survivors at the date of his arrival in Sikkim. Dr. Simpson bears testimony to Mr. Munro's general accuracy, and himself describes the condition of the first importation from the Nilgiris; while, in paragraph 3 of his memorandum, Mr. Jaffrey states that he was consulted during the year 1863 by Mr. Barnes, one of the original partners in the Cinchona Association, as to the diseased condition of some plants received from the Nilgiris.

7. In paragraph 4 of his letter Mr. McIvor points out an "error" of omission into which, he says, Mr. Munro has fallen in his evidence before the Commission, and, by way of rectifying Mr. Munro's omission, states that the Cinchona Association was supplied by him with seeds enough of Cinchona to have produced "probably from 50,000 to 100,000 seedlings." Mr. Munro, in paragraph 5 of his memorandum, states that the amount of seed (a quarter of an ounce) was sufficient on McIvor's own showing to have produced only from 5,000 to 6,250 plants. Mr. Munro has thus, I think, very conclusively disproved both the charges of inaccuracy brought against him by Mr. McIvor.

See McIvor on Propagation of Medicinal Cinchonas, page 6, paragraph 12.

8. A few statements in Mr. McIvor's letter which bear, not on the introduction of canker, but on its effects in Sikkim, remain to be noticed. In paragraph 7 of his letter he says, "the entire stock of this species (*Cinchona Officinalis*) has been so seriously affected with canker as to cause its cultivation to be abandoned." I have elsewhere stated at length the causes of the abandonment of the cultivation of *Cinchona Officinalis*, and would here only draw attention to paragraph 4 of Mr. Gammie's, to paragraph 5 of Mr. Jaffrey's, and to paragraph 7 of Mr. Munro's memoranda, in which these gentlemen distinctly state that canker was *not* the cause of its failure.

Report on Cinchona Plantations, Sikkim, for year ending 31st March 1872.

9. In the paragraph of his letter just referred to Mr. McIvor goes on to say that "the Sikkim stock of *C. Pahudiana* raised solely from Java plants has also been destroyed by canker." I am rather surprised to find this statement made by Mr. McIvor, for everybody interested in Cinchona cultivation ought to know that this species, after having been extensively cultivated in Java, was discovered to yield *no quinine*, and that for this reason its cultivation was everywhere abandoned. Messrs. Munro and Jaffrey note this fact in their memoranda.

10. A third mistake into which Mr. McIvor has fallen in this same paragraph 7 is that of saying that "the Java variety of *C. Calisaya* (*C. Josephiana*) has been so affected by canker that only one plant existed on the Sikkim plantation at the date of my visit in February 1871 out of all the plants received of this variety;" whereas Mr. Gammie in the concluding paragraph of his memorandum estimates the number at eight thousand.

11. In my last annual report I have given my own opinions on the disease existing in the Sikkim plantations, and have distinguished two forms of it, one general and one local. The latter I regard as anything but fatal, and I would here merely allude to the instructive instance of recovery mentioned by Mr. Gammie in the concluding part of paragraph 1 of his statement. I may mention that I saw examples of both forms of the disease in the Cincohna plantations on the Nilgiris during my recent visit to them, although neither is common there.

I.—Dr. SIMPSON.

Bankipore,
The 25th June 1872.

My dear King,

Mr. McIvor is wrong in stating that Mr. Munro received no cuttings from the Nilgiris. It is quite true that the first instalment of plants were sent long before his arrival, but when they were opened in my presence at Lebong only one plant in the box was alive, and even this subsequently died. I also corroborate Mr. Munro's statement regarding the disease in the plants. Moreover, before Mr. Munro arrived in the country at all, and before a single plant belonging to

Government was planted out, I saw the disease at Lebong in the glass-house, while the plants were in pots (I allude here to the Government plants). Mr. Jaffrey, who was then in charge, can bear enough testimony to this. From my personal knowledge of Mr. Munro, even were I unacquainted myself with the actual state of matters, I would place the fullest confidence in any statement put forth by him.

Yours sincerely,
B. SIMPSON.

II.—MR. MUNRO.

Memorandum by J. MUNRO, ESQ., Manager, Darjeeling Cinchona Association, Pomong.

REFERRING to letter No. 115 of the 6th December 1871 from Mr. McIvor, Superintendent, Government Cinchona Plantation, to the Commissioner of the Nilgiris, with enclosures.

1. From Mr. McIvor's letter I see that he calls in question the statements made by me before the Bengal Cinchona Commission at Rungbee in February 1871, and flatly denies that the Darjeeling Cinchona Association received any plants from the Nilgiris in my time, and asserts that the last supply of plants from the Nilgiris was ten months in Bengal before my arrival there.

2. My reply will be as short as possible.

3. At paragraph 3 of his letter Mr. McIvor says :—"It is quite certain from a careful examination of the records that Mr. Munro never received any cuttings from the Nilgiris. In fact, Mr. Munro did not arrive at Pomong until December 1863, or when the original plants sent from the Nilgiris as stock for the Sikkim plantations had been nearly two years, and the last supply fully ten months in Bengal." Mr. McIvor is quite correct as to the time of my arrival. I arrived in Darjeeling on the 11th of December 1863. I do not know what records Mr. McIvor had examined so carefully, but I would respectfully suggest that he examine his own account books (I presume he keeps books), and if he does not find there that he despatched four wardian cases of Cinchona plants to Bengal in the beginning of 1864, and that he was paid for the same in June 1864, all I can say is that such entries ought to be there.

For it is quite certain that the Darjeeling Cinchona Association did get four wardian cases containing *Cinchona* plants, *labelled C. Succirubra, C. Micrantha,* and *C. Condaminea,* from the Nilgiris, and that they arrived in Darjeeling on the 3rd of March 1864, or two months and-a-half after my arrival there. I also got four wardian cases from Ceylon at the same time containing principally *C. Succirubra* and a few plants of *C. Officinalis,* very different plants from the Madras plants. As Mr. McIvor might again call in question my unsupported evidence I enclose herewith a note from our present Secretary* of the different payments made to Mr. McIvor for plants, which speaks for itself. Those plants which arrived in Darjeeling on the 3rd of March, and for which Mr. McIvor was paid Rs. 256 on the 30th June 1864, were the plants referred to by me in my evidence before the Cinchona Commission, quoted by Mr. McIvor in paragraph 1st of his letter.

* Mr. Lloyd.

4. That statement, I repeat, is substantially correct, and was made by me in support of my views on canker, and not with any view or intention of detracting anything from the glories of the Nilgiris or their able superintendent ; nor was I aware (until Mr. Broughton, a member of the Commission, indignantly denied it) that the existence of canker there was denied. Indeed, I was then, as I still am, under the impression that Mr. McIvor during his short visit to Pomong, and in answer to a direct question from me, admitted that they had canker to a limited extent. I am also under the impression that it occurs in their native country ; but, be that as it may, certain it is that the Madras plants which reached me on the 3rd March 1864, (of the first consignments I know nothing, having only arrived in time to see the death of the last of them, 7 plants,) and which were very stunted, having been used as *stock plants* before they were despatched, as the frequent marks of the knife on them fully testified, showed symptoms of the

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disease we have since learned to call canker, as soon as it could be distinguished from injuries received on the journey. The Ceylon plants were long, succulent shoots that had never been topped.

I do not affirm that they were afterwards free of canker.

5. At paragraph 4 Mr. McIvor quotes another statement made by me before the Cinchona Commission, namely, "that my present plantation of 500,000 plants of *C. Succirubra* were raised by cuttings from 92 plants," and says "this is an error, as I supplied a quantity of excellent seeds to the proprietors of the Pomong plantations, Mr. Lloyd and Colonel Angus. These seeds germinated freely, and probably produced 50,000 to 100,000 plants."

This statement, which I have no doubt is quoted correctly, is not very happy in its wording, and ought to be "at least 500,000 plants of *C. Succirubra* now in permanent plantations were raised by cuttings (including layers, eyes, etc., etc.) from 96 (not 92) plants." But this does not alter its meaning in the least for the purpose for which it was made, namely, to point out to the Commission the effect such treatment must of necessity have on weakening the constitution of a forest tree—an effect from which they very soon recover, however, when placed in a favourable situation.

6. The above would scarcely be worth noticing, but that Mr. McIvor tries to damage the whole of my evidence by making some of my statements appear false. My monthly returns will show, any whom it may concern, the number of plants, cuttings, etc., from the beginning to date.

My return for December 1870, or previous to the sitting of the Commission, shows as follows :—

C. Succirubra	plants in permanent plantations		867,400
Ditto	ditto	in nursery beds for ditto	667,331
Ditto	ditto	in stock...	15,000
		Total ...	1,549,731

So that my statement in round numbers of 500,000 was considerably within the mark, and left ample room for a good deal more than Mr. McIvor's seeds even at his own estimate of them. The produce of his seeds, as soon as they were ready, were planted out with others in 1870. And I hope Mr. McIvor will not doubt my word when I say that I tried to the utmost of my poor abilities and the rude means at my disposal to make the most of them, but I think he is rather hard on me in his estimate of the number of plants I ought to have raised from them. He takes care not to mention the quantity of seeds sent. I will do so for him ; it was of *C. Succirubra* ¼ oz., and Mr McIvor in his "Notes on the Propagation and Cultivation of the Medicinal Cinchonas," published in 1867, page 6, paragraph 12, says, "one ounce of clean seeds produce on an average from 20,000 to 25,000 plants," so that "instead of from 50,000 to 100,000" his ¼ oz. would produce from 5,000 to 6,250 plants only.

7. The remainder of Mr. McIvor's letter refers principally to the Government plantations, and does not concern me much ; but as I have a few plants here of *C. Officinalis* and its varieties, and of *C. Pahudiana,* I may remark with reference to Mr. McIvor's statements at paragraph 7 of his letter. After stating that the principal stock of *C. Officinalis* had been raised from seeds from Ceylon, he says, "and it is worthy of note that the entire stock of this species has been so seriously affected with canker as to cause the cultivation to be abandoned. The Sikkim stock of *C. Pahudiana* raised solely from Java plants and seeds has also been destroyed by canker." This is a bold assertion, and it is certainly new information to me that the one was abandoned *through,* or the other destroyed *by* canker ; but as I presume he refers to the Government plants, I leave the gentleman in charge of them to digest it. We have a small patch of each species here, as also of *C. Micrantha,* the latter raised solely from Madras plants ; we discontinued propagating the whole of them from a very early stage, not because of *canker* (which is only a mare's nest discovered by Mr. McIvor), or because of any other disease, but simply because of their prospects from a commercial point of view. They are not destroyed, but are not worth wasting money on, and the climate of Sikkim does not appear to be very suitable to either of them. They are not the only species, however, that Mr. McIvor has forbidden to grow in Sikkim ; if I am rightly

informed (I write from hearsay), he in one sublime sentence pronounced the whole of our *Succirubra* to be dying out also, and gave them three years to take themselves out of existence; Pomong I suppose included. Such a statement made by any man after seeing the *Succirubra* plantations here simply deserves contempt.

8. To prevent any confusion between the Government and private plantations by the term "the Sikkim plantations" used by Mr. McIvor, I beg to say that my remarks in the foregoing, as well as before the Cinchona Commission, refer to the plants under my own charge only. The Government officers are perfectly competent to answer for themselves and their plants.

9. In conclusion, I would most respectfully observe that I make no claim or pretension to Mr. McIvor's ability or experience. He has more experience in his profession in general, considerably more so in India, and three years more in Cinchona cultivation than I have.

All I contend for is the truth of my statements, which I think I have sufficiently proved; and as Mr. McIvor's statement at paragraph 3 of his letter is calculated to do me injury, I will consider it only an act of justice on the part of Government to give the same publicity to this as they did to Mr. McIvor's statements, and I consider myself entitled to an apology from that gentleman for his rash and unwarranted statements.

J. MUNRO, ESQ.,
Superintendent.

DARJEELING CINCHONA ASSOCIATION,
The 3rd July 1872.

DEAR SIR,

YOU ask me if there are no entries of money paid to Mr. McIvor for Cinchona plants. I have looked and find the following :—

30th June 1864.

To Mr. McIvor of Madras.

	RS.	A.	P.
Purchase of plants	256	0	0
Inland carriage	8	12	0
Freight...	40	0	0
Total ...	304	12	0

30th April 1863.

To amount remitted to Mr. McIvor for plants... ... ... 100 0 0

31st May 1863.

Ditto ditto ditto 200 0 0

30th June 1862.

Ditto ditto ditto 200 0 0

There are also references in the minutes and other proceedings and complaints against Mr. McIvor for the bad plants he had sent from Ooty.

Yours faithfully,
W. LLOYD,
Darjeeling Cinchona Association.

III.—MR. JAFFREY.

Memorandum on Cinchona Canker in British Sikkim.

I TOOK charge of the Government *Cinchona* at Sinchul in August 1862. Found a disease in *Cinchona Succirubra*, but from its peculiar type was some time before coming to the conclusion that it was canker.

2. I received during April 1863, 327 plants, consisting of various species of Cinchona from the Nilgiris, amongst which canker was fully developed.

3. Was, during 1863, consulted by the late Charles Barnes, Esq., of the *Darjeeling Cinchona Association*, with reference to a consignment of Cinchonas received from the Nilgiris. Observed in the wardian cases 7 or 8 sickly specimens; attributed the destruction of the plants at the time to their weakness and the wretched soil in which they had been transmitted.

Proceedings of the Madras Government, Revenue Department, 14th October 1872.

4. *Cinchona Pahudiana.*—Cultivation was stopped by order of Government, it being considered a useless species; 1,000 plants were killed on the morning of the 16th January 1864 by frost. A small plantation of this species has been retained, so that it should not be lost. The plants are from 15 to 19 feet in height at this time (July 1st, 1872); canker has nothing to do with the disappearance of this species.

5. *Cinchona Officinalis.*—Cultivation has been held in check in consequence of the climate of Rungbee having been found unsuitable to their wants; canker in this species has been the exception, not the rule.

6. *Cinchona Calisaya var. Josephiana.*—I am not aware of having received by name at any time this variety of *Cinchona*. I received 8 plants of *C. Calisaya* at Sinchul in 1862, and named as such. I recollect of pointing out to the late Dr. Anderson a few strong plants amongst the seedlings of *Java C. Pahudiana* as being botanically like the variety *Josephiana*.

Government Cinchona Cultivation. A. T. JAFFREY.

IV.—MR. GAMMIE.

From the Resident Manager, Government Cinchona Plantation, Rungbee, to the Superintendent, Botanical Gardens, and in charge of Cinchona Cultivation in Bengal, dated Mongpoo, 5th July 1872.

IN forwarding the remarks of Messrs. Jaffrey and Munro on the introduction of canker to British Sikkim, I beg to state that I can say nothing on the subject from personal experience, as I did not arrive in India till December 1865. I have every reason to believe that canker showed itself in the plants immediately after their arrival from Madras, but at the same time I think that, even had quite healthy plants been received, there would have been more or less canker in the Sikkim plantations, but that it is not a disease to cause alarm, for it very seldom kills the plants. As a case in point I may mention that Mr. McIvor when at Rungbee wished to pull up a plant of *C. Calisaya*, which he said had been killed by canker, for the purpose of showing the Cinchona Commission the deadly effects of the disease as had been previously expounded by him. Mr. Clarke, the Officiating Superintendent, would not allow him to do so, as he denied it was dead and wished to see whether he or Mr. McIvor was right. Mr. Clarke gave him permission to pull up any other canker-stricken plant he chose, but to the best of my recollection Mr. McIvor did not act on the permission. This particular plant is alive to this day, and will probably live for many years to come.

2. As Mr. Mann is absent on leave, and has not the opportunity of defending himself, I beg leave to state that Mr. McIvor has, in my opinion, misunderstood the statement made by Mr. Mann, that "ten per cent. were old, exhausted plants from the Nilgiris." Mr. Mann, in my opinion, meant that they had been exhausted by constantly being cut for propagation here, and not that exhausted plants had been sent from the Nilgiris.

3. I am surprised at Mr. McIvor coming to the conclusion that "it appears to be assumed that the Sikkim plantations were stocked with plants from the Nilgiris only," for the receipt of seeds from whatever source and the results were generally published in the Cinchona reports as he himself partly shows.

4. Mr. McIvor is quite mistaken in his conclusion that the cultivation of *C. Officinalis* was abandoned on account of canker, and that *C. Pahudiana* was destroyed by the same disease. *C. Officinalis* certainly died out, but from the root and not from what I understand to be canker which affects the bark and not the root.

5. I am not aware where Mr. McIvor got his information, "that only one plant of the Java stock of *Calisaya* was in existence at the time of his visit to Sikkim in 1871," but certainly it was not from a reliable source, for the original Java stock was not kept separate from the stock received from other places, and it is quite impossible for any one to tell with certainty the origin of all the plants. However, at the time of Mr. McIvor's visit there were in permanent plantations not fewer than 8,000 plants raised from Java seeds.

V.—Mr. SCOTT.

Memorandum by J. SCOTT, Esq., Curator, Royal Botanical Garden, Calcutta.

I only joined the Government Cinchona nurseries in Sikkim, then at Lebong, about the end of December 1864. The so-called canker had infected the plants ere that, and was indeed equally as prevalent as I ever after saw it amongst the plants in the frames or nurseries at Rungbee. I am thus unable to say whether or not the plants originally received from the Nilgiris were infected with that disease. Even supposing, however, that the plants were perfectly free from the disease when lifted and despatched in the wardian cases from the Nilgiris for Sikkim, I am quite of opinion that it might have originated during the journey if the plants were kept in a wet soil, and a close, hot, and moist atmosphere. I do not think that the disease is at all infectious, or has any fungoid origin, but I consider it simply due to excess of moisture in the soil and atmosphere.

Enclosure No. 2.

From the Officiating Superintendent, Botanical Garden, and in charge of Cinchona Cultivation in Bengal, to the Officiating Secretary to the Government of Bengal, General Department, dated Royal Botanical Garden, 8th August 1872, No. 363.

With reference to Dr. King's report, No. 360, of the 12th July 1872, on the introduction of the Cinchona bark disease, I have the honour to inform you that subsequent to the submission of that report Mr. Davison (lately an Assistant to Mr. Broughton, Quinologist to the Madras Government,) called on Dr. King, and in the course of conversation he incidentally noticed the occurrence of canker on the Nilgiri Cinchonas. Dr. King was thus induced to ask Mr. Davison for a memorandum on the condition of the Government Cinchona plantations there as regards that disease. I now beg to submit a copy of Mr. Davison's memorandum (received this day), which I may remark is strongly confirmative of Mr. Munro's statement to the Cinchona Commission, "that canker was imported into the Cinchona plantations, Sikkim, from those on the Nilgiris."

2. "With reference to canker," says Mr. Davison, "in the Government Cinchona estates at Neddiwuttum, I may state that I have never paid very close attention to the subject, so my information may be rather scanty; but what I can give, I believe to be strictly correct. One form of disease that I have observed seems to be confined to the lower portion of the tree; the bark just above the surface of the soil cracks; the cracks, I think, generally radiating from a common centre; the wood under the cracked part rots, the rotting going deeper, until it reaches the pith: if the rotten wood is closely examined, it will be found to contain a minute fungi, similar in appearance to ordinary mould. The second form is when the bark dries (but does not crack); sometimes in patches along the trunk, sometimes up one entire side of the tree. I believe Mr. McIvor always makes it a point to have all trees suffering from either form cut down on the first appearance of their flagging. This is about all the information I can give you on the subject."

No. 105. Order thereon, 14th October 1872, No. 1,418.

Miscellaneous.

Communicated to the Commissioner of the Nilgiris.

(True Extract.)

(Signed) W. HUDLESTON,
Secretary to Government.

To the Commissioner of the Nilgiris.

Ed. F. R. Bantleman.

Govt. of {1872} Madras.

REVENUE.

To

THE COMMISSIONER OF THE NILGIRIS.

Dated October 14*th*.

Recd. Recd.

G. O., 14*th October* 1872, *No.* 1,418.

Nos. 104-105.

Cinchona Plants sent to Sikkim.—Letter from Government of India, forwarding correspondence regarding cankered plants having been imported, communicated to the Commissioner of the Nilgiris.

2

Ecn. Dpt

No. 3096.

FROM J. WARE EDGAR, ESQ.,

Offg. Junior Secy. to the Govt. of Bengal,

TO THE UNDER-SECY. TO THE GOVT. OF INDIA,

DEPT. OF AGRICULTURE, REVENUE, AND COMMERCE.

Calcutta, the 6th September 1872.

GENERAL DEPARTMENT.
Industry and Science.

SIR,

WITH reference to your letter No. 112, dated 18th March 1872, I am directed to submit, for the information of His Excellency the Governor-General, copies of the correspondence noted on the margin, regarding the importation of cankered cinchona plants from the Nilgiris.

No. 360, dated 12th July 1872, from the Superintendent of the Botanic Garden, and in charge of cinchona cultivation in Bengal.

No. 363, dated 8th August 1872, from the Officiating Superintendent of the Botanic Garden, and in charge of cinchona cultivation in Bengal.

I have the honor to be,

SIR,

Your most obedient servant,

J. WARE EDGAR,

Offg. Junior Secy. to the Govt. of Bengal.

F. P.

Rev. 3286/72

No. 360, dated Royal Botanic Garden, the 12th July 1872.

From—George King, Esq., M.B., Supdt., Botanic Garden, and in charge of Cinchona cultivation in Bengal,

To—The Officiating Under-Secretary to the Government of Bengal.

With reference to your memorandum marginally noted, calling for a report on the statements made by Mr. McIvor impugning the correctness of the evidence given by Mr. Munro as to the importation of cankered cinchona plants from the Nilgiris, I have the honor to state that I have collected fresh evidence on the point from all the persons known to me now in India who were connected with the first cinchona experiments in Sikkim.

No. 1259, dated 12th April 1872, with enclosures.

2. I have now the honor herewith to forward, for the information of Government, copies of the statements of the following gentlemen:—

(I.)—Dr. B. Simpson, Civil Surgeon of Patna, and formerly of Darjeeling. Dr. Simpson was interested in the Pomong plantation on its first being started, and consequently writes from personal knowledge.

(II.)—Mr. Munro, Manager of the Pomong plantation.

(III.)—Mr. Jaffrey of the Government Cinchona plantation. Mr. Jaffrey has been continuously on the Government plantation since its commencement until now.

(IV.)—Mr. Gammie, Resident Manager, Government Cinchona plantation.

(V.)—Mr. Scott, Curator, Botanic Garden. Mr. Scott originally served on the Government Cinchona plantation, but was subsequently transferred to his present appointment.

3. In compliance with Mr. Geoghegan's letter marginally noted, I have the honor to submit some remarks on the several matters touched upon in Mr. McIvor's letter to Commissioner of Nilgiris, dated 6th December 1871.

From J. Geoghegan, Esq. to H. Plowden, Esq., dated 6th April 1872.

4. In the evidence taken by the Cinchona Commission during March 1871, no particulars are recorded in regard to the introduction of canker to the Government plantation, none of the witnesses apparently having been questioned on the point. Mr. Munro's statement (page 21, paragraph 41, 4th clause,) that his association received its first cuttings from the Nilgiris, and that "these were extensively affected with canker," is the only one in which the importation of the disease into Sikkim is specially referred to. From his letter above quoted, it appears Mr. McIvor is not inclined to admit that any plants sent by him from the Nilgiri plantations to Sikkim for either the Government plantation or that of the Cinchona Association could, on arrival in Sikkim, have been affected with the disease which he calls "canker."

Report of the Cinchona Commission, dated 30th March 1871.

5. As regards the Government Sikkim plantations, Mr. McIvor thinks it improbable (paragraph 2 of his letter) that if cankered plants were received, the fact should not have been mentioned until the year 1871. Mr. McIvor's argument is a negative one, and his numerous extracts from the reports of the late Dr. Anderson, while proving that in Dr. Anderson's opinion the success of the cinchona cultivation under him had been great, do not prove that it had been attended by no drawbacks whatever. Had Dr. Anderson considered the so-called canker such a formidable affection as Mr. McIvor does, he would have doubtless referred to it in his reports. From his not having done so, the natural inference is that he did not think it worth mentioning, and that on the whole

he considered himself warranted in regarding the cinchona experiment in Sikkim as a success,—a view which is, I believe, shared by most people who have seen the plantations there. Now, however, that the question as to the introduction of canker has been definitely raised, the evidence goes to show that, as a fact, the plants brought from the Nilgiris were on arrival, or very soon thereafter, found to be affected with it. Mr. Jaffrey (in paragraph 2 of his evidence) positively states that the 327 plants received by Government in April 1863 from the Nilgiris were cankered (these are the plants referred to in Mr. McIvor's paragraph 10), and that those received by him in August 1862 were also diseased. Dr. Simpson corroborates Mr. Jaffrey's statement in so far when he says that he saw the disease in the plants in pots under glass at Lebong before a single one had been planted out. Messrs. Scott and Gammie, who joined the cinchona establishment subsequently to the importation from the Nilgiris, bear testimony to the fact that prior to their arrival canker had been established among the plants. It is therefore quite clear that it did not appear suddenly and for the first time as a widespread epidemic shortly anterior to the visit of the Commission in February 1871.

6. As regards the private plantations in Sikkim, Mr. Munro states that his association got its first cuttings from the Nilgiris, and that these were "extensively affected with canker." Mr. McIvor argues that Mr. Munro's evidence is inadmissible, because he says "it is quite certain from a careful examination of the records that Mr. Munro never received any cuttings from the Nilgiris." Mr. Munro on the contrary states (paragraph 3 of his memorandum) that early in 1864, and a few months after his own arrival in Sikkim, four wardian cases of cinchona plants were received from the Nilgiris, and that these were the plants described by him in his evidence before the Commission as "extensively affected with canker." Mr. Lloyd, who succeeded Dr. Bourne as Secretary to the Association, of which Mr. Munro is the manager, corroborates this by explaining how much these plants cost. The evidence concerning this importation is very clear, dates of despatch and arrival of the cases and of the remittance of the money in payment being given. Mr. Lloyd further shows that prior to this payment Rs. 500 had been remitted to Mr. McIvor for plants, of which Mr. Munro says (paragraph 4) only seven were survivors at the date of his arrival in Sikkim. Dr. Simpson bears testimony to Mr. Munro's general accuracy, and himself describes the condition of the first importation from the Nilgiris; while, in paragraph 3 of his memorandum, Mr. Jaffrey states that he was consulted during the year 1863 by Mr. Barnes, one of the original partners in the Cinchona Association, as to the diseased condition of some plants received from the Nilgiris.

7. In paragraph 4 of his letter Mr. McIvor points out an "error" of omission into which, he says, Mr. Munro has fallen in his evidence before the Commission, and, by way of rectifying Mr. Munro's omission, states that the Cinchona Association was supplied by him with seeds enough of cinchona to have produced "probably from 50,000 to 1,00,000 seedlings." Mr. Munro, in paragraph 5 of his memorandum, states that the amount of seed (a quarter of an ounce) was sufficient on McIvor's own showing to have produced only from 5,000 to 6,250 plants. Mr. Munro has thus, I think, very conclusively disproved both the charges of inaccuracy brought against him by Mr. McIvor.

See McIvor on Propagation of Medicinal Cinchonas, page 6, paragraph 12.

8. A few statements in Mr. McIvor's letter, which bear not on the introduction of canker but on its effects in Sikkim, remain to be noticed. In paragraph 7 of his letter he says, "the entire stock of this species (*Cinchona Officinalis*) has been so seriously affected with canker as to cause its cultivation to be abandoned." I have elsewhere stated at length the causes of the abandonment of the cultivation of *Cinchona Officinalis*, and would here only draw attention to paragraph 4 of Mr. Gammie's, to paragraph 5 of Mr. Jaffrey's, and to paragraph 7 of Mr. Munro's memoranda, in which these gentlemen distinctly state that canker was *not* the cause of its failure.

Report on Cinchona Plantations, Sikkim, for year ending 31st March 1872.

9. In the paragraph of his letter just referred to, Mr. McIvor goes on to say that "the Sikkim stock of *C. Pahudiana* raised solely from Java plants has also been destroyed by canker." I am rather surprised to find this statement made by Mr. McIvor, for everybody interested in cinchona cultivation ought to know that this species, after having been extensively cultivated in Java, was discovered to yield *no quinine*, and that for this reason its cultivation was everywhere abandoned. Messrs. Munro and Jaffrey note this fact in their memoranda.

10. A third mistake into which Mr. McIvor has fallen in this same paragraph 7 is that of saying that "the Java variety of *C. Calisaya* (*C. Josephiana*) has been so affected by canke that only one plant existed on the Sikkim plantation at the date of my visit February 1871 out of all the plants received of this variety;" whereas Mr Gammie in the concluding paragraph of his memorandum estimates the nu er at eight thousand.

11. In my last annual report I have given my own opinions on the disease existing in the Sikkim plantations, and have distinguished two forms of it, one general and one local. The latter I regard as anything but fatal, and I would here merely allude to the instructive instance of recovery mentioned by Mr. Gammie in the concluding part of paragraph 1 of his statement. I may mention that I saw examples of both forms of the disease in the cinchona plantations on the Nilgiris during my recent visit to them, although neither is common there.

I.—Dr. SIMPSON.

Bankipore,

My dear King, *The 25th June* 1872.

Mr. McIvor is wrong in stating that Mr. Munro received no cuttings from the Nilgiris. It is quite true that the first instalment of plants were sent long before his arrival, but when they were opened in my presence at Lebong only one plant in the box was alive, and even this subsequently died. I also corrobrate Mr. Munro's statement regarding the disease in the plants. Moreover, before Mr. Munro arrived in the country at all, and before a single plant belonging to Government was planted out, I saw the disease at Lebong in the glasshouse, while the plants were in pots, (I allude here to the Government plants). Mr. Jaffrey, who was then in charge, can bear enough testimony to this. From my personal knowledge of Mr. Munro, even were I unacquainted myself with the actual state of matters, I would place the fullest confidence in any statement put forth by him.

Yours sincerely,

B. Simpson.

II.—Mr. MUNRO.

Memorandum by J. Munro, Esq., Manager, Darjeeling Cinchona Association, Pomong.

Referring to letter No. 115 of the 6th December 1871, from Mr. McIvor, Superintendent, Government Cinchona plantation, to the Commissioner of the Nilgiris, with enclosures.

1. From Mr. McIvor's letter I see that he calls in question the statements made by me before the Bengal Cinchona Commission at Rungbee in February 1871, and flatly denies that the Darjeeling Cinchona Association received any plants from the Nilgiris in my time, and asserts that the last supply of plants from the Nilgiris was ten months in Bengal before my arrival there.

2. My reply will be as short as possible.

3. At paragraph 3 of his letter, Mr. McIvor says:—"It is quite certain from a careful examination of the records that Mr. Munro never received any cuttings from the Nilgiris. In fact, Mr. Munro did not arrive at Pomong until December 1863, or when the original plants sent from the Nilgiris as stock for the Sikkim plantations had been nearly two years, and the last supply fully ten months in Bengal." Mr. McIvor is quite correct as to the time of my arrival. I arrived in Darjeeling on the 11th of December 1863. I do not know what records Mr. McIvor had examined so carefully, but I would respectfully suggest that he examine his own account books (I presume he keeps books), and if he does not find there that he despatched four wardian cases of cinchona plants to Bengal in the beginning of 1864, and that he was paid for the same in June 1864, all I can say is—that such entries ought to be there.

For it is quite certain that the Darjeeling Cinchona Association did get four wardian cases containing *cinchona* plants, *labelled C. Succirubra, C. Micrantha*, and *C. Condaminea*, from the Nilgiris, and that they arrived in Darjeeling on the 3rd of March 1864, or two months and a half after my arrival there. I also got four wardian cases from Ceylon at the same time containing principally *C. Succirubra*, and a few plants of *C. Officinalis*, very different plants from the Madras plants. As Mr. McIvor might again call in question my unsupported evidence, I enclose herewith a note from our present Secretary* of the different payments made to Mr. McIvor for plants, which speaks for itself. Those plants, which arrived in Darjeeling on the 3rd of March, and for which Mr. McIvor was paid Rs. 256 on the 30th June 1864, were the plants referred to by me in my evidence before the Cinchona Commission, quoted by Mr. McIvor in paragraph 1st of his letter.

* Mr. Lloyd.

4. That statement, I repeat, is substantially correct, and was made by me in support of my views on canker, and not with any view or intention of detracting anything from the glories of the Nilgiris or their able superintendent; nor was I aware (until Mr. Broughton, a member of the Commission, indignantly denied it) that the existence of canker there was denied. Indeed, I was then, as I still am, under the impression that Mr. McIvor during his short visit to Pomong, and in answer to a direct question from me, admitted that they had canker to a limited extent. I am also under the impression that it occurs in their native country; but, be that as it may, certain it is that the Madras plants which reached me on the 3rd March 1864, (of the first consignments I know nothing, having only arrived in time to see the death of the last of them, 7 plants,) and which were very stunted, having been used as *stock plants* before they were despatched, as the frequent marks of the knife on them fully testified, showed symptoms of the disease we have since learned to call canker, as soon as it could be distinguished from injuries received on the journey. The Ceylon plants were long, succulent shoots that had never been topped.

I do not affirm that they were afterwards free of canker.

5. At paragraph 4 Mr. McIvor quotes another statement made by me before the Cinchona Commission, namely, "that my present plantation of 500,000 plants of *C. Succirubra* were raised by cuttings from 92 plants," and says "this is an error, as I supplied a quantity of excellent seeds to the proprietors of the Pomong plantations, Mr. Lloyd and Colonel Angus. These seeds germinated freely, and probably produced 50,000 to 100,000 plants."

This statement, which I have no doubt is quoted correctly, is not very happy in its wording, and ought to be "at least 500,000 plants of *C. Succirubra* now in permanent plantations were raised by cuttings (including layers, eyes, &c. &c.) from 96 (not 92) plants." But this does not alter its meaning in the least for the purpose for which it was made, namely, to point out to the Commission the effect such treatment must of necessity have on weakening the constitution of a forest tree; an effect from which they very soon recover, however, when placed in a favorable situation.

6. The above would scarcely be worth noticing, but that Mr. McIvor tries to damage the whole of my evidence by making some of my statements appear false. My monthly returns will show, any whom it may concern, the number of plants, cuttings, &c., from the beginning to date.

My return for December 1870, or previous to the sitting of the Commission, shows as follows:—

C. Succirubra plants in permanent plantations	8,67,400
Ditto ditto in nursery beds for ditto	6,67,331
Ditto ditto in stock	15,000
Total ...	15,49,731

So that my statement in round numbers of 500,000 was considerably within the mark, and left ample room for a good deal more than Mr. McIvor's seeds even at his own estimate of them. The produce of his seeds, as soon as they were ready, were planted out with others in 1870. And I hope Mr. McIvor will not doubt my word when I say that I tried to the utmost of my poor abilities and the rude means at my disposal to make the most of them, but I think he is rather hard on me in his estimate of the number of plants I ought to have raised from them. He takes care not to mention the quantity of seeds sent. I will do so for him; it was of *C. Succirubra* ¼oz., and Mr. McIvor in his "Notes on the Propagation and Cultivation of the Medicinal Cinchonas," published in 1867, page 6, paragraph 12, says, "one ounce of clean seeds produce on an average from 20,000 to 25,000 plants," so that "instead of from 50,000 to 100,000" his ¼oz. would produce from 5,000 to 6,250 plants only.

7. The remainder of Mr. McIvor's letter refers principally to the Government plantations, and does not concern me much; but as I have a few plants here of *C. Officinalis* and its varieties, and of *C. Pahudiana*, I may remark with reference to Mr. McIvor's statements at paragraph 7 of his letter. After stating that the principal stock of *C. Officinalis* had been raised from seeds from Ceylon, he says, "and it is worthy of note that the entire stock of this species has been so seriously affected with canker as to cause the cultivation to be abandoned. The Sikkim stock of *C. Pahudiana* raised solely from Java plants and seeds has also been destroyed by canker." This is a bold assertion, and it is certainly new information to me that the one was abandoned *through*, or the other destroyed *by* canker; but as I presume he refers to the Government plants, I leave the gentleman in charge of them to digest it. We have a small patch of each species here, as also of *C. Micrantha*, the latter raised solely from Madras plants; we discontinued propagating the whole of them from a very early stage, not because of *canker* (which is only a mare's nest discovered by Mr. McIvor), or because of any other disease, but simply because of their prospects from a commercial point of view. They are not destroyed, but are not worth wasting money on, and the climate of Sikkim does not appear to be very suitable to either of them. They are not the only species, however, that Mr. McIvor has forbidden to grow in Sikkim; if I am rightly informed (I write from hearsay), he in one sublime sentence pronounced the whole of our *Succirubra* to be

dying out also, and gave them three years to take themselves out of existence, Pomong I suppose included. Such a statement made by any man after seeing, the *Succirubra* plantations here simply deserves contempt.

8. To prevent any confusion between the Government and private plantations by the term "the Sikkim plantations" used by Mr. McIvor, I beg to say that my remarks in the foregoing, as well as before the Cinchona Commission, refer to the plants under my own charge only. The Government officers are perfectly competent to answer for themselves and their plants.

9. In conclusion, I would most respectfully observe that I make no claim or pretension to Mr. McIvor's ability or experience. He has more experience in his profession in general, considerably more so in India, and three years more in cinchona cultivation than I have.

All I contend for is the truth of my statements, which I think I have sufficiently proved; and as Mr. McIvor's statement at paragraph 3 of his letter is calculated to do me injury, I will consider it only an act of justice on the part of Government to give the same publicity to this as they did to Mr. McIvor's statements, and I consider myself entitled to an apology from that gentleman for his rash and unwarranted statements.

DARJEELING CINCHONA ASSOCIATION,

The 3rd July 1872.

J. MUNRO, ESQ.,

Superintendent.

DEAR SIR,

YOU ask me if there are no entries of money paid to Mr. McIvor for cinchona plants. I have looked and find the following:—

30th June 1864.

To Mr. McIvor of Madras.

	Rs.	A.	P.
Purchase of plants	256	0	0
Inland carriage	8	12	0
Freight	40	0	0
Total ...	304	12	0

30th April 1863.

To amount remitted to Mr. McIvor for plants ... 100 0 0
31st May 1863. Ditto ditto ditto 200 0 0
30th June 1862. Ditto ditto ditto 200 0 0

There are also references in the minutes and other proceedings and complaints against Mr. McIvor for the bad plants he had sent from Ooty.

Yours faithfully,

W. LLOYD,

Darjeeling Cinchona Association.

III.—MR. JAFFREY.

Memorandum on Cinchona Canker in British Sikkim.

I TOOK charge of the Government *cinchona* at Sinchul in August 1862. Found a disease in *Cinchona Succirubra*, but from its peculiar type was some time before coming to the conclusion that it was canker.

2. I received during April 1863, 327 plants, consisting of various species of cinchona from the Nilgiris, amongst which canker was fully developed.

3. Was, during 1863, consulted by the late Charles Barnes, Esq., of the *Darjeeling Cinchona Association*, with reference to a consignment of cinchonas received from the Nilgiris. Observed in the wardian cases 7 or 8 sickly specimens; attributed the destruction of the plants at the time to their weakness and the wretched soil in which they had been transmitted.

4. *Cinchona Pahudiana.*—Cultivation was stopped by order of Government, it being considered a useless species; 1,000 plants were killed on the morning of the 16th January 1864 by frost. A small plantation of this species has been retained so that it should not be lost. The plants are from 15 to 19 feet in height at this time (July 1st 1872); canker has nothing to do with the disappearance of this species.

5. *Cinchona Officinalis.*—Cultivation has been held in check in consequence of the climate of Rungbee having been found unsuitable to their wants; canker in this species has been the exception, not the rule.

6. *Cinchona Calisaya var. Josephiana.*—I am not aware of having received by name at any time this variety of *cinchona*. I received 8 plants of *C. Calisaya* at Sinchul in 1862, and named as such. I recollect of pointing out to the late Dr. Anderson a few strong plants amongst the seedlings of *Java C. Pahudiana* as being botanically like the variety *Josephiana*.

A. T. JAFFREY.

Government Cinchona Cultivation.

IV.—MR. GAMMIE.

Dated Mongpoo, the 5th July 1872.

From—J. GAMMIE, ESQ., Resident Manager, Government Cinchona Plantation, Rungbee.

To—G. KING, ESQ., M.B., Superintendent, Botanical Gardens, and in charge of Cinchona Cultivation in Bengal.

IN forwarding the remarks of Messrs. Jaffrey and Munro on the introduction of canker to British Sikkim, I beg to state that I can say nothing on the subject from personal experience, as I did not arrive in India till December 1865. I have every reason to believe that canker showed itself in the plants immediately after their arrival from Madras, but at the same time I think that even had quite healthy plants been received, there would have been more or less canker in the Sikkim plantations, but that it is not a disease to cause alarm, for it very seldom kills the plants. As a case in point, I may mention that Mr. McIvor when at Rungbee wished to pull up a plant of *C. Calisaya*, which he said had been killed by canker, for the purpose of showing the Cinchona Commission the deadly effects of the disease as had been previously expounded by him. Mr. Clarke, the Officiating Superintendent, would not allow him to do so, as he denied it was dead and wished to see whether he or Mr. McIvor was right. Mr. Clarke gave him permission to pull up any other canker-stricken plant he chose, but to the best of my recollection Mr. McIvor did not act on the permission. This particular plant is alive to this day and will probably live for many years to come.

2. As Mr. Mann is absent on leave and has not the opportunity of defending himself, I beg leave to state that Mr. McIvor has, in my opinion, misunderstood the statement made by Mr. Mann, that "ten per cent. were old, exhausted plants from the Nilgiris." Mr. Mann, in my opinion, meant that they had been exhausted by constantly being cut for propagation here, and not that exhausted plants had been sent from the Nilgiris.

3. I am surprised at Mr. McIvor coming to the conclusion that "it appears to be assumed that the Sikkim plantations were stocked with plants from the Nilgiris only," for the receipt of seeds from whatever source and the results were generally published in the cinchona reports as he himself partly shows.

4. Mr. McIvor is quite mistaken in his conclusion that the cultivation of *C. Officinalis* was abandoned on account of canker, and that *C. Pahudiana* was destroyed by the same disease. *C. Officinalis* certainly died out, but from the root and not from what I understand to be canker which affects the bark and not the root.

5. I am not aware where Mr. McIvor got his information, "that only one plant of the Java stock of *Calisaya* was in existence at the time of his visit to Sikkim in 1871," but certainly it was not from a reliable source, for the original Java stock was not kept separate from the stock received from other places, and it is quite impossible for any one to tell with certainty the origin of all the plants. However, at the time of Mr. McIvor's visit there were in permanent plantations not fewer than 8,000 plants raised from Java seeds.

V.—Mr. SCOTT.

Memorandum by J. Scott, Esq., Curator, Royal Botanical Garden, Calcutta.

I only joined the Government cinchona nurseries in Sikkim, then at Lebong, about the end of December 1864. The so-called canker had infected the plants ere that, and was indeed equally as prevalent as I ever after saw it amongst the plants in the frames or nurseries at Rungbee. I am thus unable to say whether or not the plants originally received from the Nilgiris were infected with that disease. Even supposing, however, that the plants were perfectly free from the disease when lifted and despatched in the wardian cases from the Nilgiris for Sikkim, I am quite of opinion that it might have originated during the journey if the plants were kept in a wet soil, and a close, hot, and moist atmosphere. I do not think that the disease is at all infectious, or has any fungoid origin, but I consider it simply due to excess of moisture in the soil and atmosphere.

Rev. 2 3286/72

[F. P.—136—8-8-72.]

No. 363, dated Royal Botanical G arden, the 8th August 1872.

From—John Scott, Esq, Offg. Su dt., Botanical Garden, and in charge of Cinchona cultivation in Benga l,

To—The Offg. Secretary to the Governm nent of Bengal, General Department.

With reference to Dr. King's report, No. 360 of the 12th July 1872, on the introduction of the cinchona bark diseas e, I have the honor to inform you that subsequent to the submission of that report Mr. Davison (lately an assistant to Mr. Broughton, Quinologist to the Mad ras Government,) called on Dr. King, and in the course of conversation he in cidentally noticed the occurrence of canker on the Nilgiri cinchonas. Dr. King was thus induced to ask Mr. Davison for a memorandum on the co ndition of the Government cinchona plantations there as regards that disea se. I now beg to submit a copy of Mr. Davison's memorandum (received thi s day), which I may remark is strongly confirmative of Mr. Munro's statement to the cinchona commission, "that canker was imported into the cinchona pl antations, Sikkim, from those on the Nilgiris."

2. "With reference to canker," sa ys Mr. Davison, "in the Government cinchona estates at Neddiawuttum, I m ay state that I have never paid very close attention to the subject, so my in formation may be rather scanty; but what I can give, I believe to be strictly correct. One form of disease that I have observed seems to be confined to th e lower portion of the tree; the bark just above the surface of the soil cracks; t he cracks, I think, generally radiating from a common centre; the wood und er the cracked part rots, the rotting going deeper, until it reaches the pith: if the rotten wood is closely examined, it will be found to contain a minute fu ngi, similar in appearance to ordinary mould. The second form is when the bark dries (but does not crack); sometimes in patches along the trunk, sometimes up one entire side of the tree. I believe Mr. McIvor always makes it a point to have all trees suffering from either form cut down on the first appearance of their flagging. This is about all the information I can give you on the subject."

F. P.

No. 104. Read the following letter

Rev: 3286/72

No. 418.

FROM

A. O. HUME, ESQUIRE, C. B.,

Secretary to the Government of India.

To

THE SECRETARY TO THE GOVERNMENT, MADRAS.

Department of Agriculture,
Revenue, and Commerce.
(*Agriculture and Horticulture.*)

SIMLA, *the* 1*st October* 1872.

SIR,

I AM directed to acknowledge the receipt of your letter No. 73, dated 11th January 1872, and in reply to forward, for the information of His Excellency the Governor in Council, copy of a letter* from the Government of Bengal (with enclosures), which, in the opinion of the Government of India, leaves little doubt of the correctness of the assertion that canker "is shewn to have existed in the plants originally sent up from the Nilgiris as stock for the Sikkim plantations."

* No. 3096, dated 6th ultimo.

2. Your letter, together with the reply of the Government of Bengal with the enclosures of both, will now be published in the Supplement to the *Gazette of India*. Paragraphs 3 and 4 of the late Mr. Breeks' letter to your address, No. 91, dated 13th December 1871, will, however, be omitted, as they appear to the Governor General in Council to be objectionable, as embodying a personal attack upon a Secretary to Government, based on a statement contained in a letter signed by him in his official capacity.

I have the honor to be,

SIR,

Your most obedient Servant,

A. O. Hume

Secretary to the Government of India.

E-3286

Revenue 1872. Depart.

DEPARTMENT OF AGRICULTURE, REVENUE, AND COMMERCE.

[Agriculture and Horticulture.]

To

The Government of Madras.

No. 418.

Dated 1st October 1872.

Rec'd 10th 10

E-3

Do 1872

Do

SUBJECT.

INTRODUCTION of canker in the Chinchona plantations at Rungbee by diseased plants received from the Nilgiris.

No. 418.

Comm'r of the Nilgiris

Do 104—105

3 to the Comm'r, Nilgiris Do 23 Oct 72