M.R.O. 14—5,450—22-10-25.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 3083-3084 Press ~~Mis.~~

202.20A

Dated 21-12-186-.

Not to be folded or roughly handled

No. 202. Read the following letter from the Superintendent Government Chinchona Plantations, to the Acting Secretary to Government, Revenue Department, Fort Saint George, dated Ootacamund, 24th November 1865, No. 105 :—

1. With reference to the recent analysis by J. E. Howard, Esq., of the Chinchona bark sent from the Neilgherries in May last, and that gentleman's remark, that our Chinchona plants should be encouraged to produce Quinine instead of Chinchonidine, I would respectfully bring to the notice of Government the treatment necessary to effect this important change in the alkaloids.

2. Chinchona bark may, and frequently does, produce five alkaloids, namely, first, Quinine, second, Quinidine, third, Chinchonidine, fourth, Chinchonine, and fifth, Aricine. The first of these alkaloids is of the greatest value in commerce, the second and third being rather more than one-half the value of the first, while the fourth and fifth are almost valueless; it is thus that the price of Chinchona bark depends entirely on the quantity it contains of the three first alkaloids in a state capable of crystallization; therefore to increase the quantity of quinine, to the diminution of other alkaloids, is the first, and most important object of the cultivator, especially when it is considered that the presence of inferior alkaloids, even though valuable in themselves, add so much to the cost of manufacture, as to render their presence a disadvantage. With these important considerations in view, from the time the Chinchona plants were introduced to this country, my attention has been steadily directed to ascertain, by practical observation, how, and in what manner, the alkaloids are formed; how they increase, and pass from one into another. Although the experiments and observations have been limited, when compared with the importance of the enquiry, still I feel satisfied that this problem has been so far solved, as to place in a great degree under the control of the cultivator, the quantity, and quality of the alkaloid produced.

3. Quinine and other alkaloids are first formed, or produced in the leaves, by the action of light and air on the juices, and while the leaves are performing their usual office of elaborating the sap or juices of the plant. Here the alkaloids are intimately combined with the elements of the sap, such as quinovic acid, &c., and in this condition, carried down by the return sap and deposited in the bark, most impure in the liber or inner bark, but as the liber becomes transformed into cellular tissue, a superior alkaloid (quinine) is produced, in a state of great purity, and easy of separation. The inferior quality of the alkaloids in the liber is apparently caused by the rapid circulation, in this portion of the bark, of sap containing oxygen from recent exposure in the leaves. Quinine being most abundant in the cellular tissue of the bark, where it is deposited at first also in an impure state, but in consequence of the retarded, and horizontal circulation of the sap in this bark, the tendency of the inferior alkaloids is to pass into quinine. In the cellular tissue, however, there is also a process of waste, caused by the action of light and air on the surface of the bark, thus the quinine apparently oxidizes, becomes inseparably combined with, or passes into red coloring matter, and gum. This process of waste is, however, somewhat less than the deposit or accumulation in the bark, and for this reason the alkaloids increase according to the age of the plant.

4. From the above it will be understood, that if this process of oxidation or waste from the surface is effectually prevented, quinine will be deposited and increased in the cellular tissue of the bark, to an almost unlimited extent, because the leaves form the quinine laboratory, while the bark is merely the storehouse, and doubtless the leaves daily elaborate and deposit a certain proportion of quinine, and will continue to do so till the last day that a healthy leaf exists upon the tree. There is therefore a continual, and never failing alkaloid producing power in action, and the alkaloid thus formed and deposited can be cheaply and most effectually preserved by covering the surface of the growing bark with any material so as to exclude light, and the action of the air. There will of course be a limit to the quantity of alkaloid that the cellular tissue will contain, which probably will be from 18 to 25 per cent. of the bulk of the bark, and making an allowance for the less pure alkaloids of the liber, from 14 to 17 per cent. of pure quinine may be obtained from "Red Bark" thus managed.

5. In addition to protecting the alkaloids from waste, it is desirable to increase the cellular tissue, and to effect both these objects moss has been selected to cover the surface of the bark, as this material effectually excludes the light, and at the same time greatly increases the cellular tissue. By this process the yield of quinine can be tripled, quadrupled, or even more, according to the time the bark is subjected to the process, which to develope its full advantages, should be applied for a period not less than eighteen months, a longer time than this being still more advantageous. This process also gives the advantage of enabling the bark of the stems and branches to be continually removed and renewed, so that in reality the produce from an acre of land will be fully thirty times as much as that which can be obtained by the usual method of cultivation; and in order to procure to myself a participation in the benefit of results so important, I considered it desirable to secure this discovery by patent rights under Act No. XV. of 1859.

No. 203. ORDER THEREON, 21st December 1865, No. 3,083.

Miscellaneous.

* From Secretary of State, 30th September 1865, No. 27, paragraph 3.

Ordered that the above letter be forwarded to the Home Government, with reference to the Despatch marginally* noted; and to the Government of India, with reference to Mr. McIvor's statement that he has applied for a patent for his discovery of the utility of moss in increasing the deposition of Quinine in the bark of the Chinchona.

(True Extract.)

(Signed) J. D. SIM,
Secretary to Government.

To the Superintendent Government Chinchona Plantations.

Exd. S. T. Augustin.

REVENUE DEPARTMENT.
FORT SAINT GEORGE,
21st December 1865.

No. 3,084.

No. 204.
To

THE SECRETARY TO THE GOVERNMENT OF INDIA.

SIR,

Miscellaneous.

* Dated 24th November 1865, No. 105.

In forwarding the accompanying letter* from the Superintendent of the Government Chinchona Plantations, Ootacamund, I am directed to draw the attention of the Government of India to the Superintendent's statement, in the last paragraph, that he has applied for a patent for his discovery of the utility of moss in increasing the deposition of Quinine in the bark of the Chinchona.

I have the honor to be,
Sir,
Your most obedient servant,

(Signed) J. D. SIM,
Secretary to Government.

Exd. S. T. Augustin.

Rec. 1865. Despatches
Rec'd 29 Dec. 1865. 3400.

From The Supt Chinchona Plantation Ootacamund

To The Secretary to Govt Rev. Dept. Madras

No 196

Dated 24 November 1865

Rec'd 27

Submits an account of the treatment of Chinchona Ledgeriana for the production of Quinine.

S. O. No 3083. 21 Dec.

Mr. McIvor

Rec'd 11 May 1865 No 199-200
" 27 Sept " " 542-543
" 31 October " " 586 A-586 C

Mr McIvor's measures to secure that he, being commissioned, & ironbound & designated an "executive" must have been taken in common with the Govt of India. If they accept the most liberal as an "execution" falling within scope of the act 15 of 1859, we are helpless.

I would not therefore notice the last para of Mr McIvor's letter, but I would notice upon publicity to his present conduct as may perhaps benefit Chinchona planters & others whose grounds Mr McIvor commands purchasing &c, to be aware of him, are applying most to them here.

A Dec 65.

No 202

I cannot see how Lieutenant [illegible] charge of our Chinchona Plantations can take a patent 6 Dec 65 for his own benefit of any

I do not think that the Gov^r should attempt to prevent the Com^rs from hearing such persons as they may be able to adduce in support of the application — but I would by experiments upon the Gov^r Plantations — prove that they have not only his reasons as his precedents for the Plantations — I do not think his patent would be worth any thing — and I am disposed to question the validity of his reasoning — but that is a matter between him and the Public — We may be certain that his patent will soon be disputed after the Law shall have

We should — in drafting a Clause to meet Mr Vernon's wishes — but I think a good deal may be said in favor of a discovery made by a Servant when using materials belonging to his Master, thus [illegible] our property — and it seems to me [illegible]

[illegible] processes that he may carry on [illegible] Plan — but I presume any such [illegible] action as this [illegible] [illegible] and his patent [illegible] and dispense the [illegible] of a patent — By SM. Act XV/57 [illegible] of [illegible] may [illegible] [illegible] such authorizing a petition [illegible] [illegible] a specification of his [illegible] invention — or a petition [illegible] to grant him a patent [illegible] he is not obliged to [illegible] such order

JP

Note. This report will of course go home — but I beg to ask whether any notice is to be taken of the latter part in which Mr McIvor says that he has secured patent rights in his discovery of the efficacy of Moss in increasing the production of Quinine —

I cannot see exactly how such a process can be patented at all and I fancy Mr McIvor himself made it "public" in his printed report in such a way as to preclude a patent issuing — vide Sect XIX Act XV of 1859. Mr M: will of course consider silence simply acquiescence & may go on patenting. No copy of his Specification has been received. J. D'S.

Revn Department

Jr — 3083.

Proceedings of the Madras Government

Under date the 21st December 1865.

Read the following letter from the Supt Chinchona Plantation, Ootacamund

Submits an account of the treatment of Chinchona barks for the production of Quinine.

(Here enter 24th Novr 1865)

Ordered that the above letter be forwarded to the Home Government with reference to the Despatch marginally noted; and to the Government of India with reference to Mr McIvor's statement that he has applied for a Patent for his discovery of the utility

†from Secy of State 30 Septr 1865 No 27 para 3.

utility of moss in increasing
the deposition of Lecirine
in the bark of the Chin-
chona.

1 Folio Serpd Cool Chenchana Plantation Dec 20 Dec

Rd

No. 3084

To

The Secretary to the Govt of India

Sir,

In forwarding the accompanying letter from the Supdt of the Govt Chinchona Plantations, Ootacamund, I am directed to draw the attention of the Govt of India to the Supdts statement in the last para that he has applied for a Patent for his discovery of the utility of moss in increasing the deposition of Quinine in the bark of the Chinchona.

I have &c

21st December/65

Revenue 1865 Dept. No. 3083.
Copy forwarded Dec 27.

No. 3083.

Copy of Mr. Wallaston's Letter to the Govt of India Revenue Dept. dated 21st December 1865.

From Mr. C. P. Wallaston Under Secretary to the Govt of India to the Secretary to the Govt of Madras Revenue Department &c No. 3849.

Dated Fort William the 27th December 1865.

Sir,

I am directed to forward for the information of the Government of Madras a copy of a letter from the Superintendent of the Government Chinchona Plantations in the Neilgherries, regarding the application of Mosses to the production of Quinine in the bark of the Chinchona.

I have &c

P242-203

Revenue 1865 Dept.
Proc: of Govt for Decr.

No. 3084.

To
The Secretary
to the Govt. of India.
Dated 21st Dec. 1865

Regarding Mr. McIvor's
application for a patent
for his discovery of the
utility of moss in increasing
the deposition of Quinine
in the Cinchona bark.

From the Offg Under Secty
to the Govt of India dated 15 July 65
Con. 349

No 204