No. 351. Read the following Proceedings of the Board of Revenue, dated 7th July 1871, No. 2,778 :—

Read the following letter from J. BROUGHTON, Esq., Government Quinologist, to the Acting Sub-Secretary to the Board of Revenue, dated Ootacamund, 25th May 1871.

REFERRING to Government Order No. 1,606 of 21st October 1870, in Revenue Department, I have the honour to give a report on the large number of specimens of tobacco I have received, and on the general question of tobacco-cultivation in South India.

2. The specimens received have been very numerous, and comprise apparently all the good indigenous tobaccos grown in this Presidency. As the best mode of analysis of these has been a subject of much consideration with me, I will first append a tabular statement of the results I have obtained after much thought of the various points on which information was necessary. It will be perceived that the list comprises nearly every possible variation in the amounts of the constituents determined by the analysis. To these results I append the numbers yielded by the Shiraz tobacco grown in Tanjore, received from Revenue Board, and those obtained with some cigars given me by Dr. Ross here, and which are referred to in Board's Proceedings No. 6,619 of 12th November 1870 :—

No.	Tobacco-specimen from	Per cent. of Ash.	Per cent. of Carbonate of Potash in Ash.	Per cent. of Nicotine.
1	Vizagapatam, Vizagapatam, No. 1, 1st sort	22·653	12·5	1·41
2	Do. do. ,, 1, 2nd sort	20·185	17·83	1·45
3	Do. do.	26·339	3·29	2·45
4	Do. Chiparapilly, No. 2, ...	17·544	9·6	2·37
5	Do. Ankapilly, ,, 3, ...	18·592	8·01	5·40
6	Do. Srungavarapukota, No. 4	20·740	9·91	5·49
7	Do. Vizianagram, No. 5	20·411	7·2	4·54
8	Trichinopoly, Trichinopoly A.	22·829	6·05	2·52
9	Do. do. B.	21·485	8·16	2·41
10	Do. do.	24·434	5·29	1·83
11	Do. (Cigars) Talamputty Pulvoi	20·396	8·25	3·28
12	Do. (Cigars) Natapur	26·848	4·42	4·55
13	Do. (Cigars) Valicundapuram	23·108	3·91	4·15
14	Bellary, Hospet...	19·933	3·46	3·74
15	Do. Raidroog	18·931	13·29	1·70
16	Do. Harpanhully	20·29	3·75	4·99
17	Do. Sundoor	20·114	4·40	2·41
18	Nellore, 1st sort	19·422	8·12	2·16
19	Do. 2nd sort...	18·606	5·81	1·83
20	Cuddapah, Pullampet A.	20·701	4·62	2·03
21	Do. do. B.	20·507	3·45	1·33
22	Do. Sidhout C.	23·951	4·07	2·99
23	Do. Budwail E.	22·453	5·71	2·70
24	Do. Chinnia Dandloor G....	16·255	4·14	5·1
25	Do. Prodatoor H., No. 1	21·698	4·49	2·75
26	Do. do. I., ,, 2	16·432	6·15	4·82
27	Do. Jammalmadagu J.	22·105	3·52	5·07
28	Do. do. Ponnatolah K., 1	17·327	5·93	5·36
29	Do. Madanapully P.	18·743	5·95	7·44
30	Do. do. Q. 1	20·18	2·28	7·23
31	Do. from Board of Revenue	24·75	4·36	1·70
32	Tanjore, Tanjore	20·745	8·71	2·49
33	North Arcot	22·895	10·06	4·40
34	South Arcot, Ravathavallur	21·115	11·92	5·99

carbonate, and thus depreciate its quality. I am quite of opinion that it is this cause which produces the general inferiority of Indian tobaccos. An examination of the first fifty of the analyses given shows that thirty-nine kinds contain less than nine per cent. of potassic carbonate in their ash.

9. But with ordinary European smokers, for whom the English and Continental tobacco markets exist, and who are accustomed to the use of the fine foreign tobaccos, I do not think that Indian tobaccos of even good quality would be found agreeable. It is stated in a memorandum of Dr. Hooker's, published in the *Nilgiri Gazette* of April 19th, 1870, that he was informed by the brokers "that the "Indian and Colonial tobacco is very poor indeed." A slight apprenticeship is always necessary before Anglo-Indians relish even the finest Indian cheroots, though custom subsequently brings a full appreciation of their good qualities. For export it therefore appears necessary that not only should the tobacco be of good quality, but that it should also be of the very kind to which the market is accustomed. In other words, the kind of tobacco exported should not be of the Indian but of foreign varieties. If Indian tobacco be exported, it should be most carefully selected; and against this the fact remains, that there is in this country a most ready sale for the better kinds, and consequently with them there is but little profit in export.

10. In Proceedings of Board of 12th November 1870, No. 3,619, enclosure No. 2, Dr. Ross describes the growth of some Ohio and Shiraz tobacco. He has been good enough to give me a few cheroots made of the tobacco. Though they contain the amount of nicotine found in the best specimens of tobacco, they are abominable in flavour. Their ash is black, and contains but 0·39 per cent. of potassic carbonate. This is the cause of the bad quality and black ash. The tobacco was grown on soil rich in lime salts, and was not manured with manures rich in potash. It is quite certain that the finest foreign tobaccos will not yield a good produce in most parts of South India unless carefully and systematically cultivated.

11. The tobacco from Shiraz seed, which I received from Tanjore, is of better quality, but it is undoubtedly affected by the small amount of potash salts in the soil in which it was grown. Had the soil been manured with the ashes of plants, this tobacco would doubtless have been of fine quality. As it is, the ash is not good, and the flavour, though not bad, is not equal to that of real Shiraz.

12. The cheroots made from the Shiraz tobacco are much better. Whether grown on different soil, or from some local cause, they are an improvement on the latter specimen. Their ash contains 5·98 per cent. of potassic carbonate, and the tobacco somewhat less nicotine. The cheroots are good, of pleasant flavour, but are too new to have reached their best flavour.

13. In consequence of the directions issued by the Board, I have received full accounts of the method of cultivation and curing of tobacco. The former does not appear to differ much in various parts of South India. From Nellore, North Arcot, Coimbatore, Trichinopoly, it is very significant to learn that tobacco is improved in quality by being watered by water from brackish wells. But the method of curing differs greatly both in the manner in which the tobacco is fermented, and the duration of time during which it is exposed to fermentation. Though these variations doubtless have considerable influence on the flavour of

Proceedings of the Madras Government, Revenue Department,
27th July 1871.

the tobacco, I have had no experience on their effects, and can only state my conviction that the method of curing which produces the best tobacco will be found the best to employ, as it is the most simple. The sprinkling with water containing jaggery and the bark of *Acacia arabica* can hardly fail in being both useless and injurious. One or two specimens of tobacco which I have received were spoilt for smoking to an English palate by the amount of jaggery they contained.

14. In order to cure the very general defect of Indian grown tobacco I would strongly advise that the plots of ground on which the foreign tobaccos are grown should, in addition to cattle manure, be also manured with the ashes of wood or plants. If these could be prepared by burning on the ground it would be better. I find it is customary in Manila to do so, and it was a result of M. Schlöring's experiments in France, that this treatment increased the amount of potash salts in the tobacco. I have no doubt whatever that by this treatment tobacco of the finest quality could be grown in India.

15. From what I know of the soil of Wynaad, I have a strong conviction that it would be well suited to tobacco cultivation. Like the soil of the Nilgiris it contains but little calcium salts and much potash. Wynaad possesses also a climate which appears very favourable to the plant.

16. The large amount of ash yielded by tobacco fully explains why it is an exhausting crop. The elaborate arrangements customary in Trichinopoly for its manuring doubtless are a cause of the high local reputation of the tobacco there produced. Poor soil and lax cultivation will never produce good tobacco. In all places where the tobacco has a reputation it appears that much care is taken both to manure it highly and to cure it with great attention, after it is harvested. Unless this be done, it will be useless to expect favourable results in India, or anywhere else.

17. I shall be glad to receive tobacco grown from foreign seed for analysis, as soon as that grown near the Horticultural Society's Gardens, Madras, and on the Government Experimental Farm, is ready. I should much like to compare the results of tobacco manured with that grown without manure; and also, some grown with a plentiful manure of plant ashes with that grown on a small plot unmanured.

THE acknowledgments of the Board are due to Mr. Broughton for his masterly and interesting report above recorded, which will be communicated to Government with a suggestion that the report be as extensively published as possible.

2. The attention of the Superintendent of the Government Farm is drawn to Mr. Broughton's remarks in the last paragraph of his letter.

3. The result of the experimental culture of tobacco at the Government Farm, desired by Government in their Proceedings, Revenue Department, 21st October 1870, No. 1,606, will be communicated as soon as known.

No. 352. ORDER THEREON, 27th July 1871, No. 1,313.

Miscellaneous.

ORDERED that Mr. Broughton's report be communicated to all other Indian Governments and to the Governments

of Ceylon and the Straits Settlement, and that copy be forwarded to the Secretary of State.

2. The report will also be laid on the Editors' Table. The Government concur in the Board's estimate of its value.

(True Extract.)

(Signed) A. deC. SCOTT, Captain, R. E.,
Under-Secy., P.W.D.,
for Secy. to Govt.

To the Board of Revenue.
,, the Agri-Horticultural Society.
,, the Superintendent Government Farms
,, the Government Quinologist.
,, the Editors' Table.

Rev. 1871. Dept.
Board of Revenue,
No. 2331
MADRAS.

PROCEEDINGS, 7TH JULY 1871, No. 2,778.

Dept. 19 July 71 Encl.

Received 20 July

JULY.
No. 2,778.

Tobacco—grown in certain districts of Madras Presidency.—Report of Government Quinologist on specimens of, forwarded to him for analysis, and on general question of tobacco-cultivation in South India, submitted to Government, with suggestion it be as extensively published as possible. Attention of Superintendent of Government Farm drawn to last paragraph of report.

No. 1913-27 July 71

Received & Entd 21 Augt
No 35 /71

Govt. of British Guiana.

REVENUE.

THE BOARD OF REVENUE.

&c. &c. &c.

Dated July 27th.

Read

A. G. 25th July 1871. No. 1,018.

JULY.
Nos. 361 362.

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