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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

Revenue DEPARTMENT

G.O. No.	<i>AS</i>	Press.
B.P. No.		Mis.
Dated	<i>25.4.1980</i>	197 .

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Not to be folded or roughly handled

488
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GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

28th April 1880, No. 488.

No. 267. READ THE FOLLOWING PAPER :—

From Surgeon-Major G. BIDIE, M.B., Superintendent, Government Central Museum, to C. G. MASTER, Esq., Secretary to Government, Revenue Department, dated Madras, 23rd March 1880, No. 88.

In continuation of my letter recorded in G.O., No. 22, of 6th January 1880, I have the honor to submit to His Grace the Governor in Council further observations on sugarcane borers, and have thought it desirable to place on record now a summary of all available information on the subject as it has been collected with some difficulty.

2. *Mauritius*.—In 1856, the cane crops there were ravaged by a borer which was believed to have been introduced into the island with a cargo of cane cuttings brought from Ceylon. This borer was identified as the larva of a moth *Proceras sacchariphagus*. The moth lays its eggs on healthy canes in the axils of the leaves. The young caterpillars soon eat the leaves "from the tender parts of the heart of the plant, destroying the cane in a frightful manner, by forming burrows in the stem filled with excrement, and which shortly have the effect of completely disorganising the functions of the vessels, so that crystallisation will no longer take place, and the cane is not even fit for the making of rum." Such is Professor Westwood's description of the ravages of this insect (*Gardener's Chronicle*, July 1856), and he suggests with the view of getting rid of the pest "the burning of infested canes, as well as every particle of the tops, leaves and dry straw which have fallen on the ground and do not pass through the mill." As a precaution the Mauritius planters at this time immersed the cuttings of cane tops about to be planted in a solution of "pentasulphide of calcium" in water, consisting of one part of the former to thirty of the latter. Professor Westwood finally states that the Mauritius borer is identical with that described by the Rev. L. Guilding in the Transactions of the Society of Arts XLVI, 143, under the name of *Diatrea sacchari*, and that this is the same as the *Phalæna saccharalis* of Fabricius.

3. *West Indies*.—In paragraph 6 of my letter recorded in G.O., No. 22 of 6th January 1880, I promised to apply to the Entomological Society of London for a copy or abstract of Mr. Guilding's prize essay on the cane borers of the West Indian plantations, and have now to report that Mr. Distant, one of the Secretaries of the Entomological Society, has been good enough to send me an abstract of the paper. From this it appears that the chief enemies of the cane in the West Indies are as follows :—

Beetles	{	1 Calandra palmarum, Fab. Lam.
		Curculio Lin.
Moth	{	2 Calandra sacchari, Guild.
		Diatrea.

The following is the information abstracted by Mr. Distant from Mr. Guilding's essay as to the habits, ravages, &c., of the respective insects :—

"The Calandra palmarum is principally injurious to the plants lately stuck in the ground, to which the female is allured by the juices which are exuded. They do not seem to deposit their eggs in full-grown canes, when palms are abundant in the neighborhood.

"*Calandra sacchari* confines itself principally to such canes as have been slightly injured, though it sometimes attacks the more vigorous plants, which it excavates to the very ground voiding its excrements in scarcely discolored grains, which fill up the passage.

"As regards the most destructive enemy, the grub of the moth, which is most formidable in dry seasons, Mr. Guilding states, 'the object of the planters should be to prevent the insect from depositing eggs in the plants, rather than to kill those which have already begun their operations.'

"From long-continued experiments I have at last discovered that they may be almost entirely expelled from any quarter in which the canes are carefully stripped of the dry and useless leaves under which, as they become loose, the female borer deposits her eggs.

"The borers are observed to be much more fatal to planted than to ratoon canes, which should of course be often visited by the parties of negroes whose business it is to collect the trash.

"The myriads of ants which once infested, but have now disappeared from Grenada, committed indeed the most frightful ravages, but it was rather by excavating their little metropolitan beneath the roots than by attacking the body of the cane. Were there little carnivorous agents less prolific than they are, we might encourage them as useful helpmates in the destruction of the borers, which they pursue and kill in their cylindrical labyrinths."

4. *British Guiana*.—At the present time the "sugarcane borers" are doing much harm to the crops in this colony, and the enemies are apparently the same as those described in Guilding's essay. The moth is a *Proceras* and "causes injury by attacking the young canes, and the treatment applied is to cut back the cane below the surface of the ground, covering the plant with mould, and adding a handful of lime. (Trans. Entomolog. Society, p. XXXIV, 1879). The larva of this moth penetrates into the heart of the cane where it drives galleries fifteen, eighteen or more inches in length. The injury done by this pest, however, "is said by one of the chief planters in the Demerara district to be as nothing compared with the effects of the *Calandra sacchari*, the orange-brown weevil." The larva of this beetle is stated to riddle the heart of the matured canes to an incredible extent, leaving only the outside rind, without killing the leaves at the head of the cane, so that in cutting away, suspected plants may escape notice. On opening a fair-looking cane the contents are found to be a mass of decayed and decaying matter, the greater part having been converted into excreta resembling sawdust. The injury inflicted is twofold, as not only are many canes lost, but others containing insects escape notice and pass through the mill, the result being a discolored, sticky, and disagreeably smelling syrup. The third enemy, *Calandra palmarum*, is much less destructive than the other two, and is believed to follow them and finally destroy bored canes. Long droughts and hot weather preceded the invasion of the borer pest in Guiana and are said to have, in great part, driven from the fields the colonies of ants which are the natural enemies of the borers, keeping them in check by eating their eggs and larvæ. As remedies it has been proposed to steep the cane cuttings in water for forty-eight hours, or for ten or twelve hours in a mixture of 1 lb. of Carbolic Acid to 100 gallons of water. The encouragement of ants is also inculcated, and the value of their presence is illustrated by the following extract from p. XXXIX, Transact. Entomolo. Society, 1879:—

"On week ending the 3rd of May a twenty-acre field of canes was set fire to and cut down, after all the canes had been sent to mill; the rubbish from the field was also thoroughly cleared. Two twenty-acre fields adjoining were also in turn burnt and cut down; and two other fields near were next reaped after the canes had been ground. On the three fields which were burnt on the ground the spring of cane in the first was weak and unhealthy, ants few, and canes attacked by *Proceras*; on the second and third the spring was good, but ants similarly not numerous and canes attacked by *Proceras*; whilst the fourth and fifth fields in which the cane was reaped threw up healthy shoots, "an army of ants" appeared on every bed, and there were no signs of any stool having been attacked by any of the borers.

"The writer from this draws a very correct conclusion:—

"It is evident that to burn fields in which the small red or black ants are to be found in abundance is a mistake, as large numbers of the best friends of the canes must inevitably be destroyed by the fire. To entice ants and other insects known to be antagonistic to grub-life is of vital importance, and no trouble should be spared in getting them into the cane-fields."

"From these notes it appears to me that a process of certain destruction to the natural enemies of the borers has in some cases been going on, by which the ants and their nests are

swept off the fields together. In cultivation spreading over great areas, as in sugarcane culture, it is the natural balance that must chiefly be looked to for protection. Clearing off infested canes by every available means is most important, whether by cutting off, grubbing up, or any other means, and utterly destroying these infested pieces, including amongst them rotten cane thrown aside, which is notably attractive to *Calandra*. But though no way is so thorough as destruction by fire for the perfect clearance of these infested canes, they should not on any account whatever be burnt on the surface of the fields. A few straggling ants burnt on the heaps are of no account, but if the remains of the standing crop are burnt in the fields, so as to spread the fire over the surface, or in any other situation whatever where the fire can destroy the ants' nests, it is a loss by each nest destroyed of so much skilled protection to the cane crop."

5. The chief remedies proposed for cane borers are therefore as follows:—

- (a) To steep the cuttings in water for forty-eight hours so as to destroy the grubs.
- (b) To steep the cuttings in a watery solution of some chemical, such as carbolic acid destructive to insect life.
- (c) The removal of dry and useless leaves, the cutting out of all infested canes, and the burning of all these away from the cane fields.
- (d) The encouragement of ants in the cane fields, they being the natural enemies of the borers.

Mr. Distant in his letter already referred to says: "We have lately had several communications respecting the ravages of the cane borers in the West Indies, and I myself have had personal experience of the same when in Province Wellesley, Straits Settlements, some few years since. The best remedy, I believe, and the most efficacious one, is searching for the infested canes and burning the same." This is practically the same as the recommendation made by myself in my letter in G.O., No. 22, of 6th January 1880.

No. 268.

ORDER THEREON, 28th April 1880, No. 488.

Miscellaneous.

THE Government are much obliged to Dr. Bidie for his interesting paper which will be communicated to the Board of Revenue in continuation of G.O., 6th January 1880, No. 22.

(True Extract.)

(Signed)

C. G. MASTER,
Secretary to Government.

To Surgeon-Major G. Bidie, M.R.

„ the Board of Revenue.

„ Editor's Table with G.O., 6th January 1880, No. 22.

Exd. W. H. French.

50 Copies.

MADRAS,
23rd March 1880.

No. 88.

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Superintendent, Government Central Museum,

To

C. G. MASTER, Esq.,
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REVENUE.

Surgeon-Major G. BIDIE, M.B.,

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Printed April 1880.

Printed May 1880.

Printed

Printed

G.O. 25th April 1880, No. 183.

APRIL.

No. 267-268.

Printed for the Government by the Superintendent of Printing, Government Press, Madras.

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Your most obedient servant,

(Signed) G. BIDIE, M.B., Surgeon-Major,
Supt., Govt. Central Museum.

Ed. W. H. French.

N^o 88 Government Central Museum
Madras 23rd March 1880.

From
Surgeon Major G. Bidie M. B.
Supt Government Museum.

To The Secretary to Government
Revenue Department

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Your most Obedt Servant,
Edie Ruf Surgeon Major
Suptt Govt Central Museum

W. S.

No. 1188 Revenue Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the 28 April 1900.

Read the following letter from the Superintendent, Govt. Central Museum, dated the 23rd March 1900, proposing submitting further report on remedies for cane borers.

No 1024/00

The Government are much obliged to Dr. Bidie for his interesting paper which will be communicated to the Board of Revenue in continuation of G.O. 6th January 1900, No 22.

MA

W

1. Ganga Indrapada
2. Dr. Bidie. No 1024/00
3. The Board of Revenue
4. Editor's Table with G.O. 6 Jan/00, No 22. Sent 6/5/00

W

G.O. 6 Jan/00 No 2412

W

PRINT

Revenue Dept. Madras

From Secy to Govt.

to Mr. Bidie

for his report on remedies for cane borers

for the Board of Revenue

for the Superintendent, Govt. Central Museum

for the Superintendent, Govt. Central Museum

for the Superintendent, Govt. Central Museum

for the Superintendent, Govt. Central Museum

for the Superintendent, Govt. Central Museum

Recd No 2412

2440

To W. H. D. as per
a number of
C. H. D. as per

Printed
20.50

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1.580

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Revenue Department
Rev. Govt. 28 April
1888

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