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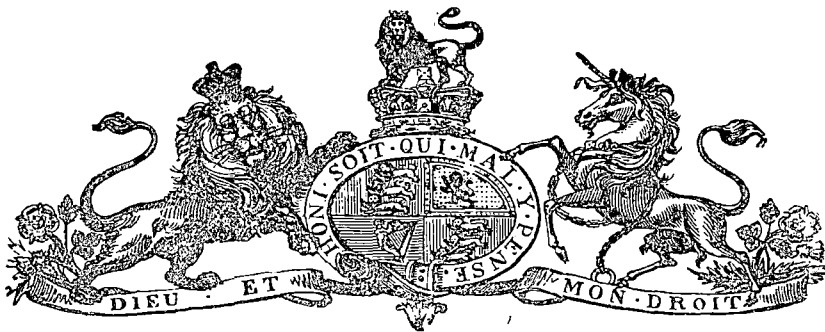
1887.

PARLIAMENT OF TASMANIA.

C O D L I N M O T H :

INSPECTOR'S REPORT FOR 1886.

Presented to both Houses of Parliament by His Excellency's Command.



CODLIN MOTH REPORT.

SIR,

IN forwarding this, the first Report under "The Codlin Moth Act, 1884," I cannot help expressing regret that it is not of a more cheering nature; but when the nature of the insect is considered,—the large area over which it extends,—the fact that the working of the Act has been confined to the centre of the infected area,—and the dimensions of a large number of trees being too great to admit of that inspection which every tree must undergo before any hope can be entertained of subduing the pest under consideration, it will be easily seen that the difficulties were too great to be overcome under the cramped and limited powers vested in me by the present permissive Codlin Moth Act. Nevertheless, the putting in force of this Act has been beneficial in various ways; and first in importance stands the fact that while at the commencement of the season numbers ridiculed a compulsory Act, few will be found who hold that theory now, because they have been convinced of the easy way in which the grubs may be caught by the simple use of bandages; consequently those who once denounced legislative interference are now asking for a Bill which would at least include the Southern half of the island.

Owing to the very hot and dry summer the increase of the moth and its ravages have been something enormous, many small gardens having been completely destroyed before the end of February, and amongst these may be reckoned Mr. H. Bowman's, with a possible crop of sixty bushels, the grub leaving him about one bushel of hard pears; and this is only the fourth year of its being infected. To this might be added more than twenty other gardens which were infected for the first time this season, including the Potteries, at the head of Kangaroo Valley, and one at Bismarck. I have also received complaints from orchardists living in Kingborough, setting forth the immense amount of damage done, and the increased infected area during the past season, and from statements made to me by interested and disinterested parties, I am of opinion that the moth can now be found in several gardens between Hobart and the Franklin; and when it is considered that Buckland, Brighton, and Richmond are also infected, it may be taken for granted that the moth has now practically possession of this side of the island. Consequently, we are now face to face with the difficulty which I had the honor to bring under the notice of the Legislature in 1880, when I convened meetings of fruit-growers for the purpose of helping the Government to frame an Act having for its object the destruction of the moth; and although there are difficulties which we have now to encounter over and above those which we had in 1880, there is no need to despair, for the moth is not that formidable foe which it has been represented to be, its two and three hatchings with an unlimited number of eggs, in so far as we are concerned, having no foundation; and it is with some degree of satisfaction that I can state with us the moth has but one hatching, extending from November to the end of February.

I am aware that American authorities have laid it down that in their country the moth reproduces two and three times during the season, but it is to be regretted that in subjects such as this one climatic influence is so often overlooked, and scientific dictum, no matter from what quarter of the globe it may happen to come, is believed in. The fact is, that in matters of this kind science, properly speaking, ceases to be science when applied outside of the boundaries of the land in which such scientific fact may have been ascertained; and it is to a great extent owing to this method of dealing (or rather non-dealing) with local facts that opponents of compulsory legislation were enabled to prevent the Act of 1880 from coming into operation.

Having in years past doubted these authorities, because I could not succeed in hatching the moth until the following spring, and making use of the opportunity which my position gave me this summer, I determined, if possible, to settle the question, so far as the hatching process was concerned. To this end I collected some of the first grubs taken from bandages from Mr. W. Waterhouse's garden, placing them in a preserving jar with a wire top, and afterwards putting them in a favourable position, and to-day they are live grubs, and, all things

being equal, will remain so until next spring. Knowing, however, that this evidence would not in itself be sufficient to carry conviction, I induced Mr. H. J. Marsh's gardener to take off a bandage, to place it in a jar also with a wire top, and to leave the jar at the butt of the tree from which the bandage was taken. The grubs are now in the same state as when taken from the tree. He also, at different times during the month of February, removed bandages in my presence which had not been previously removed, with the same result, for we failed to find the shell of a chrysalis. I also tried it in other parts of the district, but always with the same result. Neither was I singular in this experiment, for Messrs. T. Gant, W. Hallam, S. J. Cato, and Mr. Lyle, gardener to Dr. Bedford, tried to reproduce the moth, but failed. Now, in the face of such testimony, establishing, as it does, a fact hitherto almost unknown, it may fairly be called a silver lining to the cloud of anxiety which at present presses with considerable force upon those whose living mainly depends upon the fruit which the moth seems bent upon destroying.

Another benefit which has arisen out of the working of the present Act is the finding out its imperfections. It would, I think, be an impossibility to frame an Act that would contain measures suitable for the eradication of the moth without being drastic in character and oppressive in the extreme unless based upon practical knowledge, which the present Act cannot be said to be. It was put forth on its trial, and its defects were soon brought to light, and these were found to be so numerous that I was soon convinced that the Act could only be made workable by being remodelled, or, what would be better still, replaced by a compulsory measure; and if this is done, and the Bill honestly carried out, the pest may be reduced to a minimum without much hardship, and the fruit industry preserved.

Having been always opposed to a permissive Bill of this description, it was with reluctance that I undertook to work the Act. The Government, however, having honoured me by offering me the Inspectorship, and having been advised to take the appointment by some who will be largely benefited by the destruction of the moth, I consented to try what could be done. My duties commenced on the 1st December, which was fully one month late, when it is considered the large amount of work that had to be done in starting what was then a very obnoxious Act in such a large district, and where the moth had already been some days at work. My first visit through (if I except a few gardens in the outlying portion of the district) was concluded in the first week in January, when I discovered that about eighty per cent. were infected, and about the same percentage of owners and occupiers were opposed to the Act, and bitterly in some cases denounced those who were instrumental in bringing it into operation. However, all things have an end, and during my second round I found opposition rapidly disappearing, and orchardists as a rule working with a will to comply with the law. Consequently, my work was beginning to be a little more agreeable, because I was heartily with them in their objections to a Permissive Codlin Moth Act, the working of which soon brought to light its oppressive nature, as well as the mistake of attempting to clean the centre of a plague-spot whilst leaving the outer circle untouched. This was exemplified when I asked the owners of gardens in Glebe Town, Park-street, and Providence Valley to comply with its provisions. In the latter place, the boundary line traverses the centre of a garden occupied by Chinamen, who, although cleaning to some extent trees which stood in the declared infected district, obstinately refused to do anything to the other portion, because they could hawk the infected fruit about the town. Had I strictly enforced the Act in this garden, the eastern side of the trees would have been denuded of fruit, whilst the western side would have been breeding the moth,—a phenomenon, I venture to say, not yet seen in any part of the world.

The very limited power vested in me was also forcibly demonstrated when the inspection of large trees, which extend over the whole district, had to be considered, for it was found impossible in their case to comply with the Act; and before any permanent good can be done to trees over which proper supervision cannot be exercised it will be requisite to pick off all the fruit until the moth is exterminated from the orchard in which such trees are found, or the owners will have to do what many of those who are getting their living by fruit are doing, viz., cut them down, and by so doing make young, healthy, and clean trees. They cannot lose by so doing, for in many instances the fruit is already destroyed. Of course I do not want to make out that all are in favour of legislation, but I believe every owner of an orchard whose chief income is derived from fruit is; and I am sure that if a compulsory Act is introduced during the coming session little, if any, opposition would be found in the Electoral District of Glenorchy.

After my first visit I was enabled, with two exceptions, to dispense with the formal notice mentioned in the eleventh section of the Act, a large number of circulars being returned which gave me permission to enter at any time. The finding out of all who owned fruit trees caused a lot of what may be termed "dead-work," the assessment roll proving a very poor medium from which to obtain the required information; and in order that an Inspector may with the least possible trouble notify the owner or occupier of every piece of land upon which stands either an apple or pear tree, I would advise that it be an instruction to the police to make mention of such when taking down the yearly produce returns by inserting the word "orchard." This would add no additional burden to the Collector, but would materially reduce the work of an Inspector.

The alteration which I was compelled to make in Regulation 5 caused a storm to arise amongst those who were giving and receiving infected fruit for the purposes of food. The alteration, however, was a necessity, first, because I found grubs alive after being treated according to directions; secondly, because the fruit was not kept beneath the surface; and, thirdly, because gross carelessness was practised in filling the vessels too full; and in any future legislation power must be given the Inspector to see any infected fruit that he may think necessary before it is finally disposed of, for, although a large amount of labour has been brought into requisition, a great deal of harm has been done through simple ignorance of the habits of the moth.

From observations which myself and others have made, it has been proved that as soon as fruit which contains full-grown grubs is knocked about the grub immediately leaves; consequently when fruit has been placed in a box for the purpose of giving to pigs or cows, a percentage of grubs have escaped, and when carted to jam stores or to the dairy farm it has simply meant sowing the grub broadcast. At this point I would respectfully draw your attention to the fact that when a pleasure excursion took place in February last to Port Arthur a quantity of infected fruit was taken down; and if this is allowed to continue, the injustice which will be done to those who are at the present time trying to make a home in the forest may be easily reckoned.

It is now proved beyond doubt that the grub can live in stone fruit, but whether they can reproduce from the same is a disputed point, as no one seems to have been successful in solving the problem. From some infected plums which I had I obtained two grubs (since dead) which left in the usual way; but next year some plan should be adopted which would settle the point beyond dispute, for I know that large plantings of stone fruit are going to take place the coming winter, and if it should be proved that they can reproduce from stone fruit, then, without a compulsory Act, our jam as well as our fruit trade will be lost. It must also be borne in mind that we know of no hard-and-fast law of nature that will annihilate a species when deprived of its particular food. It may be quite true that the grub has been evolved from an apple or pear, and that to deprive it of these is to deprive it of life; still, in the absence of proof to the contrary I incline to the opinion that the moth can adapt itself to altered circumstances, and should such be the case the necessity for legislation becomes intensified, and I am pleased to be in a position to place evidence before you which proves that the pest can be reduced. Now, although Messrs. Gant and Bedford's orchards are worse than they believe they should be in comparison with those who did nothing in years past, they are decidedly better. My orchard, which has been infected five years, is now almost clean, as I shall not lose more than two per cent. I admit that I have more grubs this year than I have had in any preceding one; but this is easily accounted for from the fact of my being laid up by sickness during the whole of the winter season of 1886, which prevented my giving that attention to the orchard which I could otherwise have wished.

With my neighbours, Messrs. Woolley and Woods, there is no increase, while at Mr. D. Long's there is a decrease, owing to the measures which he adopted, and partly owing, no doubt, to isolation, and although Mr. Earle had in his young orchard half a bushel last year, this year he did not have half so many. I might also adduce evidence from orchardists living at Sandy Bay, but sufficient I think has been shown to convince the most sceptical that united action is all that is necessary, and this will also stop the sale of infected fruit in Hobart, the place from which the pest has been carried to all parts of this side of the island, and which is still its head quarters.

Our stone fruit, which for flavour surpasses all others, is increasing year by year, and it is anticipated that at an early date a preserving factory on a large scale will be established in Hobart, always allowing that we gather the harvest for which we are now sowing. But shall we gather if we continue in the present groove? True, at present we can realise to the extent of one shilling per bushel; but how long could this ruinous course be pursued, for even now the apple pulp has a marked effect upon the price of jam in the intercolonial markets.

Respecting the habits of the moth, I have already shown that these vary according to climatic influence. This, however, is of small consequence when compared with the all-important question, How to get rid of them? Of course, this is impossible under existing regulations, and I am of opinion that the course by which such an end could be obtained will not be adopted. Now, I believe that exception will be taken to the above expression, but to my mind there exists two reasons why such measures will not be entertained at the present time. First, we have not sufficient proof (of course, I am speaking generally) that the moth can be successfully dealt with; second, we have not yet fully realised the value of the fruit industry: and until these two reasons are known and appreciated I am of opinion that it would be a waste of time to recommend the putting in force of an Act which would require the uprooting of all trees and bushes in close proximity to the apple and pear tree, also the destruction of these trees where standing close to fences or buildings, and the compelling of occupiers to keep the surface of their orchards clean and smooth, thereby forcing the grub to seek shelter where provided. Hence the time has not arrived to pass an Act for the eradication of the moth; but when this subject becomes more generally known I believe that those whose special duty it is to see that all industries which benefit a nation are properly protected will pass an Act having for its object the eradication of the moth; consequently, the end at present in view is

the reduction of its number, and this can easily be brought about by adopting what I consider necessary amendments to "The Codlin Moth Act" of 1880.

Now, many seeing the value of bandaging the trees argue that compulsory picking off infected fruit should not be insisted on, seemingly forgetting that the grub hides in the first convenient place; it may be a stone wall, fence, gooseberry bush, or an old boot, which is often found in a garden. Besides, there is a direct benefit in picking the fruit when first infected, for unless the infected fruit hangs singly the grub if left alone invariably destroys two or three. All infected fruit taken off after the last week in January should, if belonging to a cluster, be cut out to prevent the stalks of the remainder from becoming loose. Now, although the moth is making what we call rapid headway, and is fast spreading itself over the whole of the island, still, supposing the statements of entomologists to be correct, its increase pales into insignificance when compared with the enormous number of eggs which a single grub produces, which is from 200 to 500.

There is one orchard in New Town containing 230 trees, and the grub seemed to be as plentiful in one part of the garden as another. The trees were all bandaged, and the bandages removed at intervals according to regulation, and from one of these was taken 226 grubs, and for the season I put the number of grubs taken from this bandage at 400. Now, allowing that each grub lays 200 eggs (which is the lowest number which science puts down), this would represent, supposing there to be an equal distribution of the sexes, 40,000 eggs, and allowing Nature one-half for waste, we have 20,000 left for reproduction, and these would be sufficient to destroy about sixty bushels of fruit. This, it must be remembered, represents the grubs taken from one tree out of 230, so that the wonder is, not that Mr. Bowman's fruit was all destroyed, but that any fruit in the district should have escaped destruction. Consequently, I am of opinion the moth must have many enemies, although three only are known to me. Two of these—the common ant and the bird known as the "white-eye"—attack the grub, and a small cream-coloured spider eats the moth. These spiders catch large numbers of all kinds of winged insects, and a great mistake is made when any spider's web is destroyed. I also find that fowls are of great value in catching the grubs which make their nest below the surface, for they invariably scratch all the earth from the butts of the trees. These, however, can only be turned into the garden when the bandages are finally removed, otherwise it will be impossible to keep the rolled-up bandages in their places.

In conclusion, I beg to draw your attention to the necessity which exists for the immediate protection of the above-mentioned bird, for they are without doubt the most valuable insect-destroying bird which we have, but they cannot last many more years unless the Government come to their aid. At present they are caught in large numbers, shot wantonly, and driven hither and thither by their masters—the almost useless but destructive sparrow.

I have the honor to be,

Sir,

Your obedient Servant,

J. WATSON, *Inspector under Codlin Moth Act.*
19th April, 1887.

The Hon. the Chief Secretary.