

1898.  
NEW ZEALAND.

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# JOINT AGRICULTURAL, PASTORAL, AND STOCK COMMITTEE.

REPORT ON THE ORCHARD AND GARDEN PESTS BILL, TOGETHER WITH THE EVIDENCE  
THEREON AND APPENDICES.

*Report brought up on 13th September, 1898, and ordered to be printed.*

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## ORDERS OF REFERENCE.

*Extract from the Journals of the Legislative Council.*

TUESDAY, THE 28TH DAY OF JUNE, 1898.

*Ordered*, "That Standing Order No. 162 be suspended, and that a Select Committee be appointed, consisting of ten members, to consider all matters pertaining to agricultural and pastoral industries, and stock, with power to sit and confer with any similar Committee that may be appointed by the House of Representatives, and to agree to a joint or separate report; the Committee to have power to call for persons, papers, and records; to consist of the Hon. Major Harris, the Hon. Mr. Johnston, the Hon. Captain Kenny, the Hon. Mr. A. Lee Smith, the Hon. Captain Morris, the Hon. Mr. Montgomery, the Hon. Mr. Ormond, the Hon. Mr. Richardson, C.M.G., the Hon. Mr. L. Walker, and the mover."—(Hon. Mr. W. C. WALKER.)

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*Extracts from the Journals of the House of Representatives.*

TUESDAY, THE 28TH DAY OF JUNE, 1898.

*Ordered*, "That Standing Order No. 211 be suspended, and that a Committee be appointed, consisting of fifteen members, to consider all matters pertaining to agricultural and pastoral industries and stock, with power to confer and sit together with any similar Committee which may be appointed by the Legislative Council, and to agree to a joint or separate report; the Committee to have power to call for persons, papers, and records: three to be a quorum: the Committee to consist of Mr. Buchanan, Mr. Duncan, Mr. Flatman, Mr. Brown, Mr. Houston, Mr. Lang, Hon. W. J. M. Larnach, Mr. Lawry, Mr. Massey, Mr. Meredith, Mr. Mills, Mr. Symes, Mr. J. W. Thomson, Mr. Wason, and the mover."—(Hon. Mr. J. MCKENZIE.)

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TUESDAY THE 12TH DAY OF JULY, 1898.

*Ordered*, "That the Orchard and Garden Pests Bill be referred to the Joint Agricultural, Pastoral, and Stock Committee."—(Hon. Mr. J. MCKENZIE.)

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## REPORT.

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### ORCHARD AND GARDEN PESTS BILL.

THE Joint Agricultural, Pastoral, and Stock Committee, to whom the above-mentioned Bill was referred for consideration, have the honour to report, that they have duly considered the same and recommend that the Bill be allowed to proceed subject to the amendments as set forth on the annexed copy of the Bill.

13th September, 1898.

J. D. ORMOND, Chairman.



## MINUTES OF EVIDENCE.

FRIDAY, 5TH AUGUST, 1898.—(Hon. Mr. ORMOND, Chairman.)

MR. JOSEPH TAMLIN, examined.

1. *Hon. the Chairman.*] What is your occupation?—I am a fruitgrower.
2. Will you state what experience you have had in fruit-growing?—I have had considerable experience during more or less of my life, and during the last thirty years I have been exclusively engaged in fruit-growing for my livelihood.
3. What kind of fruit?—Principally stone-fruits—apricots, peaches and plums; apples, too, and pears, but principally stone-fruit.
4. What experience have you had in dealing with fruit-pests, especially with the codlin-moth?—I have had a good deal of experience. As far as the codlin-moth is concerned there was a time when I had to give it best. When first it made its appearance in the district we did not know what to do to destroy it, and the consequence was that the greatest part of the fruit-growers there dug up their apple trees, and put in stone-fruit. The result is that there is not so much apple-growing there as there would have been. The way I have managed to keep the codlin-moth out of my garden is by clean cultivation, by keeping no rubbish about the garden, by bandaging the trees and destroying the grubs when they appear, and then taking off the bandages and destroying the grubs two or three times during the summer.
5. Do you do any spraying?—Some of the fruit-growers there do, but I have not been troubled much with the codlin-moth for the last two or three years. I find that the codlin-moth does me very little injury with the means I adopt—that is, with clean cultivation and looking after the grub.
6. Have you any neighbours who are growing fruit?—Yes; some of them sprayed last year, and said that it was very beneficial, and that it kept their fruit entirely clean. I have adopted the plan of clean cultivation and bandaging.
7. What proportion of your fruit did you lose before you took these remedial measures?—Well, I may say I lost 100 per cent.; in fact, I lost the whole of it.
8. And what proportion do you lose now?—Practically none. I might lose 5 per cent., but really the loss is very little.
9. How long is it since you began to take these remedial steps?—About three or four years.
10. Do the people in your district generally take remedial measures?—Yes, they do. In fact, they are bound to do it according to the articles of our association. They are bound to keep their orchards clean, or they are subject to a penalty.
11. When was that association formed?—In 1894.
12. Has it been effective so far?—Yes; almost every fruit-grower in the place is a member of the association. In fact, we registered ourselves into a company in order to make it more binding. We believed it would not be so binding if we left it as it was, and so we registered ourselves into a company, and one of the articles of our association is that the directors can appoint two men as inspectors, and if they find that any garden is not sufficiently looked after they can compel the owner to make it clean, and if he will not do it then they can put on men to do it at his expense.
13. Has any action been taken under that article?—We have not had any action taken, because all the people almost without exception agree to it because they make a living out of the occupation, and the consequence is that we keep the pest down pretty well in our district. Of course, it is not so in other places where there are small gardens kept for private use.
14. Are they not under control?—No; they do as they choose.
15. As a rule, do these small owners take steps to keep down the pest or not?—Some do not.
16. Does that give trouble to others?—To their immediate neighbours it does, no doubt.
17. With regard to spraying, has that been pretty general in your district?—It is pretty general, but not with regard to codlin-moth. We spray for the oyster-shell pest. That is the greatest pest in the district.
18. Then, it is mainly for that particular pest that you spray?—We spray for other diseases as well, but we spray only once a year for the oyster-shell pest. We require to do that to keep the pest down.
19. Is there any general spray remedy?—Yes; we got it out of the Government leaflet for gardeners and fruit-growers, No. 10. We spray for other diseases. We are very much troubled with the scab and shot-hole fungus, and other diseases, in our apricots, and we spray for them with the Bordeaux mixture, and find it very effective. Of course, we spray frequently. We spray for the scab and shot-hole fungus two or three times a year.
20. When is it done?—We do it in winter, and again when the leaves are out. We do it two or three times if the trees are badly affected.
21. You lay great stress on keeping the place clean?—Yes; I think it is the best thing you can do in fruit-growing to keep the orchard clean. As far as the codlin-moth is concerned cleanliness is a great object, because then the grub has no place to conceal himself except the trunk of the tree, and you can prevent that by bandaging.
22. Have you read the Orchard and Garden Pests Bill?—I have.

23. Can you point out to the Committee any parts of that Bill with regard to which you would like to make any suggestions?—I think on the whole the Bill is a very good one. I got a copy of it, and I called a meeting of the fruit-growers in the district on last Saturday to get their opinion, as I was to come here and give evidence. We considered the Bill very carefully, and all the members of the association expressed themselves as satisfied with the Bill as a whole. They regretted, however, that Auckland could not be brought in under it with us. They all thought that if that district was not brought under the Act it might become the hotbed of disease, and that it might be spread all over the country, as they could send fruit to any place beyond their own boundaries. Another thing that the members of the association took exception to was to subsection (3) of clause 8, which gives the Inspectors power supposing they find any disease of any sort in your orchard, American blight, or apple scab, or codlin-moth, to say that your orchard shall be put under quarantine, and to prevent you sending to market any fruit at all even supposing it should be clean. We think that the Inspector might take extreme measures under that clause, and the fruit-growers in my district do not think it would be quite right to give an Inspector such power, for certainly the codlin-moth would not affect apricots, peaches, and plums.

24. You mean that if the provisions of that clause were strictly enforced it would press too hardly on fruit-growers?—Yes; it might ruin a fruit-grower if put into force too strictly. He might have apricots and peaches and plums ready to pick, and before the quarantine could be taken off they might be half destroyed. They are fruit which must go when they are ready to send, and you cannot keep them back for a week or two. We are all very much in favour of not being allowed to send out anything which shows any sign of disease such as are mentioned in this Bill; but we think it would be very hard that we should not be allowed to send out clean fruit. Even if there were disease in a garden it would not affect much of the fruit, and we think it would be hard that we should not be allowed to send out that fruit. We might be ruined under that clause as it stands if the Inspector chose, and we should like to see the clause altered in the way I have indicated. Then there is another clause, No. 17, which provides that no person shall be entitled to any compensation for anything done by an Inspector in the discharge of his duties. No doubt in ninety-nine cases out of a hundred it would not be right that they should receive anything, but we think that if a grower could prove that an Inspector caused valuable trees to be dug up, and if the grower could prove that there was no disease in those trees, it would be very hard on him that they should be destroyed without any chance of compensation. We think that if an Inspector caused any great damage to be done to a garden or orchard, and that it was done wrongly, we should be entitled to claim some kind of compensation.

25. What about vines, do you grow them?—We do grow them, but we have no disease in them except the mealy-bug, and we keep that down very well with sulphur.

26. Have you any phylloxera?—No.

27. Are these all the points you would like to call attention to?—Those are the only points in which we would like very much to have the Bill amended. Of course we should like the Auckland growers to be brought in if possible, but if they cannot we shall have to put up with it. I may say that the Association at Mosgiel asked me to speak for them. They could not very well send a man to represent them, and they asked me to say that they were very much in favour of the Bill, with the exception of the clauses I have mentioned.

28. And you think that generally this Bill, with the amendments you have pointed out, would be acceptable in the south?—Yes; in our part of the country and throughout the south, as far as I am aware. I can, of course, only speak for the Teviot and Mosgiel districts, and I think those are the principal fruit-growing districts in the south.

29. *Mr. Flatman.*] I understood the witness to say that in his opinion the oyster-shell scale should be included in the schedule, is it so?—I think it is included in the schedule, but if it is not in the Bill it is very necessary that it should be there. Then there is another pest that it would be almost necessary to have in the schedule, because it is imported from other places, although it is not very strong as yet, but it would be very troublesome if it got a footing, and that is the black aphid, or peach-aphid. I think that should be well looked after, because if it got into a garden and was not taken notice of, in a couple of years it would be very difficult to get rid of.

30. Would ordinary spraying eradicate it?—Yes; spraying with soft-soap and kerosene. We find that very effective.

31. *Mr. Kirk.*] Have you tried mixing carbolic acid with the spray, because it is very effective?—No.

32. *Mr. Massey.*] You told us that before bandaging you practically lost the whole of your fruit; what varieties of fruit?—Apples and pears, or most kinds of pears.

33. You told us that you and the other settlers cut down a lot of your apple-trees when they were affected with the codlin-moth; do you think that cutting down the trees had anything to do with getting rid of the pest?—I do not think so. Of course, we got rid of the pest when we got rid of the fruit; but cutting down trees would not take it from the trees that were left.

34. How many trees did you allow to remain?—I had an acre of young apple trees by themselves, and I have a few of the old trees, of good varieties, which I allowed to stand, and I have succeeded in saving most of the fruit from them which I formerly lost.

35. How many trees did you cut down?—About as many trees as would cover 3 acres.

36. Do you find that the moth is worse on some varieties of apples than on others?—Well, the probability is that they are to be found in every variety. You might save a few of the French crab, but very few.

37. *Mr. Kirk.*] Do you think that with spraying and bandaging you would not have to cut down the trees?—If we had known of those remedies before we should not have cut down the trees.

38. You are satisfied that it would not have been necessary to cut them down?—Yes.



39. *Mr. Lang.*] You say you have not sprayed for the codlin-moth?—I individually have not done so, because I have succeeded in keeping them clean with the bandages; but some of the other growers have sprayed, and they say it has been very effective. I have not sprayed for the moth for the last three years, but I have succeeded in keeping out the codlin-moth by clean cultivation and bandaging the trees; but some of my neighbours who are fruit-growers speak very highly of the spray, and they do not want to bandage. They think that spraying is necessary, but, from my own experience, I can do without spraying for the codlin-moth.

40. How long is it since you have had the codlin-moth in your present orchard?—I suppose it would be about seven or eight years since it first made its appearance—it might be more; the years pass very quickly.

41. You now succeed in saving all your fruit from the codlin-moth?—I may have lost 5 per cent., but it is a very odd one we lose from it.

42. Are you troubled more with the early apples than with the later ones?—There is very little trouble with any of them at present, but it is more with the early ones than the late.

43. How often do you remove the bandages?—About two or three times probably in the season. We remove them probably first in the early part of December, and then again in about a fortnight, and then about three weeks after, which, I think, is quite sufficient.

44. How many broods have the moths in your district in the year?—It is hard to say, but I should think not more than two, and the grubs of the latter brood remain in the rough parts of the stems of the trees till the following spring. I should say two broods, but no more.

45. *Mr. Wason.*] Have you heard of fowls being used to keep down the codlin-moth?—No. They would be of no use. The codlin-moth is not an insect that the fowls can get at.

46. How about the grub that gets under the ground?—They get where the fowls can not reach them; they get into the parts of the stems of the trees where the rough bark is and where the fowls can not get at them.

47. Are they not in the ground?—No; fortunately not. If they were we could not get them so easily by bandaging the trees.

48. *Mr. Flatman.*] Could you give us an estimate of keeping your orchard in order for the year?—Well, a man and a horse for about five months in the year would keep clean eight or ten acres. He would not be able to do the bandaging as well, but he could do a bit of it.

49. How much would be the expense on each tree?—It would be hard to give that.

50. How much per acre?—As I say, one man could look after ten acres, and also help in the bandaging.

51. What size and age are your trees?—Some of the older trees are about twenty years old. The new orchard has been only planted about five years. The trees are pretty big; some of them stand about 10 ft. or 12 ft. high, but I keep them well down. I might say that I have thought of whether it might not be worth while to import woodpeckers from Home. They are a bird which might be able to tackle the codlin-moth. I do not know whether you know anything about their habits, but they get their living on the bark of trees. Of course, it might be that they would do more harm than good if they were brought into this country.

Mr. B. H. MOLLER examined.

52. *Hon. the Chairman.*] What is your occupation?—Seedsman and fruiterer.

53. Where do you reside?—Nelson.

54. What experience have you had in fruit culture?—I had six years in one orchard, and fourteen years in another. The first was an old orchard, and I worked it for six years. After that I planted a new orchard of two thousand trees, which I worked assiduously for fourteen years, and then sold it.

55. What kind of fruit did you grow?—In the first orchard they were all apples, and in the second they were mixed trees—apples, plums, apricots, and peaches.

56. That was a long time ago?—Yes, ten years.

57. Was there any codlin-moth pest then?—Not in the old orchard, but there was a scaly blight, which was very bad. The remedy for that was to use caustic soda, diluted with water.

58. Was that effective?—So effective that it destroyed the blight without injuring the trees. We applied it with a syringe, and also used a brush, commonly known as a painter's tool.

59. What experience have you had in dealing with other pests, and especially with the codlin-moth?—After the second orchard had been planted about two years the codlin-moth appeared, and the experience we had with it was this: that the first time we saw the grub we picked all the visibly affected apples; we then examined the trees again, removing the affected fruit as before. This process we continued for about two months.

60. All that took place a considerable time ago?—Yes. I have been growing fruit lately, but only to a comparatively limited extent.

61. Have you any knowledge of what remedial measures are taken in your district of late years with regard to this pest?—I know some growers have been syringing and dressing their trees with Paris green and Bordeaux mixture. I know a grower who sold his orchard, clean and in good order, on his leaving the colony, and when he subsequently returned from England, the place, which had become badly affected with blight, fell into his hands again. He used, I believe, a tobacco-wash, and last year he got 1,200 bushels of apples off five acres.

62. Does he spray?—He sprays, and I believe he bandages. That is the great remedy for codlin-moth in my opinion.

63. What do they do generally in the district; do they generally spray?—Yes, in orchards of any magnitude they do. I do not know if it is generally done in small ones.

64. How far are they able to keep the pest down?—They keep it down to a large extent, but I am afraid they cannot eradicate it all at once.

65. Have you seen any change in the production of late years?—In many cases the production has been larger, but all round the City of Nelson I think it has fallen off. If an orchard is in an isolated place there is a better chance of keeping the codlin-moth down.

66. What proportion of diseased fruit do you get?—I do not get any. I will not buy any that is diseased.

67. They supply you with clean fruit?—Yes, I would not have it unless it was clean.

68. You do not find any perceptible proportion of diseased fruit?—No. I do not have to reject much, because growers knowing I would refuse infected fruit do not offer it to me often; but there is no doubt a considerable quantity of infected fruit grown.

69. Have you read this Orchard and Garden Pests Bill?—I have.

70. Have you any suggestions to make about it; are there any parts of it which you think objectionable?—I did take objection to exemption made in the case of Auckland, but as the Bill has been explained to me by Mr. Kirk it appears that Auckland is not so favoured as I thought it was. If the Bill becomes law it should be made applicable to the whole colony, and no exemption should be made in favour of Auckland or any other special district.

71. How did you think Auckland was favoured?—By being exempted from coming under the provisions of this Bill. With regard to subsection (2) of clause 4, I think that it is a very good provision to prohibit the introduction into the colony of any fruit that is likely to introduce disease into New Zealand. Then, again, with regard to clauses 6 and 7, which provide that the occupier of an orchard shall do what is necessary to eradicate disease from an orchard and prevent it spreading, I think that that might be very hard in some cases. If a man had scaly-blight or any other disease in his orchard there is no doubt he ought to eradicate it if it is his own fault that it is there, but if there are hawthorn hedges running along the road for miles, which attract the blight just as much as the apple-trees do, I think it would be very difficult for a man having an orchard alongside to keep it clean. Until you get rid of those hawthorn hedges you cannot expect men to keep their apple-trees clean from the scaly-blight. If the scaly-blight only infected fruit-trees it could be readily destroyed, but when it gets into hawthorn hedges you cannot keep orchards clean. With regard to clause 7 I did think it would be a hardship to call upon a fruitgrower to give the notice there required until it was explained to me that it was only after it had been found out by the Inspector or the person himself that there was disease in the orchard that notice had to be given. Of course, a person might go along through his orchard and not know whether there was blight or not. Of course, you would have to trust to his honesty as to whether he was telling the truth or not. I consider clause 8, with regard to the procedure when disease is found in an orchard, is a very harsh one, but there is not the least doubt about it that if you want to encourage fruit-growing this will be a thorn in a man's side if he does not do what he ought for his trees. If a man will not do anything to clean his trees it is very hard on his neighbour who may be growing clean fruit near him, and I suppose to carry the law into effect you would have to use harsh measures. I consider clause 10 is a very good clause. It provides that any plants or fruit which are unlawfully introduced into the colony are to be destroyed. All these blights have been imported. There is not the least doubt about that, and I think that when plants or fruits are imported they should be examined, either by a Customhouse officer or an Inspector. I consider that the provisions under clauses 12, 13 and 14, with respect to the recovery of expenses, are very harsh. For instance, you say to a man that you are going to clean his trees for him, because he will not do it himself; but if the man cannot afford to do it how are you going to get the money?

72. You need not discuss that; it will be discussed afterwards.—I only drew attention to it because the idea occurred to me. In regard to clause 18, I would point out that a man may be unfortunate enough to have disease affecting part of his fruit and only part of it, and yet he will not be allowed to sell any clean fruit he has. Going back to clause 6, which provides that the occupier of any orchard shall at all times do whatever is necessary in order to eradicate disease from such orchard and prevent the spread thereof, I would point out that it does not tell you what you are to do. I think that trees should be dressed in June or July, then kept in bands from November to May, and certainly between November and May they should be sprayed with Paris green or London purple; but this clause simply says the thing is to be done, and the steps to be taken are not sufficiently defined. There was a meeting of fruitgrowers in Nelson, and a majority of those present condemned the Bill as being too harsh.

73. What sort of a meeting was it?—There were about thirty-four persons present, and nearly every one in Nelson is a fruitgrower, either large or small. I do not think there was any large fruit-grower there except Mr. Avery and Mr. Harley, who is going to put 30 acres in orchard.

74. The objection was that the Bill was too harsh?—Yes; of course, no British subject likes to have his liberty interfered with by an inspector.

75. Was that meeting reported?—Yes. I have the report here, and shall be happy to leave it with the Committee if you like to look at it.

76. *Mr. Flatman.*] Could you tell us the expense per acre or per tree of eradicating the disease?—I could not tell you that.

77. Have you got rid of the moth?—I sold the orchard. I had a difficult job in trying to get rid of the moth. I had lamps lit, and I used to go out at night and catch the moths in basins of water as they flew to the light; I bandaged the trees and picked off every affected apple, but it was useless for me to go on doing that if my neighbours would not do it also.

78. *Mr. Massey.*] Will you state what from your point of view is the best remedy for getting rid of the moth?—Bandaging and syringing the trees to keep them clean; but there must also be united action amongst growers if the object is to be successfully effected.

79. *Mr. Flatman.*] Do you think that if there were united action among these people you could eradicate the codlin-moth?—I believe you could.

80. *Mr. Lang.*] How long has the codlin-moth been in your district?—About twenty-three years.

81. How long is it since you gave up fruit-growing?—I gave up growing fruit extensively about eight years ago.

82. How often should you remove the bands?—I think if you were to remove the bands once a month, between December and June, that would be sufficient.

83. How many broods of the codlin-moth do you have in the year?—In Nelson it has been proved that there is only one brood, but it lasts over a good many months. There seems to be what you might call an early hatch, and then there is a later hatch. The department says that there are two broods, but the experts in Nelson say that there is only one.

84. Did Mr. Scott dress his trees with tobacco-wash for the codlin-moth?—I believe so; and he got 1,200 bushels of apples from his orchard this year.

85. You do not know particulars of how he dressed his trees?—I do not know.

86. *Mr. Wason.*] Would you advocate having scaly-blight put in the schedule of the Bill?—I do not know how you are going to get rid of it if it is in the hedges. If it was only on the fruit-trees you could cope with it.

87. You take exception to subsection of clause 8 with regard to quarantining affected orchards?—Yes, I should say that any clean fruit in such an orchard should be allowed to be sold. Supposing that three parts of an orchard is affected and is quarantined, but you could get a few bushels of clean fruit, why should you not be allowed to sell it?

88. You see no objection to selling clean fruit which comes from a diseased orchard?—No; there would be no more harm in it than in a doctor coming out of a hospital and attending to other patients.

89. *Mr. Flatman.*] You have spoken of one brood of codlin-moth in the year in Nelson. For how many months does the brooding last?—It appears to me to come out early in November and keep on until about the end of March—about five months.

90. *Mr. Buchanan.*] Taking the consensus of opinion in Nelson, is it the opinion that in the case of an isolated orchard the codlin-moth can be dealt with effectively by means known there, and that crop after crop can be grown every year?—Some of them are of that opinion, and some of them are against it. My own opinion is that with unity of action you could do a great deal.

91. Reading between the lines, you practically say that fruit can be safely grown if unity of action is secured?—Yes, that is my opinion.

92. You said it was a harsh proceeding to order a man to clean his trees without at the same time pointing out how it was to be done?—Yes.

93. I cannot reconcile that opinion with what you say as to trees being kept clean with unity of action?—Yes; that is all right, but still you ought to tell the grower what he is to do before you inflict punishment upon him for not doing it.

94. You would not think it harsh if the inspector told the orchardist what he was to do?—If you tell the grower to do a certain thing and tell him how to do it, that is all that is necessary.

#### Mr. G. H. GRAPES examined.

95. *Hon. the Chairman.*] What are your occupation and residence?—I am a commercial fruit-grower at Paraparaumu, on the West Coast of this Island.

96. What length of experience have you had in fruit-culture?—I have been engaged in commercial fruit-growing since 1887.

97. What kinds of fruit do you principally grow?—I have tried most of the kinds that are suitable to that district—plums, pears, peaches, apricots, nectarines, and apples, and the ordinary run of deciduous fruit trees.

98. What is the size of your orchard?—Seven acres.

99. What experience have you had in dealing with fruit pests, and especially the codlin-moth?—In commencing I took care in planting my place that the trees were fairly free from blight, and from the first I have been a user of the usual insecticides and fungicides. I use a strong wash of salt, sulphur, and lime in the early spring, which I follow up with Bordeaux mixture, and later on with kerosene emulsion. I have tried various washes, but these seem the most effective for the blights affecting apples, pears, plums, &c., and for the fungoid diseases commonly known as the scab. I find I can keep them in check in that way. There is also a non-identified fungus peculiar to our coast, the "bitter pit," which is most difficult to keep in check, except by constant spraying with fungicides. It appears on the apple at first as only a slight discolouration. It is hardly perceptible until the fruit matures, and then it is found to have spread under the skin, and looks like a dull brown sunken spot. If you store the apple while it is in that condition the fungus penetrates to a depth of a quarter of an inch, and renders the fruit unsaleable. The best treatment I find is to spray with lime-wash in early spring, and then with Bordeaux mixture at fortnightly intervals until fruit colours. At present the life-history of this fungus is not fully known.

100. Is it general in your district?—Yes; it is spreading throughout the district. During the last two or three years people have complained to me that it is getting into their orchards. There is also the shot-hole fungus, which affects our apricots. My fruit trees are a little affected by it, but I can keep it in bounds by spraying. The fruit is hardly ever damaged, but the leaves are. I constantly spray with the same mixtures as for the other fungoid growths. I may add that the pear-leech is very common. I use the Bordeaux mixture, with the addition of Paris-green for that. I always use liquid or paste form of Paris-green of the best kind. This compound mixture not only keeps the pear-leech in check, but also the fungoid growths. I use hellebore while the fruit is ripening.

101. How many times do you spray?—I begin in late autumn or early winter, and then go on right through until the cherries are harvested. With the Bordeaux mixture, I begin with it in spring before the buds burst at its full strength, then gradually reduce it down until it reaches half

its original strength, and I find that effective. I wish, however, to point out that it is of little use using these insecticides and fungicides unless thorough and clean cultivation is carried out. One must put a certain amount of renewed vigour into the trees and keep it up. It is simply impossible to rely on insecticides alone. The trees have no chance unless vigour is given them by constant tillage to resist the attacks of these parasites. My local experience has taught me that.

102. What is your experience with regard to the codlin-moth?—In my district we have very little experience of it. In fact, I may say we have none. I have not seen the codlin-moth in the district, which extends for twelve miles on either side of us. In my own immediate neighbourhood we have from 25 to 30 acres of orchards within a very narrow circle, and we have as yet no sign of the codlin-moth. But then we are likely to suffer danger from such a thing as this: A School Committee importing cases of moth-ridden fruit from Wellington auction-marts and distributing the same to the children at school treats, with the certainty of pests being broadcasted throughout a hitherto clean locality. Such a state of affairs has existed. Again, there is an orchard in our district which has been leased to some Chinese for five or six years. They grow apples, and are in the habit of distributing these among the Chinamen in Wellington, who send back old cases received from all parts of the colony to be refilled. I have seen a lot of them with Auckland brands, and I am afraid that this may be the means of bringing the moth into the district.

103. Can you tell us of any orchards in which there is codlin-moth?—In the fruit district of Palmerston North they are slightly affected. There is a little at Otaki, which is the next fruit centre, and I have seen a little at Pahautahanui, which lies to the south of us, but not much.

104. Generally that district is fairly clear?—You may say it is practically clean.

105. Can you say whether spraying is generally used in orchards in your neighbourhood?—I am sure there is not much spraying effected in the district.

106. Are no means taken for dressing the trees?—Not many. I have seen isolated instances of trees dressed with whitewash, but there was no sulphur or any other chemical with it, and it would be all off with the first heavy shower.

107. What is the product of fruit?—For those who cultivate their orchards it is a fairly good sample of commercial fruit, but with those who neglect them there is but little return. In fact trees want life-power given to them, and if they are neglected it is as much as they can do to sustain their existence without having to resist the inroads of fungoid and insect enemies or perpetuate their kind.

108. Have you read this Bill?—Yes.

109. Would you give us your opinion of any parts that you object to, and that you think may require amendment, or will you say whether you see anything objectionable in the Bill?—I have been most carefully through the Bill, and previous to reading its provisions I had fully consulted about twenty-two of the leading Acts relating to the destruction of pests in the chief fruit-growing countries of the world. I thoroughly approve of this Bill, and if it is passed in its present shape I think it would place us at the head of Anglo-Saxon communities in the matter of pest legislation. I may say that in the United States the Department of Agriculture has devoted special attention to the very marked way in which all diseases are spread by nursery stock. There is a consensus of opinion throughout the States that it is from the distribution of nursery stock that new blights are carried from port to port, and that, once introduced into any new locality, they are very difficult to eradicate. I see in this Bill there is a clause which provides for the inspection of all nurseries and orchards, and I think that is the most important clause in the Bill. In every fruit-producing country they have been obliged, most reluctantly, and in the face of great opposition, to pass enactments preventing the spread of pests. Some people maintain, and practical men too, that these blights could be kept in hand by predatory parasites, and so forth; but the authorities have said, "You cannot rely upon chance to check these blights," and enactments have been passed accordingly. I see the San José scale is included in the schedule. It is a horrible scale. One female alone can produce 5,600,000,000 descendants in four months. It attacks every fruit tree except the apricot. I believe I am correct in stating that we have none now, and if we could possibly keep it out and have this Bill made law I am sure we could establish and maintain a fruit industry.

110. Are there any diseases omitted from this schedule that ought to be included?—I do not think so. The Bill includes the American blight, the apple-scab, the codlin-moth, and the San José scale. They all require spraying winter and summer to keep them in check, but the one spray will practically do for all, so that when spraying for the apple-scab and American blight, which we have everywhere nearly, we spray for that much more dreaded blight, the San José scale. The same spraying also kills fungoid diseases of every sort. I do not think I need specify further. There is one clause in the Bill, and that is clause 17, which has been objected to, and which says that no compensation is to be given for trees destroyed by the Inspectors. There is a great deal of opposition to that I know. I should like to point out that with three of the blights mentioned in the schedule—the apple-scab, the codlin-moth, and the San José scale—the tree can be brought back to health to a great extent certainly, and need not be destroyed; but with American blight and phylloxera, once these pests get a firm hold upon the roots the trees are of no further commercial use, and their destruction is a kindness to their owners as well as preventing the diseases spreading further amongst their trees. I may mention that out of the many Acts dealing with pest legislation read by me there are only three which mention compensation, and then it is only given when sound trees have been destroyed by the Inspectors.

111. What of clause 3, and the proposal to exempt one district in the colony from the operations of the Bill?—I consider that clause will tend to prevent the Bill, if passed, pressing too weightily upon the northern fruit-growers. There are numbers of small growers in the Auckland Province with long-established orchards disease-ridden, and this clause will be the means of preventing the dissemination of those diseases to other places, and afford them time to observe the benefit of this

Act in the rest of the colony. There is a subsection to the clause which says that the order empowering them to come under the provisions of the Act shall not come into force except on the application of a majority of the Councils in the district, or in respect of any specified county, except on the application of the Council of the county. This leaves them free to act at any time. Considering the opposition that the Auckland people have always shown to the passing of such an Act unless some such provision as this is made and brought into force there, they will continue to distribute diseases to other places. Considering also the way in which the American blight and the codlin-moth have increased in Auckland and other districts, it is manifestly unfair that we should have to run the risk of having these diseases disseminated broadcast among us while they are experimenting further to learn the truth. The acreage under fruit-growing in the Auckland district was 9,255 acres in 1897, and it is now 9,238 acres, showing a decrease of 17 acres. The acreage in the rest of the colony was in 1897 12,675 acres, and is now 12,885 acres, showing an increase of 210 acres. I consider that until we have an Act of this sort in force we cannot really establish and maintain a fruit industry in this country. We know what this industry has done for Tasmania, where a good Pest Act is in force. In 1891 it was started there in a practical sense, and they have exported since to England 140,000 cases of apples and pears. Now, I have seen and tasted these Tasmanian apples. It is said that they can compare with those brought from any part of the world, and certainly with anything that New Zealand can procure; but I can assure you that the Tasmanian apples are in no way superior to our own. At the Brisbane Exhibition deciduous fruit collections from the colonies of Tasmania, Victoria, and New Zealand competed. They were judged solely upon their merits, and we received the first award. In the face of this I have with me an auction return of the sale of fruit on the 23rd July this year, and it says that Hobart apples fetched 9s. a case, and local apples 5s. 6d. Now, it is well known that they send their best fruit Home, and that the other colonies only get, as a rule, fruit of the second grade from there, and yet these apples were worth 9s. a case, while New Zealand fruit was only fetching from 4s. 6d. to 6s. 6d. a case. I am sure that is not as it should be, because I, who live within thirty-three miles of Wellington, and in a district not well adapted for apple culture, by spraying and cultivation can get 13s. now for 48 lb. cases of apples, and am pleased to say obtain more orders than I can fill. I think this Bill, if made law, would prevent this sort of rubbish being sent into the Wellington market, and would be good for the industry generally.

112. You think that this stuff, which is sold at 4s. and 5s. a case, is poor stuff?—Yes. We proved conclusively at the Brisbane Exhibition last year that we can produce fruit superior to any that was exhibited there, and if we had encouragement to keep up the quality of our fruit it would be a great benefit to the industry; but we have no protection from infectious diseases, and therefore no encouragement at present. One may expend any amount of labour and spend any amount of money in growing fruit of the highest class; but if a neighbour across the fence will not do anything to keep his orchard clean, good work in pest-combatting is nullified. Your neighbour may be separated from you by an eight-wire fence, but that will not keep his blight out of your orchard. Again and again men have approached me with regard to opening up orchards, and asked me what guarantee there was that they would get a return for their capital, and I have always had to tell them that there is absolutely no guarantee at the present time. I maintain that it is quite as necessary for the encouragement and development of the fruit industry that those who are engaged in it should have protection in the same way that is afforded to other industries. Take, for example, the sheep industry. There exist precautions to protect it against the infection by such diseases as the scab, &c. Why should not the same thing be done for the fruit-growing industry in respect of its peculiar pests? I have taken an interest in this subject for many years, not only in New Zealand, but in other parts of the world, and I know what is done there, and the immense good to all resulting therefrom.

113. *Mr. Flatman.*] You said something about empty cases being returned; do you consider that empty cases should not be used a second time unless they have been fumigated or something done with them to prevent the spread of scab through their means?—I am strongly against the use of cases a second time. They should go with the fruit as sacks go with grain when it is sold. If you were to put a charge of, say, 6d. on the case, then everybody would know what they were buying.

114. Do you think that fumigating would not be a sufficient preventative to the spread of the disease?—It would give a lot of extra work, and entail the necessity for what I deem unnecessary machinery; whereas, if the rule were once established that 6d. was to be charged for every case, it would be all that is required. I am strongly against cases being returned whether they are fumigated or not.

115. When speaking of the difference in price given in Wellington for New Zealand and Tasmanian apples, you said that the New Zealand apples only fetched 5s. 6d. a case, and that you had a market at 13s. a case?—Yes. I endeavour to cultivate, spray, and prune as thoroughly as I can, and I am happy to say that I am in a position to be able to choose my market. My fruit is clean, and there is a great difference between the flavour of fruit which is properly cultivated and that which is not. The flavour of fruit depends very greatly on the manner in which it is grown.

116. *Mr. Lang.*] I understood you to say that you have not got the codlin-moth?—Personally I have none.

117. I think you said also that there is much opposition to this Bill in Auckland; I suppose that is on account of the codlin-moth?—Yes, and of the woolley blight too.

118. Are you aware that many Auckland growers have taken even greater precautions than this Bill provides, and find them not useful?—I am quite aware that there are men who do so. I should think there must be some local influence not taken into account. I do not think that all the circumstances of the cases have been thoroughly taken into consideration.

119. You think that if growers took proper precautions they could eradicate the codlin-moth?—I am decidedly of that opinion.

120. Is there much of it in the Wellington province?—Very little. We have a little of it, unfortunately.

121. *Mr. Wason.*] With regard to those Tasmanian apples which were sold at 9s. a case, do you speak from your own knowledge when you say that they were second-class?—Well, I have bought them and tasted them, and besides that I am creditably informed that it is only their surplus that they send from Tasmania to the other colonies.

122. Is it necessary that their surplus should be second-class apples?—Presumably they are. They are not of the same quality as those which they exhibited at the Brisbane Exhibition.

123. Is not that an extreme price for apples?—I do not think it is an extreme price for 40 lb. cases at the present time.

124. Do not the qualities of apples vary very much?—Yes. The apples which come in now are principally of the dessert kind, and keep better. They are worth fully 9s. a case.

125. You told us that local apples were sold at 5s. 6d. a case; is it not probable that it may be desirable that a certain class of apples should be grown at a lower rate? All apples are not of the same value, and some may be more easily grown than others?—Quite so.

126. Some of the more valuable kinds are imported, including Newton pippins and dessert apples of the best kind; you would not get the same price for apples grown for jam-making as you would for those?—No. I am afraid I shall have to give some explanation of the reason why I brought this matter of the sale by auction forward. Fruit-growing may be divided under three heads—domestic, commercial, and economic. Domestic fruit-growing will include pears like the Doyeune du Corniel, and apples of the Ribston pippin variety. They are fruit of the highest class—what you might call exhibition fruit; but you cannot grow them for commercial purposes, and they are decidedly not of the economic class. Then, with regard to the commercial, it is a class of which we may take as representative the Marie Louise pear, or the Irish peach apple. The Marie Louise is in some cases domestic; it is the highest class pear, but it is not suitable for export—it is too soft, and you cannot carry it like the Beune Clairegeau. The third-class includes fruit of the Williams, Bon Chretien, the Bartlet of the Americans, and the Jonathan apple stamp. They are economic in this respect: that when grown they are fit for the local market, or you can export them all over the world green, or by drying or canning. We cannot export fruit, much less meet outside opposition in our own markets, unless we get some encouragement; but if that were given to us we should be able to overtake the import trade from other countries in this respect. We paid away £58,000 in solid gold last year for importing fruits which we could have very well grown ourselves if we had had any encouragement. We want to be able to grow an apple like the Sturmer pippin or the Jonathan, which we are even now exporting to Brazil in insignificant quantities. But we want some protection and encouragement to enable us to do it with any hope of profit; therefore I maintain, viewing this measure from its broadest aspect, that if it were passed it would materially assist to establish the fruit industry and do away with this annual export of gold to the value of £58,000 to pay for the import of fruit which we could very well grow ourselves—money which would be much better expended in the colony itself in developing its industries. It really means that if we grew fruit to this amount, and had a similar amount to export, we should have something like £120,000 a year which could be distributed over other industries, such as those of sheep, cattle, grain, &c., greatly encouraging their further development. When we obtain an Act upon the lines of this Bill it will mark the year one of our fruit industry.

127. What description of apples were those from Tasmania sold at auction here?—I could not say; I suppose they were scarlet pears and nonpareils.

128. Would not the price given be considered an extreme price in Tasmania for such apples?—It would be a very big price.

129. I do not speak with any knowledge myself, but I think about 5s. a case is the ordinary price given there?—Yes; 4s. or 5s. a case is the common price.

130. What I want to get at is this: What would you consider a fair difference in price between the different grades of apples that men can grow here? For the highest grade of apple you have got as much as 13s. a case; might it not be possible that it would be desirable to grow a lower grade of apple at a lower price?—I find in the highest-grade fruit that the Sturmer pippin, at this time of year, is a very good cooking apple. There is none that surpasses it. I think that its second grade should fetch about 10s. a case, at any rate. Then, for its third grade, which can be used for jam-making, pies, and that sort of thing—it is only slightly marked and not diseased—you might expect 8s. a case for 48 lb. cases. Therefore, growing a lower-grade class of apple for this season would not be profitable.

131. *Hon. the Chairman.*] What was the date of the auction sale from which you took the prices given for Tasmanian and for local fruit?—23rd July, 1898.

132. What proportion of loss have you yourself had from bitter pit and so on?—My loss has not been more than about 5 per cent.

133. *Mr. Buchanan.*] Taking the highest grade of apples from the economic point of view shipped to England, what is the difference in the London price for that grade of fruit coming from New Zealand and that from Tasmania?—I am not in a position to answer that question, for I have not any return available. The Department of Agriculture have shipped a lot of apples there, but I do not know whether they have published returns as yet.

134. *Mr. Flatman.*] What is the difference in the cost of production between the domestic and the economic classes of apples?—Domestic cultivation simply means this: that a man can spend any amount of money he likes in the production of that class of fruit, irrespective of probable cash return.

135. I mean, in an ordinary way, is there any difference in the cost of producing a good apple



and that of producing a bad apple?—The difference is *nil*; but if you do not produce a fruit which will carry green or can, or dry, you lose the extra profit found in growing such.

136. In fact, it is quite as cheap to grow a good apple as a bad one?—Yes.

*Mr. Moeller*: I should like to say in regard to what *Mr. Grapes* has stated as to the auction sale of fruit in Wellington, that I was at the sale, and that the apples he refers to as scarlet pearmains were really beautiful apples, and you could not get their equal in New Zealand. The cases were large, holding 50 lb. or 55 lb., and there was full measurement in every case. They were fetching as high as 11s. to 12s. a case. I question if Sturmers or Cambridge pippins would fetch 9s. a case. The fact is our growers will not fill the cases. In my opinion second-class apples are only worth 6s. a case.

*Mr. Grapes*: *Mr. Moeller's* statement has but further emphasized the pressing necessity for a thoroughly workable Pest Act, and confirmed my evidence in its favour.

From *Mr. D. H. WILLIAMSON*, Wanganui, in reply to an invitation to give evidence on the Bill in writing.

The CHAIRMAN Joint Agricultural, Pastoral, and Stock Committee.

SIR,—

I am strongly of opinion that it is urgently necessary that a Bill should be passed this session to check the spread of several of the most pernicious insects which are established in the colony and injurious to the progress of the fruit industry, as well as to prohibit the sale of plants or fruit so infected, also to prohibit the introduction into the colony of plants or fruit without careful fumigation or other means of cleansing.

The worst orchard-pests we have to contend with upon this coast are the codlin-moth, apple-maggot, and various kinds of scale. The codlin-moth first came under my notice in February, 1884, in an orchard four miles from Wanganui; the trees were completely thick with fruit all full of moths. I recommended the owner to use bandages in the forks of the branches, which I had seen recommended in an American paper; this he did, and was so successful that in a few years his orchard was what he thought perfectly free from the moth. However, he let his orchard, and through neglect the moth again took possession. But there is little doubt in my mind that proper attention with bandages and spraying with Paris green, properly prepared and used, at proper seasons, the moth can be reduced to a minimum. I consider some of the scale species worse to deal with than the moth, as they adhere so closely to the bark it is difficult to get at them, and are as destructive in their way, though *Mr. Wheelband's* specific spray has proved very effectual by those who have used it here.

But perhaps the worst of all the insects we have to deal with is a fresh introduction, and is most destructive to the orchard; it is called the apple-maggot of America, scientifically called *Trypeta pomonella*. It is a two-winged fly, the larva of which enters the side of the apples when they are half-grown, and tunnels through the fruit in all directions. This insect increases faster than the moth and flies much further. The devastations of the insect-pests are making such strides and serious havoc amongst the fruit that if steps are not taken by the Government to compel orchardists to keep down the ravages of several of the worst insects, clean orchards and sound fruit will shortly be a thing of the past.

D. H. WILLIAMSON, Wanganui.

TUESDAY, 9TH AUGUST, 1898.

*Mr. W. BARKER*, Waikonini Orchard, examined.

1. *Hon. the Chairman.*] What is your profession?—Fruit-growing is my chief profession but I have other means.

2. What district do you come from?—From Peel Forest, South Canterbury.

3. Have you read the Bill which is before the Committee?—Yes.

4. Will you please explain what experience you have had in fruit-culture?—I commenced about 1884, when I put in a thousand trees. I put in 1,800 trees in 1893, and about seventy-five since then.

5. What experience have you had in dealing with fruit-pests, and especially with the codlin-moth?—I have had no experience with the codlin-moth; I only know of that by report.

6. Will you tell the Committee what your experience with other pests has been?—Most of my experience has been with apple-scab, pear-slug and pear-phytoptus, mussel-scale, and black-scale.

7. What means have you taken to get rid of these pests?—I used Bordeaux mixture for the first. That is an almost certain cure if carefully applied. Some years ago I lost annually the product of a number of trees through that pest, but of late years I have tried washing with Bordeaux mixture, and I find that the blight is easily kept down. The pear-slug I have had no trouble with, hellebore being a certain cure. The pear-phytoptus is very difficult to deal with. I have tried several things with that, and it was only last year that I succeeded in dealing with it successfully. I commenced rather late, when the pear-trees were in blossom, but by carefully syringing them with lime, salt, and sulphur—the Government recipe—I have succeeded in getting rid of the pest. I think that lime and salt and sulphur is a good mixture for it. For the mussel-scale I also used lime and salt and sulphur. I have treated them with that, and we find it very satisfactory in South Canterbury. I have mentioned black-scale, but I may say that it is very exceptional down our way. I have only found it once, on a nut-tree, and by an application of Bordeaux mixture we got rid of it altogether. I have not seen it again until this year, and then I saw it on some orange-trees which were imported from the North Island. I brought them down simply as an experiment for ornamental purposes. I noticed the scale on them next season, but whether it came from the North Island or not I cannot, of course, say for certain. As regards the American blight, I cannot understand how any one has any difficulty in keeping it under. It is very easily got at if it is up in the trees, but if it gets into the roots it is a different matter, though if you persevere with summer treatment in time you exterminate it at the root, as it only winters there. With us, latterly, in the South, we have found that the “lady-bird” (*Coccinella 11-punctata*) has been a great help to us—the eleven-spot one. I have counted as many as a hundred or two on a tree. It winters under the moss or lichen, called

“old-man’s beard,” which grows on the branches of trees, or on the posts of the fences, and such-like sheltered spots; but in the summer it comes out, and very soon wipes out the American blight, so that that blight gives us very little trouble. I only hope the “lady-bird” will last. I have tried syringing with sheep-dips for pests in the summer. I have found them good, but then you have at that season of the year (November), when the young scale is moving, generally enough to do without resorting to that.

8. *Mr. Buchanan.*] What sort of sheep-dip did you use?—Little’s. You require to use one part of the dip to fifty parts of water.

9. *Hon. the Chairman.*] Do you approve of the provisions of this Bill?—When I first looked through it I did not like clause 3, but since I have read the Bill through more carefully I do not see so much objection to it; I think it is immaterial. I thought that the whole country should be under the same law, but now that I have read through the whole Bill I do not see that there is very much in this clause.

10. Do you approve of the Bill generally?—I approve of it as a whole, but there are some things that I should like to see done. I may say that we suffer very much from mothy fruit being allowed to be shipped to the markets from other places. For example, Shiells and Co. state in their weekly market report: “Market crowded with inferior and mothy lots.” Again, “Bad-conditioned are still far too plentiful, and, though good varieties are scarce, they do not command the price they ought to on account of the rubbishy lots being so plentiful.” I have here also reports from the Otago Fruit and Produce Agency to the like effect. Then, again, the same firm report: “Some Auckland shipments have been badly affected with codlin-moth.” I may say, also, that I have private correspondence—letters in dozens—complaining of the codlin-moth being brought down, to the injury of the general market. The cases of this infected fruit are sold at, say, 2s. 6d. or 1s. each when cases of good fruit are fetching 6s. or more. Again, it affects us in this way: that the cases which have brought this infected fruit may be sent to us as returned cases. There is a regular migration of old cases going on in New Zealand. I dare not allow a case to be used on my place that has been used a second time now. I have to put my fruit in entirely new cases, and then I dare not even get my own cases back. Some of my own cases went to Christchurch, and they were sold by the auctioneer at 3s. a dozen, and they came back to the Dunedin market with other persons’ fruit in them. In that way a great injustice is done to us. We have to buy entirely new cases, and we cannot get the market to allow us anything for our cases. What I should like to see included in the Bill is a clause making it compulsory for every one to use new cases, or, at any rate, for the Government ceasing to encourage the use of old cases by carrying them free. I think it is very wrong that encouragement should be given in this way by the Government to disseminate disease from one end of New Zealand to the other.

11. In what way do you mean?—By their carrying empty return-cases for nothing.

12. *Hon. Mr. Larnach.*] What about districts in which there is no timber?—The railway carries new cases from the factory free.

13. But what about districts where there are no railways?—You could get your cases from the sawmillers in Dunedin, and they would send them as far as the railway went for nothing, and then you could get them to your place as cheaply as old cases—cheaper if you buy them in the “shook.”

14. *Hon. the Chairman.*] What provision would you like to see?—If it were within the scope of the Bill to make it compulsory for buyers to be charged 3d. or 6d. for the case it would be sufficient.

15. Could you not do that yourselves?—We are so situated that we cannot combine and make a stand. From want of combination we cannot force people to pay for the cases. I only want to protest strongly against the carriage of returned cases on any conditions. I think it is impossible that you can keep out disease when you are carrying return-cases in this way from one end of New Zealand to the other.

16. *Mr. Buchanan.*] What is the difference between the prices of new and old cases?—I give 8d. for my new cases, and I was offered from 3s. to 3s. 6d. a dozen for old ones at Dunedin this last season. That, of course, is a temptation for people to go in for them, but I do not think it pays in the long run.

17. Does the 8d. per case mean delivered at your own place?—No; delivered at the railway-station. They are carried free on the railway. I happen to be twelve miles from the railway-station, and have to carry them that distance myself. I believe they could be got cheaper, but that is what I have to pay for mine.

18. *Mr. Symes.*] Have you a brand for your cases?—I generally use a label with my name on it and the description of fruit that the case contains.

19. Is that the general mode?—It is not very general, I think.

20. You do that to insure that somebody else does not use the cases?—Yes. If I were to put W.B. or some other brand with simply initials on the cases somebody else might use them.

21. And you might get the credit of supplying diseased fruit?—Yes.

22. It is very important to prevent that, is it not?—Yes.

Mr. C. PICKERING examined.

23. *Hon. the Chairman.*] What is your profession?—I am an engineer by trade, but I have  $3\frac{1}{2}$  acres of orchard.

24. Where do you reside?—At Palmerston North.

25. Will you tell the Committee what experience you have had in fruit-culture, and in dealing with fruit-pests, and especially the codlin-moth?—I will endeavour to do so. In the first place, I am perfectly well satisfied that spraying is necessary. I have used sprays very successfully, and in fighting the codlin-moth I think that no man with a proper system of spraying should lose more than 5 per cent. of his fruit from that pest; but unless something is done to compel every one to



spray I think it would be very hard on those who are spraying and who are trying to keep the pest in check. If every one were compelled to spray we should not lose more than 5 per cent. of our fruit; but if even one man were allowed not to spray I think the difficulty would be to keep any check at all on the disease. In our orchard we have been spraying for the last three years, and we have taken as much as 8 tons of apples from  $2\frac{1}{2}$  acres of orchard, and I do not think we have lost 3 per cent. of our fruit. But we have kept up a strict system of spraying, and also a strict system of bandaging. I find there are quite a number of my neighbours who are not doing this, and they wonder how we have succeeded in doing as we have done. With regard to the growers in the Auckland District, I may say that I was there about two months or a little more ago. I went into an auction-room, and saw cases of badly infested fruit sold at 1s. 9d. a case. I made inquiries, and the auctioneer told me that he had an order from an Auckland seller for Tasmanian apples, which were costing him 11s. a case all round, and yet the Auckland people could not get more than 1s. 9d. a case for their fruit because it was so badly infected. Everything is in favour of cleaning, pruning, and spraying; and I am perfectly satisfied that we could keep our orchards clean provided that all people were compelled to do it. Some people, no doubt, will think it hard. When I bought my orchard it was very bad with codlin-moth, scale, and other pests, but systematic spraying and bandaging has resulted in clean, payable trees, and my profits are now so handsome that I am enlarging the area of the orchard. (The witness here quoted figures from his business-books showing his profits.)

26. What sort of fruit was it?—Apples.

27. *Mr. Buchanan.*] Was the fruit sold by an agent?—Some of it was sold privately and some of it by an agent. Every case is entered in our books in the usual way. I looked at the books before I came away, and I found that that was the return. I am very seriously thinking of doubling it, but before doing so we must have some Bill passed which will compel people to keep their orchards clean.

28. Have you got any of these pests?—Yes; we have the scale.

29. How do you deal with it?—We follow the directions given in the Government pamphlet. A mixture of lime and salt and sulphur is the spray for the winter, and a kerosene emulsion in the spring. We have been very successful, but it needs constant attention. Our orchard is now very clean, but when I got it it was very dirty, and it proved a most difficult task to clean it. If you will allow me, I should like to give you another example of what spraying will do. Take *Mr. J. N. Williams*, of Hawke's Bay. Some three years ago his orchard was so bad with codlin-moth that he could scarcely find a sound apple, and now to-day there is almost as much difficulty in finding a single moth.

30. Therefore it pays to do it?—Yes, certainly.

31. Do you know the means adopted by other fruit-growers in your district to rid themselves of this pest?—Within the last two seasons quite a number of persons have been adopting this method who had previously done nothing of the kind. I speak, of course, of the larger orchards. There are small holders with half an acre or a quarter of an acre who do not think that it will pay them to do it—that they will not get sufficient from it—and therefore they are breeding the germs of these diseases. One gentleman told me that he had been looking at a sale of fruit only last week, and that he had seen several codlin-moths in the cases, which would spread the disease throughout both North and South Islands.

32. Have you read the Bill?—Yes.

33. Do you approve of it?—Yes.

34. Thoroughly?—Yes. We had a meeting of fruit-growers last week, and all present were in favour of it, with two exceptions. We have called another meeting—a public meeting—for Friday next, in order to get the general public opinion with regard to it—whether the larger or the smaller growers are in favour of the Bill, and that is the difficulty we are in.

35. *Mr. Lang.*] I should like to ask what is the cost of labour in your district?—In my case it is rather hard to say, because my son does the work.

36. What is the worth of the labour?—I think I could get a man to look after the place for £1 a week and his food.

37. Could one man do it?—Yes; my son, who is twenty-one years of age, looks after it in my case.

38. One man only?—Yes.

39. How large is your orchard?— $3\frac{1}{2}$  acres.

40. You spoke of fruit at Auckland selling at 1s. 9d. a case: at what time of the year was that?—I will tell you the name of the auctioneer.

41. I wish to know the season of the year at which it was sold?—I think it would be some time in March or April. Ribstone pippins are an early apple, and I know it was ribstone pippins that *Mr. Twomey* told me he had an order from *Mr. ———*, of Queen Street, to buy from Tasmania, which would cost him 11s. a case to land.

42. You do not mean to say that 1s. 9d. is the general price?—In the auction-mart.

43. Generally for fruit codlin-moth infested?—I did not see any that were otherwise. I stood in the auction-room for about two hours, and had a good look at the fruit all round. It was fingered by everybody, and one buyer remarked, in reply to a question by myself, on the way in which it was pulled about. He said, "You would do the same if you were living here; you would have to pull the apples about to find a sound one."

44. Is it true that these cases were badly infested with codlin-moth?—Yes.

45. You think that for codlin-moth spraying is necessary?—Yes, and bandaging.

46. You would do both?—Yes.

47. How often do you spray?—About every fortnight throughout the season.

48. That would be from the time of blossoming until the apples were gathered?—Yes.

49. *Hon. the Chairman.*] How often do you bandage?—Every Saturday. With a number of trees we cut pieces of paper and drop them in the forks, and in that way we get over the work much more quickly. We shift the papers every day, because they would get blown away, but we remove the bandages on Saturday.

50. *Mr. Syme.*] Apparently, in your opinion, it is a want of knowledge which prevents people from taking the proper precautions. Do you think it would be a wise thing on the part of the Government to send instructors round to instruct people with small orchards as to what they ought to do?—That is a question which I can hardly answer, because I have tried with quite a number of these small settlers to ascertain what their feelings are, and it appears to me that when they put in their trees they have no idea that they will be infested with the codlin-moth. They do not grow them for commercial purposes, and are satisfied if they get sufficient apples for themselves. They say, "We are not growing apples to make money out of them"; and it is just these places which are the hotbeds of disease. I do not think any instructor would persuade them to take the proper precautions.

51. *Mr. Buchanan.*] You mean that nothing would do it but compulsion?—Nothing but compulsion. No instructor could persuade a man that he could make a revenue out of twenty apple-trees, and many of these people have not more than twenty trees. I believe they would sooner cut those trees down than do what the instructor told them; but if you have a man with 3 or 4 acres of orchard he knows the value of taking the proper measures.

52. *Mr. Brown.*] Do you cultivate between the trees?—My trees are 18 ft. apart, and we cultivate for 3 ft. or 4 ft. round each tree.

53. Does the codlin-moth breed in the grass?—No, not at all.

54. If there were a piece of board or stump of a tree on the grass would they breed in that?—Yes. It is surprising where they breed. In my place I have had a hand-barrow standing near a tree, and we have found the grub concealed in a crack in the timber where the handle was joined on. Only last Saturday my boy brought in a prop, and we found three grubs under the bark, and I told him to destroy it. But they never conceal themselves in the ground.

55. I was coming to the question of whether it is that the more you cultivate the less likelihood there is of the moth?—I do not think that the cultivation makes the slightest difference in the grub.

56. *Hon. the Chairman.*] The cultivation improves the trees: does that make any difference?—I do not know that the moth can distinguish between a good tree and a bad tree. We have found them in the healthiest trees.

57. *Mr. Buchanan.*] Did you visit any of the Auckland orchards?—I did not.

58. What comparison would you make between the state of the orchards in Auckland and, say, in Palmerston North, with regard to these pests, from what you were told by fruit-people in Auckland?—I should say that the Auckland people have had the codlin-moth for so long, and done so little to get rid of it, that the place is simply teeming with it, whereas in the Palmerston district we have not had it so long, and the people have commenced to try and keep it in check. The difference between the two is very great. I do not think there is a single orchard in the Palmerston district that would compare with Auckland orchards in this respect. The Auckland people do not appear to have done anything, and do not seem very likely to do it.

59. Have you any special reason for saying that they have not done much?—I am guided by the remarks that the auctioneers have made, and also by the state of the fruit sent into the market. That was enough to satisfy me that the people who grow fruit there have not taken sufficient interest in their business or they would not send such fruit into the market. We have given better fruit to our pigs than they send into the market, and I cannot conceive why people send such fruit to be sold when they know that they are spreading disease all over the country.

60. Might there not be climatic differences which would give you an advantage in Palmerston?—There may be. The Auckland climate may be warmer; but it is pretty warm up in our district too. There are orchards there surrounded with macrocarpa hedges, and it is like an oven inside them, and warm enough for any breeding purposes. I think it simply amounts to this: that the Auckland people have not been alive to the destructiveness of the moth until now it has got the upper hand.

61. *Mr. Lang.*] What size are your trees?—My highest trees are 14 ft. or 15 ft. high. We have been keeping our trees down as much as possible.

62. In spraying it is absolutely necessary that the fruit should be covered with the Paris green, is it not?—The object is to so apply the Paris green that the egg shall be got at and destroyed.

63. To completely cover the fruit?—My experience is that the grub will be found in the eye of the fruit or on the sunny side of it. It is very rare that the grub is found in other parts. In picking apples, those we find infested are either infested on the top—that is, the sunny side—or in the eye.

64. *Mr. Kirk.*] When the deposit was on the eye was not that the sunny point?—I can hardly say.

65. *Mr. Lang.*] The Paris green poisons the grub?—Yes.

66. If so, the apple must be completely covered with the poison?—Yes.

67. Do you think that by legislation you could compel people to spray their trees so much that they would cover the whole or the greater portion of the tree?—I think that a proper spray-pump would spray the whole of a tree.

68. I mean could you by legislation compel people who were doing it against their will to do that?—That would rest with themselves. If a man will not spray in his own interest, and does not make an effort to cure his trees, you cannot compel him.

69. Is it not difficult to thoroughly spray a large tree?—No, it is really not difficult.

70. *Mr. Meredith.*] I understand you to say that, having read this Bill, you are of opinion that if its provisions were rigidly enforced in a district it would do a great deal towards removing, if it did not entirely remove, the pest?—Yes; I am sure it would.

71. So far as your observation goes in your district, could you tell the Committee how many broods of this codlin-moth there are in the season?—I think, myself, we only get, practically speaking, one brood. I made an experiment on my own ground the spring before last. We gathered five grubs, and placed them in a box. We simply cut a branch off the tree and placed it in a box, so that the grubs could not be disturbed. I left instructions with my son that, just at the time the trees were coming into bloom, he should examine these grubs carefully, so that we might find out when the first hatching took place. The first one came out on the 22nd September, and the last one came out in the last week of December. So that, with five moths gathered from the same tree at the same time in the grub state, and put into the same box under the same conditions, there was a difference, between the coming-out of the first and the last, of the time between September and December. I think, therefore, that the moth does not lay the egg and the larva turn into the moth in the same season. I think it goes on into the next winter. There is certainly the difference between the first and last of the time between September and December.

72. *Mr. Lang.*] Would not the first grub hatched turn into a moth and then produce another?—No: It just appears as if Nature said, "I will let my first children out in September, and if they are destroyed then the next shall come out two weeks or so later, and if they are destroyed then more later still."

73. Then, in your opinion there is only one brood?—Yes.

74. *Hon. the Chairman.*] That is Nature's provision against this Bill?—Yes; that is just what it is; and if we get lazy men who will not exert themselves to destroy these insects what are we to do?

75. *Mr. Kirk.*] You could not have made the profits of which you have spoken without spraying and bandaging?—I am sure of it. There is a neighbour of mine with an orchard of 5 acres who does nothing, and he has not made any profit.

76. I know from seeing your orchard five years ago that it was then a very dirty one. Do you attribute the change in its production to spraying and bandaging?—Yes. I may say, without boasting, that I have reached as much as 4d. a pound for my apples.

77. *Mr. Buchanan.*] In the Palmerston district?—No; outside of it.

78. *Hon. the Chairman.*] Is there anything special in your garden?—No; it is not a clean orchard by any means, but we are doing the best we can to make it so.

79. *Mr. Buchanan.*] Have you heard from growers any complaint of the class of Inspectors sent round?—Well, I have not myself. We are very pleased to have them in our district. I am very pleased to have the present Inspectors come to my place. I always try to get some information from them, and have always been able to do so.

80. You consider it is of great importance to have only good men?—Certainly; men who will use their own discretion in enforcing the law. That is why some of the nurserymen fear this Bill. They fear that men without discretion might be appointed. They go largely into fruit-tree growing, and they fear that a man might come along who would clear out their places.

Mr. J. C. BLACKMORE examined.

81. *Hon. the Chairman.*] What are you?—I am Fruit Instructor, in charge of the South Island.

82. What experience have you had with regard to fruit-culture?—I have had a great deal of experience with regard to horticulture, and especially with regard to fruit-growing.

83. What experience have you had in dealing with fruit-pests, and especially with the codlin-moth?—I have had a considerable amount of experience in combating with fruit-pests of various kinds, and especially with the codlin-moth.

84. As a fruit-grower?—Yes, as a fruit-grower, gardener, and nurseryman.

85. Will you please tell the Committee your opinion as to the best means of dealing with these pests?—As regards the codlin-moth, I find that with a proper system of spraying the codlin-moth may be effectually controlled. If there has been thorough cultivation, and if the trees have been reduced in size, they can be easily sprayed. I recommend spraying with various arsenical remedies, collection and destruction of infested fruit, and the application of bandages which are carefully examined weekly. You must gather the infested fruit. In all cases where this work has been performed properly the pest has been very soon reduced to a minimum. One great defect that I notice after visiting various parts of the colony is that in many instances the combined measures recommended are not properly applied. Then, again, many growers endeavour to spray trees that it is impossible to spray owing to the numerous branches which are left on them and which prevent them from applying the spray, to all parts of the tree; but where the trees have been reduced in size, and proper grades of Paris green have been used, good results have always been obtained from spraying. There have been cases in which trees have been damaged by spraying, but in all cases where this has occurred I have ascertained that this is caused by the application of improper grades of Paris green. Unfortunately, many grades of Paris green are inferior, and when applied without the addition of lime the result is occasionally damage to the foliage; but where absolutely pure Paris green has been applied the most excellent results have been derived from its use. I think that to control the codlin-moth effectually orchardists must adopt a better system of cultivation, and a better system of pruning, so as to enable all parts of the tree to be sprayed. The procuring of reliable brands of Paris green, and doing the work efficiently are essential, and if these were systematically carried out I think we should have very little trouble indeed as regards the codlin-moth.

86. With regard to other pests?—With regard to other pests I have probably had as much experience as any person in the Australasian Colonies. I find that there are no pests which may not be easily controlled with the efficient remedies that are recommended by the Department of Agriculture. As one of the Instructors appointed by the Government, I have taken my spray-pump through the country, and visited various orchards and given instruction and object-lessons in spraying; and I can say that in all cases where the various remedies recommended by the department have been properly applied they have given the most satisfactory results.

87. Your district is the South Island?—Yes; but during the past season I have done a considerable amount of work in the North Island. I have visited the greater portion of the North of Auckland districts.

88. Do the orchardists generally spray and bandage, or do they not?—To speak honestly, on the whole the Auckland orchards are very much neglected. Very few orchardists carry out any systematic spraying, but those who have done so have derived very good results. Unfortunately, in the Auckland districts there is a tendency to depend upon the aid of the friendly insect-destroyers. In all cases where you can show me that the friendly insect is capable of coping with the encroachment of the pest, and of keeping it in control, I should endeavour to have its assistance; but I say that the natural antagonists are not capable of coping with this pest, and the best way is to use spraying.

89. You have read this Bill; probably you have had something to do with preparing it?—I have read the Bill and I thoroughly endorse its provisions. In fact, I think that if such a Bill passes, and its provisions are carried out in a proper spirit, it will be the means of ultimately building up a very prosperous industry in the colony. The difficulty I find at the present time in visiting the various districts of the colony is that where one man will spray and do all that is necessary to keep his orchard clean, he has neighbours who will do nothing. Probably it is a large grower, who has spent a great deal of money in establishing an orchard, and who is constantly endeavouring to keep it clean, and there are men just outside his boundary-fence who have a few trees, and who are not growing fruit for profit, and these people do nothing to prevent the spread of disease. Something is required to compel such men as these to do something necessary to keep their fruits free from pests. They are now infested with pests, and it is they who spread the pests throughout the country.

90. You believe that this Bill will do something in the direction of preventing that?—I believe that it will be a very great aid to the fruit-grower, and at the same time it will be the chief means of building up a very important industry in the colony.

91. *Mr. Buchanan.*] Can you give the Committee any particular reasons why the Auckland fruit-growers seem to have such strong objection to compulsion in this matter?—I think the reason is simply this, that the growers in Auckland have an idea that all people had to do was to buy a piece of land, dig some holes in it, plant trees in them, and leave the rest to Nature. They do not seem inclined to work.

92. But in contradiction to that, some of the Auckland fruit-growers have told the Committee that they have used bandages, and have used spraying, and they would be only too glad to carry the provisions of the Act into force if the department was able to show them any specific that would keep this pest down?—As regards the codlin-moth, does it not seem strange that they would not succeed if they only took and used Paris green? It has been found most efficient in every part of the world except Auckland. I have visited the Auckland districts during the past season, and I had great difficulty in finding an orchard where systematic spraying was carried on. I will go further and say that it was with great difficulty that I could find a proper spray-pump in the northern districts.

93. Could you say whether the difference in climate between the Auckland Provincial District and the colder districts of the south would result in greater difficulty in keeping this pest down?—I do not think so. Of course, there is a greater rainfall in the northern districts, but I speak from my own experience in the Auckland district as to combating the codlin-moth. Some years ago I was in charge of the estate of the late Hon. James Williamson at the Pah. At the time I took charge the proprietor told me that fully 95 per cent. of the fruit was destroyed by the codlin-moth. I undertook a systematic system of spraying and bandaging. I did not delegate the work to others, but I did it myself, and I did it thoroughly. First of all I got proper materials. We had a good spray-pump, and the work was done most thoroughly. Two years afterwards it was almost an impossibility to find an apple in that orchard infested with the codlin-moth. It was an isolated orchard. There was not a dirty neighbour to reinfest the orchard. Therefore I say what I did in Auckland, and did successfully, others can do if they go the right way about it. In further reply to your question, I may say, in reference to the damage done to the trees by spraying, that there is no doubt there are instances in the Auckland district where slight damage has been done to the foliage, but in all the cases that I found it arose from using inferior grades of Paris green that contained soluble arsenic. On the other hand, Blundell, Spence, and Co.'s mixture with 48 per cent. of insoluble arsenic does no damage; but where an inferior grade of Paris green has been used damage has been done to the foliage. It was the fault of the growers in having procured a cheap and unreliable grade of Paris green.

94. Could you give the Committee any idea from a commercial point of view of the cost of doing what you claim to have done with this particular orchard, at per acre, or in some way?—Of course, I have not an exact account of the cost, but I can give you some idea. Of course, the difference in cost would depend upon the appliances with which you worked. I found in the northern district very few people have a proper spray-pump, which is necessary to do the work efficiently and quickly. There is as much difference between the pumps used as there is between putting two men into two 500-acre fields of wheat, one with an old-fashioned scythe and the other with a modern reaper-and-binder. The pump that I advocate is one with a large air-

chamber which will enable you to do the work quickly and at the same time economize the material. The manager of an orchard at Christchurch estimates that, with the smallest size of Bean pump, that cost £7 10s., he could spray a fourteen-year-old orchard, and spray 484 trees per day, covering every portion of the trees with the lime- and salt- and sulphur-mixture. Now, in spraying with Paris-green, if you have your pump erected on a proper conveyance, you could spray five times the quantity that you could if you merely stood on the ground and tried to spray them. You want your pump placed on a proper conveyance so that you can have full command of every tree. With a fairly large-sized orchard you would want a wagon that you could drive between the trees; but if you spray with small paltry pumps I can clearly understand why orchardists are averse to spraying.

95. *Hon. the Chairman.*] But as to the cost of doing it in the proper way?—As regards the actual cost I should think that you could spray with four or five sprays of Paris green for about 10s. per acre—labour only.

96. Each time or the total cost?—The total cost.

97. Including material and labour?—Labour only; provided you have a proper spraying-pump, because then you have the work done in a very expeditious manner. I do not think I am far out in saying that, speaking from my own experience.

98. *Mr. Wason.*] There was a meeting of fruit-growers in Canterbury about eighteen months ago, and I can say that the fear they have is that their orchards being now clean they may be infected by the importation of diseased cases. It was stated that apples were imported into Lyttelton, and that the codlin-moths were dropping from the cases as they were being driven into town. Would this Bill meet such a case as that?—This Bill would prevent the sending of infected fruit from the northern districts. It is absolutely necessary that there should be such a provision; and the fact of the matter is that if there is not such a provision to prevent the introduction of the codlin-moth into the southern districts it will not be a long time before the southern orchardists will have to fight the codlin-moth.

99. We have had evidence that apples of the most valuable kind have been sold at 14s. a case. Could you give us an idea of what a grower might fairly expect to get on the average?—I could not tell you, but I can tell you that apples can be grown at a good profit. With a proper selection of plants suitable to the soil, with good soil, and with a proper system of cultivation, you can grow apples almost as cheaply as potatoes.

100. And the market?—You can produce apples for a good profit at 2s. 3d. to 2s. 6d. a case; that is, with a thorough system of cultivation, with a selection of the proper soil, and with a selection of the right variety of fruit. But the work must be done thoroughly.

101. *Mr. Meredith.*] I should like to ask you whether in your opinion there is sufficient provision in the Bill to prevent the spread of disease from outside the colony as well as from inside?—Under the Bill there is very effectual provision as regards dealing with infected fruit all over the colony that may be introduced from outside, and if it passes it will also give ample power to deal with infected fruit inside the colony. I think that is very important, for the reason that—I do not wish to be personal in mentioning Auckland growers—but I have known Auckland growers who were very strongly of opinion that infected fruit should not be allowed to be introduced into the district from outside, and yet at the same time they have been sending infected fruit from their own district throughout the colony. I say that, for this reason, some of these pests are to be found on the orange and the lemon. Such as the red scale may yet find a congenial home there, and attack deciduous trees, doing them a considerable amount of damage. A case of this kind is reported from Cape Colony.

102. In carrying out this Bill how many additional Government experts should be appointed, so that the provisions should be thoroughly carried out?—That is rather a difficult question to answer, except to say this, that I do not think it will cause any great additional expense, for the reason that we have now a list of every fruit-grower in the colony, and we have not the trouble which we had formerly in finding out whether the various orchards are being worked in a systematic way. I think it could be done with very little additional expense.

103. *Mr. Lang.*] Have you had practical experience as a grower of fruit for market purposes?—I have.

104. May I ask where?—In the northern district.

105. In what portion?—At Whangarei.

106. For how long were you a grower of fruit for market purposes?—I was part-proprietor of an orchard in the northern district for some short time, which was managed in such a way that fruit was produced at a profit.

107. For how long?—Several years. I have also been engaged, in employment, in cultivating fruit very largely for market purposes.

108. Whose estate was this you managed?—Partly my own; it was about 9 acres.

109. And did you work it profitably?—The orchard was very profitable, but it was worked in connection with a farm.

110. What kind of fruit did you grow?—Various kinds of fruit.

111. Apples?—All kinds of fruit. Then, in the management of Mr. Williamson's estate I had 13 acres to look after, but the produce was not sold.

112. What quantity of apples did you send to the market every year?—I could not tell you the exact quantity, excepting that we grew very heavy crops and we got a good profit. There were some tons distributed to the various markets in the colony.

113. Do you know the Waikato district?—Fairly well.

114. Supposing the Government were to place you in charge of an infested orchard in an isolated district, could you free that of the codlin-moth?—It would depend upon the length of time I had the property in hand.

115. Then I will ask you how long would it take?—If you take an isolated orchard, then within three years the pest should be reduced to a minimum. I am basing my statement upon my previous experience and upon what I have observed when visiting the orchards of the colony where people have had to combat the moth. Of course, you can control it in an isolated orchard. For instance, you could destroy all the infected fruit gathered during the season, and it would soon be stamped out.

116. You say it would take three years to get rid of the pest. Could it be got rid of entirely?—I should say, basing my observations on my own experience, that in three years you could reduce it to a minimum, and then you could easily destroy it entirely.

117. You speak from your experience in all parts of the colony. Is it your experience that the moth breeds more quickly in some districts than in others?—No doubt it breeds more quickly in warmer districts.

118. Therefore, that more trouble and care would be required in the North than in the South?—I should say not.

119. Then, it would be just as easy to get rid of it in a warm climate as in a cold one? Would it not require more bandaging and spraying?—Of course, if the orchard is very much infected it would not be so quickly got rid of as in one slightly infected.

120. Does it not follow that where the pest breeds rapidly it is more trouble to keep it under than where it breeds slowly—for instance, in England there is very little trouble with the codlin-moth?—Statements have been made that it does not give any trouble in England, but, according to the latest reports, it is as difficult to deal with in England as it is in New Zealand. In my boyhood's days, when I was in England, there was a small grub, not the same as the codlin-moth, but we had trouble with it, and used to endeavour to combat it. More lately the codlin-moth has been introduced into many English orchards by means of return-cases. I am quoting from statements which have latterly been published with regard to English orchards.

121. Then the codlin-moth does breed badly there?—Yes, according to late reports.

122. Perhaps you will tell the Committee whether the English Government are introducing an Orchard and Garden Pests Bill?—I cannot say, but I think the County Councils have taken the matter up lately, and that instruction is now given in orchard-work by men who travel through the various districts and lecture.

123. While we are on this point of clearing infested orchards, would you state what it would cost to do so in the Waikato district, taking an average?—If you can show me the orchard I can give you an estimate, but I cannot give one for all the orchards there, as I have not seen some. There may be one there that has had clean cultivation, no weeds, trees properly pruned, and spraying and bandaging efficiently carried on; and then there may be another orchard which has been neglected for the last twenty or twenty-five years and in which a great deal of preliminary work would have to be done before taking other precautions, and these are things which the average orchardist does not understand.

124. I ask this question because I understand you have lately visited Auckland. Were all the orchards you saw in this bad condition?—I do not mean to say that you have not good orchardists there and orchards that are fairly looked after, but I am sorry to say that the majority of the men who are engaged in orchard-work there are men who have no experience.

125. My object is to get some idea of what it would cost to clean a badly infested orchard in the Auckland District?—I have already stated that an orchard could be sprayed several times during the season at 10s. an acre; but if it is an orchard that has been neglected then there is a necessity for a better system of cultivation and of reducing the trees to such a size that you can spray them efficiently and very cheaply.

126. Do you think the codlin-moth can be kept down by bandaging only?—In time you would very considerably reduce the number of moths.

127. Would it be effectual alone?—Well, it has been abandoned in almost every part of the world. I strongly recommend combining spraying with bandaging.

128. In your opinion it is necessary to both spray and bandage?—Yes; the object in covering the tree with pest-destroying mixture is to reduce the number of larvæ as much as possible.

129. I understand you to say that while you were in Auckland you did not see a single proper spray-pump?—I said that while I was in Auckland I had great difficulty in finding a good spray-pump.

130. You did not find one?—I cannot say that I saw a really good one in the Auckland District; not a really good one like a Bean Company's manufacture.

131. In what part of the Auckland District?—I took a trip through the whole of the North, and I also went through the Waikato with Mr. Johns.

132. You made one remark, and I do not know what it meant: you said that the Auckland people did not feel inclined to work; I would like an explanation of that remark?—What I mean is this: the idea among the greater portion of the Auckland fruit-growers is that an orchard does not require to be cultivated, and that the trees do not require to be pruned and cleaned. Well, that simply means no work, and is a very easy way of getting a living; but that idea is exploded. If you want a good fruit you can only get it by a thorough system of cultivation, by pruning the trees and looking after the soil, so that the trees may not be exhausted by bearing heavy crops.

133. Are you aware that a large number of orchardists in the Auckland District used to spray continuously and gave it up as useless?—The statement has been made that the Auckland fruit-growers have been systematically spraying, but in visiting a great number of orchards there during the last summer I found that there was very little spraying done, and that the settlers did not know the chemical components of the materials for spraying purposes, and they would not even seek information.

134. I suppose you are aware that the Government had an Inspector or Instructor there for some years?—Yes; and some of the Auckland growers have profited by that; but there are others who thought that they required no instruction, and that there was nothing to learn in connection with fruit-culture but simply to plant the trees and leave them to Nature.

135. You have looked at this Bill?—Yes.

136. Clause 6 reads, "Every occupier of any orchard shall at all times do whatever is necessary in order to eradicate disease from such orchard, and prevent the spread thereof." Supposing you were an Inspector and deemed it necessary to get rid of the codlin-moth from an orchard, what instructions would you give to the owner?—I should advise him to spray, to bandage, to gather the infested fruit and not throw it on the ground simply but destroy it, and to cultivate properly.

137. How long would it take to cover the infested fruit?—That would depend upon circumstances. Sometimes, owing to the weather, the spray would be more efficient than at other times. In a well-regulated orchard, where you wish to reduce the number of larvæ, it is a good plan to keep your trees cut down as low as possible, and then you can get at all parts and destroy the larvæ without difficulty.

138. But in a large orchard would it not be almost impossible to get at all the fruit where it is badly infested?—There is a difficulty in getting at it on standard trees; but the modern orchardist does not grow standard trees. He keeps them as low as he possibly can to the ground.

139. Would you cut the standard trees down?—I would reduce them as much as possible; then place your spray-pump in the bottom of a wagon or stand, so that you could get on to the stand yourself also, and then you could spray everything, as they do now in America.

140. Is it not possible to reach every portion of the tree with a long rod?—In spraying with Paris green you want to spray downwards as much as you can.

141. But as long as you get at the top of the tree it is all that is necessary?—Well, if you are on a stage you can see all the work that you have done, and know whether you have got at every part of the tree.

142. *Mr. Massey.*] You made a statement that insect-pests can be totally destroyed by spraying: do you include the codlin-moth?—I will repeat the statement that I made: that, as far as I am aware, there are no insect-pests or diseases due to fungus in New Zealand orchards which cannot be easily controlled and ultimately stamped out with remedies recommended by the Department of Agriculture if properly applied in conformity with the instructions contained in the second edition of leaflet No. 10.

143. My question is whether you include the codlin-moth?—I include the codlin-moth, which can be controlled by spraying and bandaging.

144. I want to know what mixture should be used?—There are various mixtures combined with arsenic. Paris green, if obtained absolutely pure, is efficient for the purposes recommended. I have already explained to the Committee that in several districts where complaints have been made that the Paris green has damaged the foliage I have found that it was owing to the inferior grade of Paris green used. It has been adulterated, or they have not got rid of the free arsenic, which is soluble. Pure Paris green is insoluble, and is merely suspended in water; in the inferior grades the arsenic is soluble. Owing to the fact that Paris green until quite recently has not been manufactured as an insecticide, and consequently contains some free arsenic, it is therefore recommended that a certain proportion of lime should be used with it, to prevent the burning of the foliage.

145. How often is spraying necessary?—It would depend upon circumstances. In the first place it would depend upon the weather. Supposing you were to spray to-day and it came on to rain heavens hard in the night, you would have to spray again next day.

146. What is the method?—The first spraying should take place just after the petals have dropped from the trees.

147. How many years were you in business for yourself as a fruit-grower?—For several years, combined with farming; but, apart from that, my whole life has been devoted to fruit-culture.

148. What I want to know is whether you made fruit-growing a success?—Yes.

149. In what district?—Whangarei district and elsewhere.

150. What varieties of fruit had you?—Almost all kinds.

151. Apples?—Apples and pears, and almost every description of fruit.

152. How long ago was that?—Some few years.

153. How many?—It is fourteen years since I was in business for myself; but, apart from that, I have been managing some of the largest commercial businesses in the colony.

154. Was there codlin-moth at that time?—I think I was about the first to point out the damage that the codlin-moth would do in the Auckland District, and suggest a remedy.

155. Did you have it in your own orchard?—Yes; very badly in one portion. It was introduced by the change of fruit-cases.

156. Did you manage to get rid of it?—Yes.

157. What prices did you receive for apples at that time?—The prices varied. They were somewhere about the prices of apples to-day.

158. Is there no falling-off in the prices?—Perhaps never in the history of the colony have they been fetching better prices than they are at present. I am sure that there is no difference between the price of apples now from what they were sixteen or eighteen years ago.

159. You do not think that there were better prices then than there are now?—There were first-class prices then and there are first-class prices now.

160. You say you know the Auckland District pretty well?—Yes.

161. And you have said that you never saw a good spray-pump there?—I did not say that. I said I had a difficulty in finding one.

162. What is the best kind of pump?—I believe the best spray-pumps are of the same class as the Bean pump.



163. Have you visited Port Albert?—Yes; last summer.
164. And you did not see a good spray-pump there?—No.
165. Not in Mr. \_\_\_\_\_ place?—I saw one there which was supposed to be good; but I could not say that it was good.
166. Did you visit Otahuhu?—Yes.
167. And saw the orchards there?—Yes.
168. And you did not see a good spray-pump there?—No.
169. Not at Mr. \_\_\_\_\_?—No.
170. Nor at Mr. \_\_\_\_\_?—No.
171. Did you not see a Strawsoniser?—Yes, some years since; but it is a very different thing. There is nothing like a good spray-pump, and the first requisite is that there should be a large air-chamber. You can then pump properly and at the same time economize your material.
172. I want to finish with this Strawsoniser: why do you object to it; why do you not think it is as good as a spray-pump?—Of course, the Strawsoniser is adapted for spraying, but since the manufacture of proper spraying-pumps it is not used.
173. Where did you see the Strawsoniser at work?—At Otahuhu.
174. You saw it in use?—Yes; and I have used one myself.
175. Did you visit Tuakau?—Yes.
176. And you saw no good spray-pump there?—No.
177. Not at Mr. \_\_\_\_\_?—No.
178. Do you not think that he treats his orchard properly?—Well, he has a better idea of fruit-growing than a great many who profess to be fruit-growers.
179. Does he not profess to be a fruit-grower?—No.
180. Have you been to Mr. \_\_\_\_\_ place?—Yes.
181. And what do you think of that: did you see any codlin-moth there?—I saw them in thousands. I think I might safely say that the apples were lying under the trees in tens of thousands with the codlin-moth in them.
182. How long ago was that?—During the past summer. Of course, I can give you the reasons why.
183. I have only one more question to ask you, and it is whether you can tell us what is about the proportion of the total acreage in the Auckland District under cultivation as orchards as compared with the rest of the colony?—I could not tell you that exactly, although I know almost every orchard throughout the colony.
184. *Mr. Flatman.*] What is your opinion with regard to the use of cases? Is it prudent to use cases a second time for the portage of fruit, or do you think that it would be instrumental in distributing various pests?—I should like to see a law passed which would prevent cases going back to the orchard again—in fact, the most reliable and go-ahead men are now using nothing but new cases. Using cases a second time has been one of the chief agencies in distributing the codlin-moth throughout the country, and unless that practice is stopped there is no doubt it will continue to do so.
185. *Hon. the Chairman.*] You would prevent the use of a case twice over?—Yes; I would prevent its being returned to the orchard from which it came.
186. Or to any other orchard?—Yes.
187. We understand from questions put to you that you have been in the Auckland District, and that you have been in other districts as well?—Yes; I have been through the chief fruit-growing portions of the colony.
188. Has it been patent to your notice that the people in Auckland have been less diligent in working their orchards than they are in other provincial districts?—In visiting their orchards I simply felt quite down-hearted to see the neglected condition of many of those orchards. I complain of the fruit-trees that have been put into places which are totally unsuited to the varieties which men have chosen to plant.
189. Do you think that other districts have chosen varieties suited to the particular soil—do you think that they have been more careful in choosing the variety suitable to the soil, and in keeping their orchards clean?—To a certain extent they have.
190. Would you recommend that the fruit-growing districts of Auckland should be exempt from coming under the provisions of this Bill?—I think that is the wisest course at present; but I think there will be a time when they will be only too glad to come in together with all the others.
191. Would you recommend that their fruit should be distributed all over New Zealand?—Not in an infested state; the Bill prevents that.
192. Why would you recommend that the people of the North should be exempt from coming under the provisions of this Bill?—I think the northern people have pretty well moved heaven and earth to prevent any Bill of the kind passing, while the southern people want some measure which will improve the condition of the industry. If the Auckland people do not want the Bill carried, and are determined to distribute their infested fruit throughout New Zealand, you must simply prevent them doing that, and let them stand outside the provisions of the Bill.
193. You infer, then, that Auckland can govern New Zealand in this respect at the present time; we might just as well allow thieves to prosecute their trade in Auckland, and prevent them from doing so in other places. Do you think that, in the interest of New Zealand generally, Auckland should be allowed to stand out?—Yes, under present circumstances.
194. Why?—I have just said that the Auckland fruit-growers are determined, if possible, to prevent the passing of any Bill of this kind.
195. That is no reason why they should stand out. I thought probably you had some reason which would be beneficial to them, and at the same time not detrimental to the rest of New Zealand?—I do not think there is anything to complain of if they are allowed to stand out, while



the southern fruit-growers will get a measure passed which I am in hopes will be of great assistance to them, and which otherwise would probably not be passed on account of the opposition of the northern people.

196. *Mr. Syme.*] Was not this Strawsoniser first intended for agricultural purposes and not for fruit-trees?—It was first made to spray turnips, and afterwards it was adopted for spraying hop-plantations, but since the invention of the spray-pump that has been found a much more efficient instrument for the purpose. I have myself had considerable experience in spraying, and have used the Strawsoniser, but I could not compare it with the spray-pump.

197. *Mr. Massey.* Is it not possible with the Strawsoniser to spray the tallest trees?—Not so efficiently as if you do it with a proper spray-pump.

198. How many men would be required to work the spray-pump to which you have referred?—One man could do the work. The pump is automatic in its action.

199. *Mr. Wason.*] I understand that the chief objection of the Auckland fruit-growers is that they are not allowed to send their fruit to other parts of the colony, and that therefore they are cut out of the market. Now, what is in my mind is this: would it not be possible for the Auckland fruit-growers to press their own apples at home in their own district, and send down the juice of the apples for the manufacture of cider? That is where the great market for their fruit is, and they send down these infected apples to Canterbury, and it causes a very bad feeling. Would it not be possible for them to press the apples and send down the juice?—First of all you must bear in mind that to make good cider it must be made from prime quality of fruit. You may press the juice from Auckland infested apples and send it down, but it will be an inferior juice; and you cannot make good cider from such ingredients.

200. Because of the codlin-moth?—Yes; the apple loses its liveness, and you cannot make good cider from such apples. You might press the inferior apples and send the juice down to Canterbury, and that, of course, would prevent the introduction of the larvæ of codlin-moth; but you could not make good cider from that juice.

201. I gather from what you say that you understand practically the manufacture of cider?—Yes; I have had considerable experience in its manufacture.

202. And that it is absolutely impossible to make good cider out of apples infected with codlin-moth?—That greatly depends upon the condition of the apple. If you are to make good cider it must be from good, sound, mature apples. If apples are infested with the codlin-moth they drop off in an immature condition, and you cannot make good cider out of such apples.

203. *Mr. Pickering:* If the Committee will allow me to make an observation, I should like to say that I purchased three hundred fruit-cases which came from Napier; and, after examining them carefully, in one case alone we found twenty-one codlin-moths and in a second case we found twelve. I have made up my mind that I will not purchase return-cases again.

204. *Mr. Buchanan.*] You are aware, no doubt, Mr. Blackmore, that some districts of the colony suffer from late frosts, and that as a rule there is a difference of 10 deg. between the thermometer when placed on the ground and when it is placed higher up. You know also that fruit-trees, and especially apple-trees, suffer from the frost. If, then, for spraying purposes, you cut the trees down so low that the fruit is near the ground and convenient for spraying, would not these late frosts be apt to cut off the bloom?—I do not know of a district in New Zealand where late frosts are experienced which would injure the fruit. Of course, you understand that, although that is the rule, if a few trees are planted in a low-lying piece of ground and close to the ground, they might be touched by the frost.

205. Do you recommend cultivation in connection with getting rid of these pests, including the codlin-moth?—The more thoroughly you cultivate and the cleaner you keep your orchard the more easily will you be able to combat the pests. That is my experience.

206. Has anything been found as a specific cure for what is known as the apple-blight?—That is due to a parasitical fungus. I think that Bordeaux mixture, or lime, salt, and sulphur will cure it.

THURSDAY, 11TH AUGUST, 1898.

Mr. W. JOHNS examined.

1. *Hon. the Chairman.*] What is your profession?—I am a fruit-grower and farmer.
2. Where do you reside?—At Te Awamutu, in the Waikato.
3. Will you state to the Committee what experience you have had in fruit-culture?—I have had some thirty years' experience.
4. What experience have you had in dealing with fruit-pests, and especially with the codlin-moth?—During the last six or seven years I have had considerable experience in combating fruit-pests, and more especially the codlin-moth. When the codlin-moth first made its appearance in the district we thought that we could very easily eradicate it, or, at any rate, stop it from giving us much trouble.
5. What means did you use?—We used spraying and bandaging, the only means which were then thought effectual—in fact, some years ago we thought that it was a thing which could be easily eradicated. For some years I sprayed the trees thoroughly about six or seven times in the season, at intervals of about a fortnight. In some years I found that the effect was notably good, but in others again I might almost say that the codlin appeared to improve in health on the spraying. On the other hand, bandaging has always had a beneficial effect; it has always had a tendency to check the moth; and that is the means which I have used during the last two or three years, showing the futility of spraying. I can only look upon spraying as a useful adjunct in checking the codlin-moth. I have the testimony of nearly all the fruit-growers in Auckland to the same effect. There seems to be a unanimous opinion as to the result—that is to say, that spraying is more or less ineffective.

6. And you have found bandaging good?—It has been invariably attended with beneficial results.

7. Has the practice which you have followed in your orchard been generally the practice throughout the district?—Yes, and not only in my district but in others. I think the practice followed in the Waikato district has been generally followed throughout the North. The practice of spraying, and spraying vigorously, too, was followed to a great extent up there; but of late years it has been abandoned, and they have had the same results as I myself obtained.

8. You are one of the accredited delegates to represent the Auckland Fruit-growers' Union to give evidence here?—Yes. I may say our union represents practically the entire fruit-growing community of Auckland Province. We have nearly all the associations affiliated to us, and we represent fully five hundred growers. I trust the Committee will bear in mind that I am speaking as a representative of five hundred fruit-growers, and that I am not appearing here merely as a person who is only giving his own personal experience. I have been appointed, together with Mr. Sharp, who will also give evidence before you, to tell you the opinions and the experience of all these fruit-growers who, I may repeat, are unanimous on the subject. It is wonderful the unanimity which prevails there on this subject. I do not think that in the whole of the Auckland Province there are more than two or three men who have arrived at a different conclusion.

9. Then you have read this Bill?—Yes.

10. Do you approve of it?—Not at all.

11. Will you tell the Committee what you think will be the effect of it if it passes into law?—I think if it became law at present it would simply have the effect of ruining the fruit industry in the North—if for no other reason than that it puts too arbitrary power in the hands of the Inspectors. If that law were passed and an Inspector came round and saw a sign of disease in an orchard he could simply close the gates and prevent the man from using any of the fruit, whether it was good or not.

12. But there is an exemption for Auckland?—I know there is an exemption for Auckland, but that very exemption prevents the export of fruit from Auckland, while other trades, which really have introduced the pest there, are allowed to carry on. Moreover, the measure can at any time be put in operation in any district on the application of the County Council, which is frequently very largely composed of men who have no knowledge of fruit-growing. I am not saying this as anything against the County Councils, but it is a fact that at any time a Council composed in this way may consent to have the Act brought into operation. I do not say that they would do this, but they might. Then, again, there are no definite remedies proposed by the Bill for combating this pest. It might be sticking-plaster or Epsom salts for all we were told or know. Nothing is said about how we are to experiment, or what we are to do, and we are merely told that we have to do it. We feel that it is a matter of utter impossibility to comply with the provisions of the measure as it is at present drawn up.

13. What do you suggest?—I am anxious, and I feel sure all orchardists are anxious, that there should be a measure which would improve the industry, and we believe that if there were compulsory bandaging it would be found beneficial in all parts of the colony. There is an absolute consensus of opinion on that point in our district. If the orchardists find that they can derive a benefit from any remedies proposed they will not only be prepared to use them but they will be very glad to use them. I am certain that the northern fruit-growers would be pleased to see lazy and indolent men punished who will not take steps to keep the moth in check by any means they have at their disposal.

14. Your objection, then, is that there are no remedies specified?—Yes; and we decidedly object to spraying. We had found it so unsatisfactory that we do not use it now. With permission of the Committee I should like to read two or three extracts from letters from Auckland fruit-growers. We only quote the experience of growers who have spent their lives practically in the pursuit of fruit-growing; therefore the Committee may rely upon it that their testimony is of special value. Mr. Beloe, of Pukekohe, who is an experienced fruit-grower, says, "The season throughout has been a most unfavourable one. In the spring nothing but perpetual gales of wind and hail, which marked and destroyed a great deal of fruit, and which continued long after blossom fell, so it was impossible to spray at the proper time. Before the gales ceased the egg of moth had hatched and entered into heart of apple, so spraying was of no use; and that is the only time that spraying is of any use." Both Mr. Beloe and myself, and many others, found that spraying all the apples in a large tree is practically impossible. Any one who has studied a heavily laden apple-tree knows that the fruit hangs in clusters, and to reach every portion of the fruit would be impossible, unless, indeed, it were practically submerged. I am sure no man has been able to spray every portion of an apple-tree in its later stages when the fruit is mature. But even if the spray does reach every portion, we have found it useless, and the result has been most disastrous to the tree. The strength of the chemicals never can be accurately ascertained, and when the operation is over we may find the tree is almost denuded of foliage. At any rate, we have found that the tree has lost a great deal of vitality, and consequently in two or three years it might not bear an apple. The effect of the chemical on the foliage, even when it is mixed with lime, is fatal. I have tried lime with all varieties of chemicals to which it is supposed to act as a counter-agent. I have tried the mixture for spraying in my orchard with all degrees of strength, both with lime and without it, and I find the pure arsenic of commerce to be more efficacious when applied with the lime. But the remedy by spraying has been found so ineffectual that nine-tenths of the Auckland growers have ceased to spray. I have here, also, the testimony of Mr. Hutton, the late president of the Fruit-growers' Union of Auckland, and he, too, is very emphatic in his opinion that spraying is useless. I have with me, also, the opinions of all the affiliated associations, comprising nearly every fruit-grower in the Auckland District. I wish, too, to point out that Auckland contains very nearly half the fruit-growing area of the colony. Therefore, when you hear the evidence of the men whom they have sent here as their delegates you

hear the testimony of nearly half the growers of fruit in New Zealand. I hope and trust the Committee will at least give due weight to that fact, because we know that several gentlemen have given evidence as single fruit-growers, and we think that the Committee will no doubt recognise that their evidence is simply the evidence of individual growers. I will read two or three extracts from the communications from the affiliated associations. Here is one from the secretary of the Warkworth Association, dated the 9th July, 1898: "That this association is of opinion that the Government should not introduce compulsory legislation at the request of three or four experts unless their request is supported by the fruit-growers generally, expressed through their local associations and central unions." There are some more here which I think I must read, because they bear very directly on what we say. This is Mr. Hutton's opinion:—"Clause 16: No compensation for destruction of fruit-trees and vines—abominable, especially as the principle of compensation is admitted as regards stock." As the Committee are no doubt aware, under the Stock Act compensation is allowed. Well, these fruit-pests are very much in the same position. They have been introduced by the general public, and not by the growers, and we feel it greatly that the whole cost of eradicating the pests should be thrown upon us when it is the general public who have introduced them. The pests have been introduced by the fruit-consuming portion of the public, and they are responsible for their introduction, and not the fruit-growers. We cannot help thinking that it would be very unjust that orchards should be liable to be destroyed without any compensation being given. We think that at least half the cost should be allowed, which would still leave the owners great losers. We think that if an orchard were so bad that it must be destroyed, then at least half the cost should be allowed, because the owners have had no control over preventing the introduction of the pests, which have been really introduced by the public. Mr Hutton also says, "Owing to the ineffectiveness of arsenites as a whole in destroying codlin-moth in the Auckland Province, owing to the constant showers necessitating spraying possibly every week during fruit-season, and consequent damage to the vitality of the trees, arsenites should not be used here." This gentleman has sprayed nearly every week during one season. He was a most enthusiastic believer in the present means of destroying the pest. He introduced a Strawsoniser, and every up-to-date appliance he could get, and he sprayed continuously, so that his evidence is not that of a novice, and he has found that it has been entirely ineffective.

15. *Hon. Mr. McKenzie.*] Your association or union objects to diseased fruit-trees or cuttings being introduced into your district from the Australian Colonies?—Oh, yes, we certainly object to that. We suffer to an intolerable extent from that.

16. They would introduce some disease which you have not got?—Yes, a great many.

17. And you would desire them to be kept out of the colony?—Most decidedly. The pests we have already are quite enough to deal with.

18. In giving evidence you stated that you thought this Bill should not apply to any portion of the colony. Do you not think that the fruit-growers in the southern portions of the colony have just as much right to object to your fruit going there as you have to Australian fruit going into your district?—I might reply that I was also in a clean district, and did not receive the codlin-moth from an infested district. My orchard is isolated, and it got infected through sugar-bags being thrown in. I think that only shows the futility of isolation. The pest may be checked, but it is simply impossible to keep districts clean that are already clean, owing to the difficulty of preventing the introduction of the pest, as it may be brought in any way.

19. Supposing you were a fruit-grower in the South Island without the codlin-moth, would you not think it was wrong and very unfair to have the codlin-moth introduced from the Auckland District?—There is not the least doubt that it is a very great hardship that any people should suffer from the action of their fellow-colonists in any respect. If we could do this without doing irreparable injury to those engaged in the industry it would be quite right, but I fail to see how it is going to be accomplished, unless we make quarantine districts throughout every district in the colony.

20. You see that by section 3 Auckland is to be exempt from the operation of the Bill?—Yes; but that places us at a great disadvantage in some respects. It affects to leave the Auckland portion of the colony out from the operation of the Act, but it still prevents Auckland having free intercourse with the rest of the colony. Auckland has a very large trade with the South, and it receives from the South large quantities of oats, grain, and other produce. There is a natural interchange of goods between us in the nature of barter. We send fruit and timber in exchange for the southern products.

21. You desire to have permission to send diseased fruit to the South in exchange for their sound oats and grain?—By no means. It would be so if we sent them diseased fruit, but we do not do so.

22. Then there is no harm done by this Bill: if your trade is in clean fruit you can send it anyway?—It happens this way: that a portion of a case of fruit may contain a moth or two. It is impossible to prevent that.

23. Then, you object to be allowed to "stew in your own gravy" up there, and wish to spread it over other parts of the colony?—We do not wish to hurt any of our fellow-colonists, whether North or South, but we fail to see why the southern people, who may have sent the codlin-moth up to us in Tasmanian fruit, should escape altogether. I have seen cases of such fruit that was sent up from the South which were infected with the pest, and yet we are called upon to stand the consequences.

24. Of what value will your orchards be to you if you have the pest?—I have a letter here which will show you what the value of our orchards is. It is the report of a Wellington dealer with regard to apples sent from the Port Albert district, and it says that the fruit sent from Auckland is better in quality, and that the trade from there is increasing more than from the South.

25. Is that diseased fruit?—I will read the report :—“ Port Albert apples : It may be interesting to note that for some weeks past considerable consignments have reached us from this district, and in every instance they have succeeded in commanding top-market rates. Growers in this district pay particular attention to packing, sorting, and classification, and, in spite of the length of time occupied in transit, the fruit invariably opens up in first-class order, and the quality leaves nothing to be desired. It is extremely unfortunate for growers in the Port Albert district that greater facilities are not afforded for the transmission of their produce. The freight-charges incurred between Port Albert and Auckland are almost prohibitive, and represent fully double the cost of carriage from Auckland to this market. If similar care were taken, and equal quality of fruit produced in other districts throughout the colony, profitable results would accrue to growers and more satisfaction to the selling broker.” He quotes the prices obtained, and I think that is a pretty good answer to any question with regard to the value of Auckland fruit. (See Appendix A.)

26. But that is sound fruit, and not diseased fruit?—I trust no one will be under the impression that we only grow diseased fruit in the North.

27. If you did nothing to your orchards to keep them clean, and let every one do as he likes, how long would it be before your orchards would be valueless?—I have been fruit-growing for thirty years, and have always done my best to keep my orchard clean, and I suppose others would do the same if their livelihood depended upon it.

28. You told us that you took steps to keep the pests down—that you sprayed for many years and found it no good, but that bandaging was good ; but supposing that every one could do as he liked, what then?—I say that very likely the compulsory bandaging of trees would be beneficial.

29. Then, so far as that provision is concerned you approve of the Bill?—Yes.

30. You want to confine it to bandaging?—At present, and until we find an absolute specific, or anything approaching to a good specific. Our interest would then clearly lie in adopting that.

31. Did you notice that this Bill provides that you need not do more than bandaging if that is sufficient?—If all the other portions except one with regard to bandaging were omitted we should not object to it.

32. All you have to do is to try and eradicate the disease. It does not say that you must eradicate it, but if you spray or take other means to eradicate the disease that is all that is required?—Well, it would be something like giving you an order to cure yourself of cancer. The two things are parallel, and it is not fair to saddle us with the cost of attempting to do it.

33. Then you are quite contented to go on as you are at the present time?—I have already stated that we think bandaging, if it were made compulsory, would have a very beneficial effect—if it were made compulsory throughout the colony.

34. *Mr. Massey.*] With reference to a question which the Minister has put, do you think that any part of the colony is clean from the codlin-moth?—Very few indeed. Only to-day I was just looking at some apples in one of the stores on Lambton Quay, and I noticed traces of the moth in one particular case, and yet they told me that it came from a clean district. There was scale also, which is just as much a pest as the codlin-moth, only that it is more easily kept under control. The quantity of scale on those apples was simply abominable.

35. Do you think that Auckland apples can enter into competition with apples from other places—do they fetch as good prices?—The salesman's report which I have read is an answer to that. It says that the Auckland fruit will compare favourably with that from any other part of the colony.

36. Supposing this Bill becomes law and Auckland is exempted from the provisions of the Act, but is prevented from exporting fruit to other parts of the colony, what would be the effect on the price of fruit in the South—say in Wellington?—It would have a very injurious effect. All the apples of an inferior grade, which are now sent down to the cider-press, would be stopped, in all probability.

37. *Hon. the Chairman.*] Has the codlin-moth no effect on the cider?—It may have. Possibly it may have a good effect, but it would certainly be an illustration of “stewing in one's own gravy.”

38. *Mr. Massey.*] Supposing Auckland people were prevented from exporting good apples to the South, would it increase the price to the consumer in other parts of the colony?—I am sure it would. It would certainly increase the price as it would diminish the supply.

39. Another point in connection with the operation of this Bill : do you think it would increase the expenses of the Agricultural Department if it became law?—They tell us in the North that we are already saturated with Inspectors, and, moreover, they are Inspectors who have not proved themselves in private business such a success that they should be able to teach us what we ought to do in any shape or form. It is to me a remarkable fact that those who have been already selected are not those who by what they have done in private business have shown that they are able to lead us in any shape or form.

40. The men who have been selected are men who have not been very successful in their own business?—Yes.

41. Do you think that the moth has been as bad in your district this season as it has been usually?—No.

42. In some years they are not so bad as they are in others?—Yes.

43. According to the opinion expressed by yourself and other fruit-growers with regard to the treatment of the codlin-moth, would you consent solely as a matter of experiment to hand over to the Agricultural Department a badly infected orchard for experimental purposes?—We have endeavoured to point out that that is the only way to lead to a successful method of dealing with the difficulty, but no notice has been taken of our recommendations. They have invariably shirked it.

44. Have you seen any orchards in other parts of the colony?—No ; only in the Auckland Province.

45. *Hon. the Chairman.*] You have no knowledge of the South?—Not myself.
46. *Mr. Massey.*] You told us that you had thirty years' experience: were you in business for yourself during the whole of the time?—Yes, I have been, and am still.
47. Have you made a commercial success of fruit-growing?—I may say I have always succeeded in making a decent livelihood out of it. I own a farm in conjunction with the orchard, and I find that the orchard is much the more profitable.
48. How many years is it since the codlin-moth was introduced into the Auckland District—I mean approximately, of course?—About twelve or thirteen years.
49. You are fairly positive about that?—I am certain it was not distributed through the Auckland Province before that.
50. Had it made its appearance there before 1873?—I have no doubt it had made its appearance long anterior to 1873. I saw Tasmanian apples in the sixties which were infected with the codlin-moth, but I cannot say to what extent, for I was not at that time taking any great interest in fruit.
51. How long is it since you have been troubled with the pest?—About twelve years.
52. With regard to the prices of fruit, how are the prices of apples now as compared with what they were fifteen years ago?—They are nothing like the same in value.
53. Are they lower in price now than they were then?—Oh, yes.
- 53A. Can you give us any idea of the relative values?—I may say, by way of illustration, that about ten years ago I sent a shipment of fresh butter and apples to the Auckland market, and the apples realised more per pound than the butter, although the butter was of a fair average quality. I think we got 6½d. or 7d. a pound for the apples.
54. *Hon. the Chairman.*] And now?—The average price now would be 1d. or 1½d. per pound for them in the Auckland Province.
55. Can you make apples pay at an average price of 1d. a pound?—Oh, yes.
56. *Mr. Massey.*] You said you represented five hundred fruit-growers: are these all living on growing fruit?—Yes, and a fairly successful living—some of them a very comfortable living.
57. You think that if this Bill passes into law in its present form it will injuriously affect those five hundred?—I think it will put half of them out of the running.
58. You told us that up to a few years ago spraying was commonly practised in Auckland. Do you know Mr. Blackmore?—Yes.
59. Would you be surprised if you were told that he said he had great difficulty in finding a good spray-pump in the Auckland District—that he had not seen a proper spray-pump there?—I think if the question only related to spray-pumps we should not have any difficulty. I use a pump with two hoses, and with nozzles for every sort of spray, working it with two men and a boy. It is as up-to-date a machine as you can get. I am sure the pumps are not the bar to our successfully spraying.
60. How many acres of orchard have you?—About 15 acres.
61. Have you experimented with more than one spray-pump?—Yes; I have had several.
62. Have you any now?—I have two; a small one and a large one.
63. Have you known Mr. Blackmore for many years?—Indirectly I have known him for many years. I have not been personally acquainted with him, but I have known him by repute for ten or twelve years.
64. Since he has been employed by the Agricultural Department?—Much before that.
65. Has he visited your place?—Yes.
66. Do you think he is thoroughly qualified as a fruit expert?—Well, theoretically, perhaps so; but judging by records it may be different. I like to taste the fruit or anything else first, and then I can best judge as to the actual value of either plant, or tree, or animal. I think that, judging by the past records of Mr. Blackmore that have been given to me, he is a great deal more efficient as a theorist than he is as a practical man. I do not think that at all events he is a practical man.
67. Have you any reason to believe that he is prejudiced against Auckland and Auckland fruit growers?—I may say that everything he says tends to show that he considers that every man in the Auckland Province is neglecting his orchard; and that he does not take into account that we not only supply Auckland with fruit, but that we have been sending fruit to outside markets. That shows whether we have neglected our orchards, when Mr. Blackmore says we cannot grow fruit there.
68. In your capacity as president of the Auckland Fruit-growers' Union I suppose you have a personal knowledge of many orchards in the Auckland District?—From personal acquaintance I know the bulk of the orchards there.
69. Then you can tell us whether Mr. Blackmore's opinion is correct that the Auckland orchards are neglected?—I do not think the orchards are more neglected in Auckland than they are in other parts of the colony. The reports of the output from the Auckland orchards affords the best answer to such an assertion.
70. Have you found orchardists in the Auckland District who will not go in for hard work, and that they are an easy-going set of people?—My hands will show you whether I go in for hard work or not. For many years I have often been working eighteen hours a day instead of eight; and, in fact, the same remark applies to all the Auckland fruit-growers.
71. You consider that they are as hard-working, as a class, as any other class in the community?—I can say that they work very hard.
72. In talking of the spray-pump you mentioned the Strawsoniser. Have you seen it at work?—On one occasion, only for a short time.
73. Do you think it is as effective as a first-class spray-pump?—Yes, if it is used on trees that are easily got at on both sides.
74. Would you tell the Committee the difference between the Strawsoniser and the spray-pump?—The Strawsoniser works automatically, and sends the spray in almost every direction. It

can be directed at almost any ordinary angle; it works very thoroughly, and sends the spray, according to the nozzles used, in such a way as to reach any part of an average tree.

75. Is it driven by horse-power?—Yes.

76. Is there a saving in working with the Strawsoniser as compared with the spray-pump? Would it be more economical?—If used on a large scale it is certainly more economical; but it is not so good in the case of a small orchard.

77. How many men does it take to work it?—Two.

78. How many men does it take to work the spray-pump?—I have three men on mine.

79. Which would do the most work?—Oh, the Strawsoniser—very much more.

80. By way of comparison, would the Strawsoniser do 10 acres as quickly as you could do 1 acre with the spray-pump?—I think fully as quickly.

81. *Mr. Lang.*] It has been given in evidence by a witness that bandaging three or four times in the season was sufficient. Would you tell the Committee what would be the result if orchardists in Auckland only removed their bandages three or four times in the season?—My experience is that they must be removed every eight days. If not, a great many of the pupæ will escape, turn into the moth, take wings to themselves and fly away.

82. Then it is necessary to remove the bandages very frequently, and especially in hot weather?—Yes.

83. Another witness gave evidence that during March and April, at an Auckland auction, local fruit was selling at 1s. 9d. a case, while Tasmanian apples were selling at 11s. Are you aware whether Tasmanian fruit would go to Auckland in March or April?—I am quite certain they would not. Not only would the date be unsuitable to them, but at that time also the Auckland growers can do much more than supply their own market.

84. We have had evidence that the pest can be kept down by spraying. I ask you, if you had been giving evidence before this Committee seven years ago, whether your evidence would have been in that direction?—Yes; I may say that I was an enthusiast in favour of spraying in orchard-work. I had been farming to a great extent as well as looking after an orchard, and when the moth attacked us first I thought its subjection would be easy; therefore I would have advocated any measure of the kind then. If my experience did not teach me differently I should continue spraying, which was then the special mode of dealing with the pest.

85. Since that time you see that spraying is useless as far as Auckland is concerned?—After three or four years' very constant work I came to the conclusion that it was utterly impossible by spraying to keep the moth in subjection.

86. I would ask you, as a practical fruit-grower, do you know any means by which you can eradicate the codlin-moth in an isolated orchard, and make the orchard clean?—Not on strict commercial lines to make it pay, but the thing can easily be done. The remedies we know of can be made to do so by being applied without ceasing until no moth exists. It is therefore practicable to do so, but it would not pay.

87. *Hon. the Chairman.*] You would not spray?—I would certainly use the spray as an adjunct in the early stages.

88. *Mr. Lang.*] I want to know whether there are any means by which you could eradicate the pest in an isolated orchard short of cutting down the trees?—The most effective way would be to eradicate the orchard.

89. Supposing a way was found for eradicating the codlin-moth, would you object to legislation with regard to it?—Personally, I should be very glad. It would mean a great deal to me if a reliable specific were found; and I think the same remark would apply to all the fruit-growers with whom I am acquainted.

90. If the Government took charge of an orchard and could prove, by any reasonable means, they could eradicate the pest, would you object to compulsory legislation to carry that out?—I think we should all be only too glad to follow the method pursued in such a case, assuming, of course, that it was commercially payable.

91. I understand you to mean that if the Government would show you how to clean your orchard you will gladly follow the method proposed?—Quite so; and I feel sure all the growers in the North would be very glad if such a method were discovered.

92. I take it from your remarks that you object to clause 6, which says: "Every occupier of any orchard shall at all times do whatever is necessary in order to eradicate disease from such orchard, and prevent the spread thereof." It is putting it very vaguely: they do not say what is to be done, and it is left to the sweet will of the Inspector?—That is the great objection to the Bill as drafted.

93. I understood you to say there was a large and growing trade with Wellington and other parts of the colony, but more especially with Wellington, for fruit from Auckland?—Yes; a salesman reported that to me to-day.

94. It is a growing trade?—Yes. Subsection (3) of clause 4 says that the Governor may "Prohibit, either absolutely or except in accordance with regulations under this Act, the bringing into any specified portion of New Zealand from any other portion or specified portion of New Zealand of any specified plant, fruit, fungus, parasite, insect, or other thing which in his opinion is diseased or is likely to spread disease." Might they not, under that provision, shut out the Auckland Province from shipping any fruit to the South?—It would be certain to have that effect.

95. If brought into force it would prevent even clean fruit being shipped to Wellington?—As I read the Bill, I feel sure it would.

96. You gave an opinion just now with regard to Mr. Blackmore. I suppose that was the opinion of the Auckland fruit-growers—that you spoke as representing those growers?—I was only expressing the opinion of the Auckland fruit-growers, but I am in entire concurrence with them.

97. That is, that the Auckland fruit-growers as a body have not a very high opinion of Mr. Blackmore's capability as an Instructor?—They have commissioned me distinctly to lay that before the Committee.



98. That is not merely your own opinion, but comes from the fruit-growers generally?—Yes; from the fruit-growers in the Auckland Province.

99. Mr. Blackmore, in his evidence, stated that he was growing apples for market purposes at Whangarei fourteen years ago. Have you any personal knowledge with regard to that?—I have no personal knowledge, but I have heard it said so.

100. Probably there would be no codlin-moth in that district at that time?—There would certainly be none at Whangarei at that time.

101. So that he would not then have practical experience of growing fruit for market purposes as far as the codlin-moth is concerned?—It was not necessary in those days to have any special knowledge of how to combat the codlin-moth.

102. Is it your opinion that the orchardists of Auckland as a body have used every means they could to get rid of the codlin-moth?—I have already related my own efforts in that direction. It meant bread and butter to myself and to the other growers. We have to earn our livelihood by growing fruit in a great measure, and it was to our direct interest to use every possible measure to keep the moth under.

103. How many orchardists does the Auckland Union represent?—Probably the agricultural returns would enlighten you better on that subject than I can. We have five hundred members on our books at the present time, and we indirectly represent more than double that number; that is to say, small orchardists who do not think it worth while to take an active part in the matter.

104. *Hon. the Chairman.*] All growing fruit for sale?—Yes; I think they all grow fruit for sale.

105. *Mr. Lang.*] Among the number of fruit-growers in Auckland is it to be supposed that none of these men will do the best in their power to keep down the pest, or do you suppose that generally they would be unwilling to do anything to keep down the pest in their own interest?—As their livelihood depends upon it, I should imagine they would do anything they could to keep it down.

106. *Mr. J. W. Thomson.*] Your remarks about spraying had reference wholly to the codlin-moth. Do you not spray for other insects?—Yes. I have just shown my finger-nails to the Chairman to prove that I spray not only for all insects but for fungoid pests as well.

107. You spray all your trees; you say that the spray does not affect the codlin-moth, but you spray all the trees for other insects?—Well, the spraying is not so systematic for other insects. Nevertheless, spraying has been necessary and has been efficacious in combating the other insects and also the fungus.

108. What chemicals do you use in spraying?—We tried arsenite of lead very often with the leech, but of course the principal remedy is white hellebore, and we also use Bordeaux mixture. That is a preparation of lime and sulphide of copper. We use them for various diseases in trees. In winter time we spray with a very strong solution, both to keep down the insects and the fungoid pests. We spray for scale-insects and to kill the germs of any fungus, and also for those insects which might hibernate in the ground. We very often saturate the roots of the trees to kill such insects as the aphid and their like which might be concealed there. We find spraying for all these forms of pests very satisfactory and effective.

109. We had it in evidence that the codlin-moth could be altogether put down in three years: do you think that is at all possible?—Well, sir, I tried for about five years, and I am about as far off as ever from achieving that result.

110. *Hon. the Chairman.*] Did you destroy the fruit? We have had it in evidence that the remedy was spraying, bandaging, and destroying the fruit?—Personally, I have not found that destroying the fruit has much effect. Most practical orchardists will tell you that it is a very trifling remedy. The larvæ drop to the ground before the fruit does, and they conceal themselves in the ground, and spin their cocoons, and go through the usual processes. Therefore, although picking up the fruit may lessen the pest, it is a very small aid. It is by no means a remedy.

111. You do not think it possible to exterminate the pest in three years?—I feel positive that whoever gave that evidence must be labouring under a misapprehension in saying that you could eradicate the pest in that time. You could reduce it to a small compass, but the question of cost is something. If the witness gave a clear account of the profit and loss it would show that there would be a considerable loss.

112. Are you acquainted with legislation in other countries bearing on the subject of fruit-pests?—In reading over the results of legislation elsewhere, we have found that there the conditions in respect to insect-life are very different from those which exist with us. In the North our climate is much warmer, and it is much harder to combat these pests than in other places. I think that is one of the reasons, and the principal one, why we cannot subdue the moth in the North.

113. I ask that question because your evidence goes to show that there should be no legislation, at least at present, with respect to this industry; but if there is legislation in other countries it would almost lead to the belief that legislation must be effective in those countries, but you say that you have no special knowledge of the legislation in other countries?—No; I have never made it a special study, but I am always interested in the methods adopted elsewhere in combating pests.

114. If there is legislation in other countries you agree that they have good grounds for believing that it would be of use?—There is no doubt the efforts made elsewhere to subdue these pests have been more or less effective. In Tasmania the results have proved that it has been fairly effective; but then the climate has been a great aid to them in keeping down the codlin-moth, as against the climate of the North of New Zealand.

115. *Mr. Duncan.*] You stated, in reading a paragraph out of one of those notes which you have produced, that spraying could not be carried on in the early part of last year; but you did not give the reason why?—I may say that it was the weather. There were exceptionally heavy showers every day and every week during the critical period when the moth is hatching.

116. Then spraying is useless in rainy weather?—It is rendered of very little use.

117. *Mr. Massey.*] Do you mean that the rain washes the chemicals from the trees?—Yes.

118. *Mr. Duncan.*] Then the efforts made have apparently been nearly useless, especially with regard to the codlin-moth?—Well, some years in the North they are fairly effective.

119. Then, further on in your evidence, you dealt with the matter of the introduction of the moth, and said that it is abominable that the northern fruit-growers should be saddled with the eradication of a pest that is introduced by the general public?—Yes, in noticing that there is no compensation allowed to fruit-growers for any injury they may sustain by this proposed Act; and that is the principal reason why the injustice is so apparent, and so forms the principal ground of injustice, because they not only have the trouble of eradicating the pest, but because that pest has actually been introduced into the country by the consuming public. I speak more especially in reference to the codlin-moth.

120. Then you attributed a great deal of the trouble to the southern people sending Tasmanian apples to Auckland?—I have no doubt, as far as I can learn, that the codlin-moth came from Tasmania.

121. Why do you fix that upon the southern people, and say that they are to blame for fruit which is carried in steamers from Tasmania to Auckland?—Mr. McKenzie pointed out that only sound oats and grain were sent from the South to the North; and then I said that it has resulted in diseased fruit being transhipped from the South to the North, and *vice versa*, and hence we have got the codlin-moth.

122. I do not think you can blame the southern people for introducing the codlin-moth, because if they had done so they would have been the first to suffer?—Their more rigorous climate would prevent the moth from increasing as it does in the North.

123. How can you blame the southern people for wishing to prevent the introduction of this moth into their orchards?—I have not blamed the southern people.

124. You consider that if Auckland is quarantined it will mean ruin to the fruitgrowers? You said that they have more fruit than they can consume in Auckland at the present time?—Yes; and rightly so. I say that we have more fruit than we can consume, and that is a sufficient reply to the statement that the Auckland orchards are not productive. We do not send bad fruit away. The testimony of the Wellington salesman to-day contradicts such a statement as that, for it says that amongst the best apples were those which came from Auckland.

125. They may have come from some clean orchard?—We have no clean orchard in the district.

126. You do not mean to say there are no clean orchards, small or large, in the Auckland District?—I am not aware of one.

127. Would you take it upon yourself to say that there is not a clean one there?—I will take this much, at least, upon myself to say that the apples which stock the market in Wellington came from an infected orchard.

128. Was there any trace of the codlin-moth or other disease on those apples?—I could not possibly answer that question, because I did not see the apples.

129. Then, you state that the men who have been selected as Instructors or Inspectors have not been successful in private life?—It has been said to me, and I have no reason to disbelieve the statement, by people who have lived where these Inspectors have resided that such is the case. My own personal knowledge of these Inspectors only tends to strengthen that opinion.

130. Were they of dissolute habits or anything extra in that way?—Oh, no; anything but that. I feel sure from my knowledge of the present Government Inspectors that their personal conduct is above reproach.

131. Then, perhaps, they embarked in an industry they did not understand when they were unsuccessful?—That is the only conclusion I can arrive at.

132. There is an old adage that the best man to set to catch a thief is a thief; so that a man who has been unsuccessful in a particular trade would be the best to catch others. Do you not think that you could select a good Inspector from an unsuccessful Auckland fruit-grower?—I would not recommend it.

133. You would not recommend an Auckland man in any way?—I would not recommend an Auckland man to try and carry out an impossibility.

134. You said that you own a farm as well as this 15 acres of orchard. What is the size of your farm?—About 300 acres.

135. And you said that you devoted your attention mostly to the orchard, because it was most profitable?—I did not mean to imply that I neglected my farm. I merely said I gave a greater portion of my attention to the orchard because it was the more profitable of the two.

136. What class of farm is it: is it an agricultural farm?—It is a fairly good farm. I have grown thirty-five bushels of wheat to the acre. I also graze cattle, and have the ordinary routine of a small farm.

137. *Hon. the Chairman.*] What fruit do you grow, and what is the result from the 15 acres of orchard?—I may say that I make a really handsome profit. (The witness stated the figures for the information of the Committee.)

138. What fruit do you grow?—Principally soft fruit. I have practically discarded the apple-growing on account of the codlin-moth. I had fifteen hundred apple-trees, but they are reduced to two hundred and fifty. I may say that we have a blight which is very injurious in the Waikato, that is the root-fungus.

139. Do you cultivate the land in the orchard?—Yes, a great deal.

140. And you think it is of great importance in keeping out the blight?—No; the result of the last three years has shown that comparatively uncultivated orchards and those allowed to lie in grass are not so troubled with the codlin-moth as the orchards that are highly cultivated.

141. What fruit do you grow?—Principally peaches and plums.

142. Why did you change: did you change under the advice of any one?—No, my own experience led me to change. The root-fungus is very hard upon apples in the Waikato. It attacks the trees and sometimes causes them to die there.



143. You did not change from any suggestion made by a Government expert?—No; I never knew one of them until afterwards. This change was made five years ago.

144. *Mr. Duncan.*] If everything else were equal, are not soft fruits more payable than apples?—Yes.

145. As a rule they return well?—Yes, very well.

146. *Hon. Mr. Montgomery.*] You are in favour of compulsion?—Yes; I am in favour of compulsory bandaging, and removing the bandages frequently.

147. But only to the extent of bandaging?—Only to that extent.

148. But anything beyond that you think should not become law?—I do not think at the present stage it would be beneficial. It would rather be hurtful to the industry as a whole.

149. You are against it becoming law?—Yes.

150. Even against the compulsory spraying of trees for scale?—That is an entirely different question. Are they in the Schedule to the Bill—because I am not in a position to speak as to the efficacy of spraying for some of the things mentioned in the Bill.

151. My question is, are you in favour of or against compulsion in the matter of spraying?—For any fruit whatever?

152. For fruit of any sort?—No; if there is a defined remedy for any particular pest—a remedy that is easily applicable.

153. Then you are only in favour of compulsory bandaging, and against any other compulsion?—Yes, against any compulsion, except the compulsory bandaging of trees.

154. *Mr. Lang.*] Your remarks with regard to Government experts only refer to them in their public capacity, and not privately?—Oh, yes; their public capacity only.

155. Is it not a fact that there is less codlin-moth in the Waikato this year where spraying has been almost entirely discontinued?—The codlin-moth has been reduced more than two-thirds in the Waikato, and a half further north, and spraying has not been attended to in any shape or form.

156. *Mr. Kirk.*] To what do you attribute that?—Captain Broun, our Entomologist, says that it is due to a natural enemy.

157. What is the reason for the fungus that you describe?—I cannot say. With regard to the moth, he reported that there are parasites in New Zealand which attack it, but whether they do any good or not I cannot say.

158. You say that the Strawsoniser is much more economical than a thoroughly good spray-pump; but that only refers to very low trees and to trees which are planted sufficiently wide apart to enable the machine to be driven between them?—Yes.

159. In most orchards the Strawsoniser would be out of place?—Yes.

160. *Mr. Massey.*] Do you know the codlin-moth-eating bird?—I have been told by a German resident that they have it at Home, and they say that the bird does a considerable amount of good there; but I cannot learn anything more of its habits.

161. *Mr. Kirk.*] Are you aware that German experts strongly recommend the use of spraying?—That may be, but the conditions are different.

162. You stated that in the early stages you would use spraying. If you had a new orchard, and the codlin-moth appeared, would you use both bandaging and spraying under those circumstances?—I do not know that it would be a very great success, but I would put every possible effort into operation.

163. Spraying and bandaging in the early stages?—There is no doubt that if the weather were suitable for spraying, one spray in the early stages would be beneficial.

Mr. H. E. SHARP examined.

164. *Hon. the Chairman.*] What are you?—I am a nurseryman and fruit-grower.

165. Where do you reside?—At Waikomiti.

166. What experience have you had with respect to fruit-culture?—I have been thirty-five years growing fruit at Waikomiti.

167. What kinds of fruit?—Principally apples.

168. What experience have you had in dealing with pests, and especially with the codlin-moth?—The codlin-moth is the pest we have to combat. I have had it since 1886; that was the first year I had it at Waikomiti. Of course, we then tried bandaging and all sorts of remedies.

169. With what result?—None practically. The bandaging keeps them down a very little. The spraying, whether with arsenic or Paris green, has had no effect whatever.

170. And the only means you take to check this pest is bandaging?—Bandaging and picking out the infected fruit.

171. You do not believe in spraying?—No; it kills the trees. It does no good in the Auckland District. The climate does not suit it.

172. Have you read this Bill?—Yes.

173. Are you in favour of it?—I am not.

174. Will you give the Committee some reason for disapproving of the Bill?—No, one could make a living by growing fruit in Auckland under the restrictions contained in the Bill.

175. Why? What do you particularly object to?—There are a great many things that I object to. There is one thing, that it puts too much power in the hands of the Inspectors. If they were practical men it would be another thing; but under this Bill if an Inspector has a "down" on a man he can just go in and destroy his orchard.

176. There being no compensation?—None.

177. But it does not include Auckland?—I am aware of that; but any County Council can put it into force if they choose.

178. You have no objection to it as applying to the rest of the colony?—If the other parts agree to it, I do not object.

179. You are aware that under the Bill you cannot send away infected fruit from Auckland?—Well, I am not a shipper; I sell all my fruit privately, or in Auckland. The fruit may go to the South with a little blight on it; we cannot send everything perfectly clean unless we grow blight-proof varieties, and then we can send them anywhere.

180. *Mr. Massey.*] With regard to exempting Auckland from the operations of the Bill, what do you think would be the effect of that on local prices?—It would simply glut the market, and the fruit would not be worth taking in.

181. If you were prohibited from exporting fruit to other parts of the colony, would not the effect be to increase the price of fruit in the South—say in Wellington?—Certainly; anywhere where fruit is now sent from Auckland.

182. You said something about Inspectors not being practical men?—Yes.

183. Do you know Mr. Blackmore?—Yes.

184. Is he not a practical man?—I have not known him as a practical fruit-grower. He has never been able to make a living by fruit-growing.

185. Have you known him for many years?—For about twenty-five years or over. He was gardener for Stannus Jones when I first knew him.

186. During those twenty-five years did he do any business for himself?—Not that I am aware of.

187. Did you know him the whole of the time?—Mostly.

188. Would it be a surprise to you to hear that he gave evidence before this Committee to the effect that he was in business at Whangarei for seven years as a fruit-grower?—Certainly, I should be surprised.

189. Would it be possible for him to be a fruit-grower at Whangarei for seven years without your knowing it?—I do not think so.

190. Do you know orchards in other parts of the country?—No; only in Auckland.

191. You told us that spraying is ineffective. Is it ineffective on account of the moist climate?—Yes, certainly.

192. On account of the chemicals being washed off by the rain?—Yes.

193. *Hon. the Chairman.*] Do you get very much rain in Auckland?—Yes; in the summer. I am living under a range of hills, and the showers come down over them.

194. *Mr. Massey.*] Do you approve of the powers given to Inspectors under the Bill?—No; they are too arbitrary.

195. Would you support a proposal to hand over a badly infected orchard to the Agricultural Department for experimental purposes?—Yes; I have been advocating that for years. I may say that the Auckland people are quite prepared, if the Government take an orchard and can profitably clean it, to follow the method they adopt.

196. You think that is the best thing under the circumstances?—That is the only remedy I can see.

197. With regard to prices, could you tell us what is the difference between the price of apples now, and what they were, say, fourteen or fifteen years ago?—They were much better then; about twice as good.

198. Do you mean that they only fetch half the price now?—Yes.

199. I suppose you would be surprised if Mr. Blackmore gave evidence that the prices are as good now as they were fourteen years ago?—I have not found it so, and I am taking in fruit every Tuesday and Friday, from the 1st January to the end of June; and it is mostly apples.

200. I gather that you do not approve of the Bill before the Committee?—Certainly not.

201. And your principal objection to it is that no specific remedies have been given in it for combating the codlin-moth?—Yes, that is the chief objection.

202. *Mr. Lang.*] I understand that you are a delegate from the Auckland fruit-growers?—Yes.

203. Mr. Blackmore mentioned that he had not seen a good spray-pump in Auckland. Have you any idea whether spray-pumps were used generally?—Every sort of spray-pump has been used that has been brought under their notice.

204. He also said that the Auckland people did not seem inclined to work. Have you any experience of whether they work long hours or short?—I can only speak for myself, and I can say that I am at work from 5 o'clock in the morning till 9 at night.

205. Then his remark would not apply to orchards with which you are acquainted?—Not to any in the district round me. It certainly would not apply to Waikomiti.

206. It was stated by Mr. Blackmore that he was growing fruit for the market fourteen years ago, at Whangarei. Would not that be before the codlin-moth appeared in Auckland?—I did not know the codlin-moth till 1886, twelve years ago.

207. What I wish to arrive at is this: while Mr. Blackmore was engaged in fruit-growing for himself he would not have to combat the codlin-moth pest?—I do not think so; I am not aware that it was here at the time.

208. You spoke of the power given to Inspectors under clause 6. Supposing they were appointed, would it not be possible that each Inspector would have an idea of his own of what should be done?—Certainly; every one has an idea of his own.

209. I think you said that spraying was injurious to the trees?—Yes.

210. *Mr. J. W. Thomson.*] You said that spraying killed the trees: do you mean spraying for the codlin-moth or all spraying?—Spraying for the codlin-moth.

211. You do not mean that ordinary spraying kills the trees?—No; spraying with arsenic kills them.

212. *Mr. Kirk.*] You say that spraying with arsenic kills the trees: are you sure the chemicals were pure?—I never killed my own trees, but I went and looked at other trees, and they were sprayed with Paris green, but I do not think the chemicals were not pure.

213. Is it not an argument that the chemicals were not pure, as they killed the trees?—Certainly not.

214. Why did they not kill some trees and kill other trees?—They sprayed every week, and perhaps that is the reason. I have sprayed from 3 o'clock until 9 or 10 at night. I would not spray the next day, but others did, and the result was that the foliage and fruit were cut off.

215. You mean that if a shower did not wash off the first application they put on another?—Yes.

216. What spray-pump did you use?—I only used mine for three years, and then sold it. It was a good pump.

217. Was it a locally made pump or an imported one?—An imported one. It cost £4 10s.

218. Did you cultivate the ground?—I cultivated for some years, and then left it alone for several years.

219. Which period did you find left the best results: that during which you cultivated or when you left it in grass?—The years when it was left in grass. For some years it has not been cultivated and the moth-pest has not been so bad. The moth is generally worse when the ground has been cultivated.

220. You have no doubt as to the purity of the chemicals, and you only think that there has been too great application of them?—Yes.

221. It has been told us that in the early stages of the codlin-moth it would probably be desirable to spray in addition to bandaging, but only in the early stages?—It would be no use in my locality.

222. Supposing your orchard was affected with the pest in a very slight manner, do you consider it would be an advantage to spray?—No.

223. Do you know that Mr. Blackmore was in charge of an orchard at the Pa?—Yes.

224. What was the size of the orchard?—It was a small one.

225. Was he successful in getting rid of the codlin-moth?—I do not think there was any codlin-moth then. I do not know for certain, but he must have been free from it at Whangarei.

STATEMENT from the AUCKLAND FRUIT-GROWERS' UNION, handed in by Mr. W. JOHNS.

WHY do we object to the Orchard and Garden Pests Bill, 1898?—

Because it is too stringent and arbitrary, and if passed in its present form and put into operation would prove harassing and injurious to fruit-growers in different parts of the colony, and especially in the Auckland Province.

The Bill seems to have been drawn up without regard to the orchards at present established, and which are an important source of income to the owners, and, through them, to the whole community. There is also a disregard shown, or no provision made, for the varied conditions, climatic and otherwise, under which the orchardist has to carry on his work. True, the Bill exempts part of the Auckland Province in respect of codlin-moth, woolly aphis, and apple-scab, but the relief from its operation under those heads is only partial, as subsection (1) in section 3 (*a* and *b*), nullifies the exemption.

Auckland grows much more fruit than can be sold profitably in its own markets; and, seeing that we in Auckland are large consumers of grain, potatoes, &c., from the South Island, it is surely not unreasonable that we should be allowed to send fruit into southern markets without such harassing and prohibitive conditions as are contained in the Bill.

Whilst we allow that to a certain district claiming freedom from the moth-pest (which freedom we question whether any province in the colony can claim) it may seem unfair to consign large quantities of fruit, such as is used for cider-making and making fruit-pulp, to that district, we yet consider there is no necessity for such stringent measures to be taken in regard to fruit cased up for retail purposes, as it does not pay to send inferior and badly moth-ed fruit. And, no matter how careful a packer of fruit might be at the time of shipment, there would always be the danger of one or two fruits showing signs of infection before reaching the consumer, and the liability to some one of a fine up to £50, which we consider very unreasonable.

In Mr. Ritchie's annual departmental report, 31st July, 1897, we are given to understand that the fruit-growers in Canterbury are the agitators for this legislation, and in Mr. Kirk's annual report, 1897 (latest available)—see page 121—he enlarges upon the same thing; the cause apparently being that for some years it has paid some Christchurch cider-makers to buy apples from other parts of the colony. The best remedy for that would be to send the cider-makers to Auckland. That would be preferable to Canterbury growers, with only 2,800 acres, trying to force an objectionable and injurious law upon the remaining growers in the colony, whose working-area is upwards of 20,000 acres—see agricultural returns, 1897, showing that the Canterbury orchard areas are spread pretty evenly over the whole province, and hence not the same danger.

The area under orchard in Auckland is not far from being equal to the whole of the other provinces combined. The figures published in the Agricultural Department's 1897 report show (1897 returns, and 1898 not yet to hand) Auckland has 9,533 acres, including vineyards, and the whole colony 22,291 acres, including vineyards. The 1898 returns are not yet available. If the total area be put down at giving an annual return of £10 per acre, it will be seen that a very considerable total is made up—viz., £222,910, of which Auckland represents, say, £95,330, and should not be hastily interfered with upon unreliable data. It must further be remembered that these returns do not include areas under  $\frac{1}{4}$  acre, which are a part of the majority of homesteads throughout the colony.

If this Bill were proceeded with in its present form, becomes law, and is put into operation a great deal of this revenue will be lost to the colony, and many settlers deprived of an important addition to their incomes. Moreover, the cost to the colony of putting such a measure into operation would be enormous; a large number of paid Inspectors would be required, the expense of their travelling

great, and, after all this had been incurred, we should still find a goodly number of small plots growing pippin fruits remain undiscovered by an Inspector, and in the end the regular orchardist, who would have to stand most of the brunt, would be no better off than before, but have suffered ruinous loss in the meantime.

If some proved specific remedy for the codlin-moth had been found there might be some excuse for drastic measures, but the now generally expressed opinion of large and old-experienced fruit-growers in the North is that, taking climatic conditions into consideration, the use of Paris green, &c., has been condemned, because it has been proved to be ineffectual in eradicating the pest, and is believed to be injurious to the health of the trees: in fact, there are numbers of instances in the North where contiguous orchards not sprayed with Paris green have had more clean fruit than those adjoining which have been so sprayed.

It has been stated by some persons that it is possible to stamp out the codlin-moth as they have stamped out the scab in sheep, but there is no analogy between the two. For the one there is a certain remedy, and the pest can be cured without destroying the carcass, but if the same drastic measures were taken to wipe out the moth-pest the carcass would have to go, for a practicable specific for its entire riddance has not yet been found, much to the disappointment of a great many old and tried orchardists.

Seeing, then, that departmental officials would be likely under the Bill to insist upon the use of such ingredients for spraying purposes (see powers to Inspector for cleaning out disease) in opposition to the opinion of growers who run their orchards for a living, we consider it would be very unfair to put such power into their hands. With persistent diligence in the use and regular examination of bandages, clearing the ground of wind-falls, and picking off infected fruit from the trees the loss from codlin-moth may be largely reduced, but we are convinced that it cannot be stamped out without hindering entirely the whole of the trees from bearing any fruit for a year, and that, of course, is impracticable.

We approve of compulsory clauses which would hinder the introduction of pests from outside the colony, as it is generally understood that New Zealand is as yet free from some bad pests known to orchardists, such as the Queensland fly, San José scale, Curculio, &c. We approve of the Bill applying to the whole colony in regard to phylloxera, as the areas affected are limited, and it may be kept under control, but we certainly think that where it can be shown that vines planted out and producing crops are a source of income compensation should be allowed. We strongly urge that provision should be made for compensation for the destruction of trees which are permanently planted in an orchard if there is any possibility of the Bill passing in its present form.

Taking the 1898 Bill seriatim:—

Section 2: We consider that powers to include any other disease, given to Government in Council, should apply only to pests likely to be introduced from outside the colony.

Subsection (3), (*a* and *b*): Taken in connection with the interpretation clauses, would make it too risky to send apparently clean fruit from Auckland.

Section 4 and subsections (1) to (6) are approved.

Section 8: An over-officious Inspector might harass an orchardist.

Section 8, subsection (3), is an outrageous and cruel clause; an owner would have to stand helplessly by, and could not move a cabbage or anything else.

Section 9, subsections (2), (3), and (4): The powers of Inspector are too arbitrary, unless compensation is provided for.

Section 10: Approved.

Sections 11 and 12: An Inspector has the power to ruin a settler.

Section 15: The words from "or be liable to any damage, &c.," should be struck out—in fact, the whole section.

Section 17: Very unjust, and should be struck out, and compensation to owners for loss provided for.

Section 18: Will worry and harass all parties concerned in trading, especially if section 21 is acted upon.

Section 25: Subsection (1) gives too great power to Inspector.

As to the pests named in the schedule, we see no necessity for American blight being included, as many of the best varieties grown are subject to it, yet which, if on proper stocks, pay the grower, and do no one else an injury. The only remedy is to grow only blight-proof varieties; but that would deprive the public of some of the best varieties grown. There need be no Act of Parliament to deal with this pest. Codlin-moth also should be struck out; if retained an important industry would be seriously injured.

We say, again, taking into consideration the Bill as a whole, and the varieties of ways portions of it, if law, would act to the detriment of fruit-growers, and given that there are sufficient powers in the Orchard and Garden Pests' Act now in force to hinder the introduction of new pests and to deal with phylloxera, we see no reasonable grounds for the present 1898 Bill, and would urge that it be withdrawn, or that American blight, codlin-moth, and apple-scab be withdrawn from the schedule. In conceding this you will have the approval of a large majority of fruit-growers in Auckland, where the industry is of such paramount importance, and, we well believe, other parts of the colony as well.

AREA in ORCHARD,  $\frac{1}{4}$  Acre Area and over (from Agricultural Department Returns, 1896 and 1897).

—	1895 and 1896.			1896 and 1897 (including Vineyards).			Increase, 1896 and 1897.
	Acres.	Orchard	Vineyard	Acres.	Acres.	Acres.	Acres.
Auckland ... ..	9,339	Orchard ...	9,255	278	9,533	194	
Hawke's Bay ... ..	756	Orchard ...	975	24	999	243	
Taranaki ... ..	564	Orchard ...	919	7	926	362	
Wellington ... ..	2,987	Orchard ...	3,449	17	3,466	479	
Marlborough .. ...	441	Orchard ...	473	6	479	38	
Nelson ... ..	654	Orchard ...	1,797	3	1,800	1,146	
Westland ... ..	166	Orchard ...	189	5	194	28	
Canterbury ... ..	2,673	Orchard ...	2,874	17	2,891	218	
Otago ... ..	1,782	Orchard ...	1,999	4	2,003	221	

Total orchard and vineyard, 22,291; total increase, 2,929.

1897.—Total for the whole colony ( $\frac{1}{4}$  acre and over) ... { 21,930 in orchard.  
361 in vineyard.  
22,291 acres.

From Mr. G. E. ALDERTON, Whangarei, to the CHAIRMAN of the Joint Agricultural, Pastoral, and Stock Committee, in reply to invitation to give evidence on the Bill in writing.

SIR,—

In reply to the wire inviting me to submit in writing evidence on the above Bill, I have now the honour to submit my views, which I do as succinctly as possible.

I may preface my remarks by saying that there was no greater enthusiast than myself for fruit-growing. I was the first to advocate orange-culture here in the North, and also the first to advocate viticulture, in so far as open-air culture is distinguished from glasshouse culture, but now I would as soon think of erecting a gibbet upon which to hang myself as plant a fruit-tree under the existing law.

I will first address myself to the subject of viticulture, or vine-growing, and show what I have done and how the law has treated me. Some thirteen years ago I made up my mind to go in for vine-growing in the open air. I had noticed that the only vine that succeeded here was an American variety; it appeared to be more robust than the European kinds, which were very subject to fungoid diseases, and became an easy prey to two well-known mildews, the *Oidium* and *Anthracoze*. I placed myself in communication with the Government on the subject, informing them that I intended going to America to investigate the matter of the suitability of American vines for our northern climate. The Government agreed to bear portion of the expenses of the trip on condition that I furnished a report on the result of my investigation.

On my return from America I advised the Government as follows: (1.) That the American vine was pre-eminently adapted to our climate, and being itself phylloxera-proof could be safely introduced. (2.) That the Government should introduce these vines and distribute them to persons wishing to plant vineyards, and by doing this all fears of an outbreak of phylloxera would be guarded against. (3.) To aid and assist the fruit industry the Government should adopt the system then obtaining in California—namely, appoint in each provincial district a horticultural board of the most eminent and best-known fruit-growers, whose business it was to watch over the fruit industry and advise the Government from time to time as to the best steps to adopt to check the spread of insect-pests, and generally as to the best laws calculated to regulate the industry. [The particular point of this system is that the Government obtain without cost the best practical advice on the subject from those who have to make their living out of the industry.]

None of these suggestions were adopted at the time, and I had to fall back on those vines then obtainable in the colony to plant my vineyard. Foreseeing the possibility of an outbreak of phyl-

loxera, I took two precautions to guard against loss. In one vineyard I planted alternate rows of the American and European vines, so that if phylloxera did occur I should merely have to take out the European vines, which when so attacked soon die, and have the American ones, which would not be appreciably affected by the phylloxera, to fall back upon. In the second vineyard I planted lemon- and other fruit-trees among the vines, so that if phylloxera came here I could destroy the vines and still have my fruit trees to the good.

But under the Orchard and Garden Pests Act all my calculations were upset, for it makes no distinction between a phylloxera-resistant vine and a non-resistant vine—that is, between the American and European vine, two entirely different plants, the one having a tough skin, which the microscopical phylloxera-louse cannot penetrate; the other having a soft tissue, which the insect punctures with the greatest ease. Hence when phylloxera appeared in my vineyard (this year) total destruction of the vines was ordered under this Act. Nothing, however, has yet been done in the way of destroying the vines, though I was prohibited from selling my grapes—a crop of about 6 tons, of a market-value of about £150 or £165. (The phylloxera does not in any way affect the fruit; it only attacks the roots of the vines.) The Act not only prescribes that all the vines must be destroyed, it goes very much further than that; it prescribes that the owner must destroy the vines at his own cost; and that is not all: it further prescribes that he must destroy them in whatever manner the Inspector may consider “necessary.” What does this mean? It means this: that an Inspector may order a man to root up every vine and grub out of the soil every rootlet and hair-fibre, however deeply embedded in the ground. This is no exaggeration. This was actually done by Captain Broun, the Government Inspector, in destroying the vines on Horn’s property, Whangarei. The cost must have been enormous, for the men had to dig down several feet in some places and go right under large trees. To destroy the vines on my property by the same method would cost probably a thousand pounds, perhaps more, and if enforced it would simply mean the confiscation of the property. But that is the position I stand in to-day under the existing law: the Inspector is my master; I am his workman. He has more power under this Act than any Judge of the Supreme Court. He can do with my property whatever he considers “necessary.” That is the law. He can order me to destroy these vines; he can confiscate my property; he can ruin me, and I have no redress, no appeal. And yet people can be found ready to affirm that we live in a free country.

The greatest blight that has ever fallen on the fruit industry is not of the bug species. It is the interference of the Government through an army of Inspectors. These parasites are harder to get rid of than all the bugs. The law does not permit us to spray them with their only certain specific—buckshot. I wish particularly to point out that no such drastic and tyrannical law as this Act obtains in any other country in the world, and I am at a complete loss to understand how the Government could ever have been advised to promote such legislation as this. The very vines which I planted as a protection against the phylloxera—the American vine—is the only known protection against the disease, and in all vine-growing countries to-day the various Governments obtain cuttings of this variety of vine to distribute among the growers so as to help them combat the disease. Here, on the reverse, the Government orders the destruction of these very vines. Then, again, vines which I have raised from the American seed, specially to get stock to combat the phylloxera, must also be destroyed by this law. These have taken me ten years to raise, and from them I hoped to obtain probably some new varieties of great value to the country. (This is the manner in which new varieties are usually obtained.) Then, again, in my vineyard where lemon- and other fruit-trees are planted, if the method adopted at Horn’s is repeated, all these valuable lemon and other trees would have to be up-rooted, so that the roots of the vines could be taken from the soil. (I forward photographs showing this vineyard with the large fruit-trees, also one showing the first-mentioned vineyard.)

While the Act makes provision for all this wholesale destruction, it makes no provision for compensation. Surely if a man’s property is destroyed as a protection for the interests of the public at large those for whom the protection is made should pay for it. Compensation is paid in both Victoria and New South Wales where vineyards are destroyed by order of the Government, and there it must be borne in mind that all the vineyards are planted exclusively with the European vine, and total destruction is necessary in any case, for that vine is useless when attacked by the phylloxera. Here the case is different. The law steps in and insists on destroying my American vines, which, though attacked, may live for twenty years, and may even throw the disease off altogether.

This is a matter of very grave importance to the colony; it affects an industry which is eminently suited to our climate, and one that is calculated to settle a large number of people upon the land. Unlike most industries, vine-culture does not require a large outlay of capital, unless, like in my own case, volcanic land has to be prepared at great expense. The poorest soil suits the vine, and the poor man can always start this industry when he has not sufficient capital to stock a farm, and for this reason the matter is deserving of most careful consideration. All that the industry wants is to be left alone, and those engaged in the work of viticulture should not be harassed by the meddlesome interference of crude laws and alleged experts who have no practical acquaintance with vine-culture or phylloxera. Under the present law no one but a lunatic would think of planting a vineyard; it would simply mean placing one’s-self sooner or later in the clutches of the Inspector.

Speaking generally of the existing law and the Bill now before your Committee, one can come to no other conclusion than that the measures have been promoted by professional fruit-growers and Government Inspectors, the one seeking to make the fruit-market exclusively their own, the other seeking work with which to occupy their time. The interest and the welfare of the mass of the people are not considered. Fruit, a most necessary article of food, is made dear by this law, and the poorer classes are deprived of it. Fruit is to-day dearer in New Zealand than it has been for

years, and this is owing to the importation of fruit being practically barred by the insect-laws now being enforced at the different ports. Auctioneers and dealers are telegraphing everywhere for apples, and very soon all sorts of fruit will be at famine prices. The farmer, the small landowner, and the labouring-man with his allotment are to be prohibited by these laws from growing a bit of fruit for themselves because they know nothing of the sciences of entomology—of the thousand and one bugs that infest vegetation, nor of the thousand and one useless nostrums used for the alleged eradication of those bugs. When a man is no longer allowed to plant a few fruit-trees round his house half the charm of home-life will disappear. And what do we get in exchange for this sacrifice? Dear fruit and the destruction of our home-privacy by the spying Government Inspectors, who hang about our back premises as if we were running illicit stills or committing some other criminal act.

#### THE RED-SCALE.

As to the red-scale scare I think, it is merely a bogey. Although I have been importing orange- and lemon-trees from Sydney for over fifteen years, and though I have occasionally, but very rarely, seen the red-scale on the trees, I have never known it to spread here or to cause any trouble whatever. Fifteen years ago, when I wrote the handbook on orange-culture for the Government, red-scale was then causing a great scare in New South Wales, but so far as this part of New Zealand is concerned it never has got a foothold, and I am strongly of the opinion that it never will. Either it is kept in check by a natural parasite or the climate is not congenial to it. Anyhow, Sydney orange- and lemon-trees and Sydney oranges have come here, to my knowledge, for at least twenty-five years, and I defy any one to say that the red-scale has ever proved any trouble. In fact, no scale-insect has proved the slightest trouble here on citrus-trees. [The white or cottony scale, which at one time threatened total destruction to our citrus-trees, has been kept in complete subjection by its enemy, the *Vedalia* ladybird.] To my mind, this red-scale scare is a mere bogey used by interested fruit-growers to exclude citrus fruits from the New Zealand markets, and supported by the genus Inspectors to give importance to their office. Only a few years ago one of these Inspectors started the bogey of the white-ant, and we were told that the houses were being undermined, the blocks of the houses were being honeycombed by this insidious little ant, and the framework of the houses was suffering from dry-rot. This Inspector made the mistake of coming to Whangarei, where his little bubble was pricked. It was shown that this white-ant which he had discovered in the house-blocks was an insect indigeneous to the country, was known to every builder and bushman, and that its ravages were in no sense of a serious nature. If this Inspector had had his own way he would have entirely ruined our timber industry; but that he cared nothing about—he merely wanted to create some importance for his office. I think this red-scale scare is just about the same sort of thing, and it is for your Committee to consider whether merely for the protection of a few citrus-growers in the North the mass of the people of the colony should be condemned to pay an exorbitant, if not a prohibitive, price for so necessary articles of diet as oranges and lemons. I hold that the Government is being badly advised in these matters, and they are being cleverly tricked into passing protective legislation under the guise of dangers which do not exist. Considering the injury this may inflict on the mass of the people I would ask your Committee to give this phase of the question your serious consideration.

In regard to apple and other fruit diseases, I am not qualified to speak about them, my practical knowledge being confined to the vine and citrus fruits. I would merely add that it appears to me that if it were possible to exterminate every fruit-pest to-morrow it is doubtful whether it would be of any advantage, for apples would then be as plentiful as hawthorn berries. There would be a glut of every kind of fruit; no one would be able to make a living out of the industry, and the very man who to-day cries loudest for legislation to check the insect-pests—I mean the professional fruit-grower—would be the first to go down and find his occupation gone. There is nothing in the outside markets of to-day. Californian fruit brought over by the mail-steamers—paying a freight of £2 12s. per ton and 25 per cent. duty—is selling in the shops of Whangarei to-day as follows: 1-gallon tin of peaches, pears, apricots, or plums, 1s. 6d.; dried apricots or pears, 8d. per pound. I hold that the man who goes to the trouble of keeping his orchard clean will receive his own reward. He will produce the best fruit and command the highest market-price. The man who neglects his orchard will be nowhere, legislation or no legislation. Legislation can only make fruit dearer and prevent the poor man from growing his own apples. Neither of these results are to be desired. Finally, I would add, whatever is done with the Bill now before your Committee, I trust you will retain that part of it which repeals the Act of 1896. If all the rest is rejected I should consider it a useful measure.

I have, &c.,

The Chairman, Committee on Orchard and Garden Pests Bill.

G. E. ALDERTON.

P.S.—I estimate the value of my vineyards at from £1,500 to £2,000, as they produce a revenue of £150, which is equal to an annuity costing £2,000.

Memorandum from the POMOLOGIST, Department of Agriculture, to the CHAIRMAN, Joint Stock Committee.

SIR,—

Wellington, 16th August, 1898.

Re *Estimated Cost of Spraying*.—Since my examination before Committee I have endeavoured to arrive at a correct estimate of the cost of spraying per acre with Paris green. I find that I have made a mistake in the evidence given before the Committee regarding the actual cost per acre for a single spraying. The actual cost per acre on spraying only I find to be 7s. 6d. per acre without Paris green, or with, about 10s.

J. C. BLACKMORE.



From SECRETARY, Normanby Horticultural Society, to the CHAIRMAN, Joint Agricultural, Pastoral, and Stock Committee, in reply to invitation to give evidence on the Bill in writing.

SIR,—

Normanby, 13th August, 1898.

I have the honour to acknowledge receipt of communication *re* Orchard and Garden Pests Bill, and should have answered it before, but was away from home.

I am directed by the Committee to say that, owing to this district being so backward in the fruit-growing industry—in fact, almost nil compared to other districts—they do not wish for a moment to pass any resolution or offer advice on what really there has been no experience in in this district, but prefer leaving the other districts to which the Bill is of great importance to deal with it, thinking by so doing that perhaps the most beneficial results will follow, as in the case at issue it is useless offering advice without real practical experiments have been carried on.

I am, &c.,

THOS. LLOYD,

Secretary, Normanby Horticultural Society.

AUCKLAND FRUIT-GROWERS' UNION to CLERK, Joint Stock Committee, Wellington.

FOLLOWING resolution *re* Pests Bill just received from Whangarei: "That, in the opinion of this public meeting of Whangarei fruit-growers, the Orchard and Garden Pests Bill now before the Committee of the House is unjust and arbitrary, and calculated to ruin the fruit-growing industry of New Zealand, and considers it desirable that an Act less stringent in its measures should be drafted and submitted to the consideration of the various fruit-growers associations of the colony before being presented to the House of Representatives.

MACKIE FRUIT-GROWERS' UNION.

WAITAKI FRUIT-GROWERS' ASSOCIATION to CHAIRMAN, Joint Agricultural, Pastoral, and Stock Committee: Answers to questions submitted to the Association.

1. (a.) What experience has your society had in fruit-culture?—The members have had experiences ranging from ten to forty years. (b.) What experience have you had in dealing with fruit-pests, especially the codlin-moth?—The codlin-moth has been here for the past few years, but not spreading rapidly, spraying has kept it in check. (c.) What means did you adopt, and with what success? (d.) Have sprays been generally used in your district, and with what results?—Various sprays have been used. The lime, salt, and sulphur wash has given good results.

2. Have you read the Orchard and Garden Pests Bill now under discussion?—We have considered the Bill seriatim.

3. Do you approve of it, or can you suggest any improvements?—We approve of it, and consider if put in the hands of skilful Inspectors will be productive of much good.

GEORGE BROWNLEE, Chairman.

J. DENNISTON, Secretary.

Oamaru, 9th August, 1898.

Mr. ANDREW HOEY to the CHAIRMAN of the Joint Agricultural, Pastoral, and Stock Committee, in reply to invitation to give evidence in writing on the Bill.

SIR,—

Okara, Whangarei, 10th August, 1898.

*Re Garden and Orchard Pests Bill.*—Your invitation to give evidence on this Bill meets with very little favour in this district, nearly all of our Association being against legislating altogether; just let things rip is about the sentiment here, and mostly through the Auckland District the talk seems to be the same.

For myself I have got more confirmatory evidence this last season of the imperative necessity of a drastic measure for the keeping-down of some of the pests, for I do not think we will ever be able to eradicate them. A good many of my neighbours have not been able to market any fruit in consequence of the ravages of codlin-moth. People who have been saying for years they did not have it when they did not know what it was, for before it got the length it did they must have had it for five or six years to destroy the fruit to the extent it has done. We have had it for about twenty years now, and it has not frightened us yet, but we have done all we could to keep it down. If we had not we might have cleared out long ago. Last season we lost some fruit, but as we had a big crop the loss was not appreciable. If we had lost more pears it might have been better for us, as the dry season caused a lot of small fruit. Even after all our spraying (and we were using the pump for three months) we killed between three and four thousand grubs under the bandages, and since we have killed a good many under the bark of the trees, so I think we will be pretty clear of them next season.

It would have been well if you had included the leach in your schedule. This is an abominable pest, and no one does anything for it but simply keep the trees for nothing else but breeding purposes, especially cherry, plum, and thorn hedges. The thorn hedges ought to be rooted out.

As for phylloxera, the best thing to do with that pest, in my opinion, is to root them out and get resisting stocks as soon as we can get them. Although we are clear of it, we have this season rooted out our Isabella vines as a preventive measure.

As for apple-blight, we are getting done with trees that take it, and there are now enough blight-proof apples to do without blighty ones, and just as good apples, so I see no occasion for any one planting blighty sorts—in fact, a good many of them have died of their own accord. As for the San Jose scale, I do not know what it is, and have not heard of it being in this neighbourhood.



There are some of the clauses rather objectionable. It seems to me it would be better to stop infected fruit than stop sending it altogether, for the North cannot do without getting potatoes from the South, and the South is our best market for first-class fruit. I am no great hand at getting up a thing of this sort, so you must take this as it is mostly experience of over thirty years' fruit-growing.

I have, &c.,

ANDREW HOEY.

From Mr. W. J. CULLEN, Cullensville, to the CHAIRMAN of the Joint Agricultural, Pastoral, and Stock Committee, in reply to an invitation to give evidence in writing on the Bill.

GENTLEMEN,—

Cullensville, 8th August, 1898.

In response to your request for me to give evidence in writing on the Orchard and Garden Pests Bill I beg respectfully to tender the following:—

I have been growing apple-trees over thirty years. My father was the first to grow an orchard in the Nelson Province, and was taught the proper way to grow apple-trees before leaving England. I used to tar my trees with Stockholm tar and mutton fat (equal quantities) to keep off the sheep and hares. They still barked the trees, so I discontinued doing it. I think it had the effect, to a certain extent, of keeping off the codlin-moth. Since the tarring I have protected the trees with manuka. This acts as a bandage too; and periodically I burn them, and destroy all grubs still on the tree, and scrape off the loose bark.

For years I have been making inquiries far and near as to the best means of eradicating the moth, trying to get my information from the most reliable sources. I have not sprayed with any of the so-called insecticides. There are no reasons why I should see that those who, from their knowledge of chemistry, are more competent to do the work have failed. The member for Wairau went to the expense of sending a competent man from Blenheim to Havelock to spray his trees, and, although the work was carried out most carefully, the result was abject failure. This is by no means the only case I could mention. I believe it is the rule that those who do nothing have less moth than those who go to no end of trouble spraying. A man might be engaged spraying very carefully an apple-tree where there is no moth, whilst the hedges, fences, and everything living and dead might contain myriads.

Anything the Government might do to keep new pests out of the colony would, in my opinion, be of advantage to fruit-growers. Either the land is not suitable for growing good cider-fruit or the sorts of fruit are not suitable to the land. Possibly climatic influences might have something to do with the cider being "thin" and without "body"—at least, that is the opinion I have formed of what cider I have seen. The Government would, I think, be doing good were they to collect the best information procurable in Europe and elsewhere on the manufacture of cider generally, also champagne-cider, which is made with sugar-candy, or distribute leaflets to fruit-growers. It might also treat on cider-wine.

With all proper respect to the Government, I consider the Orchard and Garden Pests Bill now before the Committee simply monstrous. All through the Act there is no mention of a specific. As a matter of fact, no specific is at present known. The Government before passing an Act so drastic should be quite sure of a specific, one about which there be no doubt. Such specific, I would suggest, should be (1) simple, (2) easily applied by any ordinary man, and (3) it should not be costly. Scab and codlin-moth are not on all-fours. If a sheep suffers from scab it can easily be put through a proper dip until it is cured. A tree cannot be put through a dip, and, even so, there is no fencing out the moth.

Clause 6, page 3 of the Bill, orders the occupier to do all that is necessary to eradicate pests, yet no mention is made of what is deemed necessary, and no limit to what an Inspector can compel a man to do or the expense to which the Inspector can put him. The Pomologist has told us it is necessary to spray, prune, bandage, clean, cultivate, and burn infected fruit. I will speak of the recommendations in the order named.

*Spraying.*—Mr. Fitch admitted to me that on account of the size of my trees spraying could not be successfully carried out. I said it would cost at the very least the cost of a suitable sprayer. Mr. Andrews, who came with Mr. Fitch, said it would cost £6 10s. I had allowed £3 10s.

*Pruning.*—The theory amongst nurserymen and fruit-growers in England is that once the head of an apple-tree is shaped or formed the less it is pruned the better, and certainly the more I have pruned the more I have found necessary, whilst, too, it has a tendency to produce the white or woody blight.

*Bandaging.*—There can be no denying that all grubs so caught and destroyed can do no further harm, but the little advantage gained is, in my opinion, so out of proportion to the attention necessary and the great amount of trouble, as, after all is said and done, probably not one in a hundred is caught.

*Clean Cultivation.*—A new term for digging and ploughing. I consider that by far too little trouble is taken in planting out orchards in this colony. A man gets a number of young trees grafted one, or perhaps two, seasons before, and without any further preparation plants out his orchard, the planting in most cases being little or no better than "sticking in the trees by the heels." When trees are properly prepared for finally planting out the roots run close under the surface, with only about 4 in. or 5 in. of soil on them. Digging around them for the first few years is of great advantage to the tree, and ploughing is easy, and should be done with care; but to dig or plough around trees planted out twenty years is a very different matter; no one would be foolish enough to run the risk of barking the roots by digging, whilst ploughing would be out of the question. In England, I am told, where dairymen run pigs during the winter in the orchards about their houses the trees bear heavily; the pigs root about the trees and do not injure the roots.

*Burning the Fruit.*—To go to the never-ending trouble and expense of spraying, pruning, bandaging, and clean cultivating the soil, and then to have to burn the infected fruit (which might be all the produce of the trees), appears to me, instead of being practical advice to fruit-growers, to be thoughtless irony, with never a word about what is to pay for it all, or how a struggling fruit-grower is to live or carry on these-operations. In England we used to sell all marketable fruit; all others used to be thrown with the cider-fruit and made into cider.

The action of the Pomologist some time back, leading a deputation to interview a firm of cider-makers, at Christchurch, was deserving of all censure, inasmuch as it unnecessarily advertised the industry to its detriment.

The Bill as it now stands is calculated rather to enslave and crush the individual, and to encourage malicious, vindictive "cranks," who are ever ready to howl for vengeance on their neighbours, than to assist an honest industry. Such men denounce in no measured terms the intolerance of teetotalers; yet in other directions they are even more arbitrary and dangerous, as is manifest in this matter. Without being able to bring forward a tittle of proof that what they wish would be of any benefit to any one, yet they would invoke the law.

I have before now had to work under an Act (the Sheep Act) for which a specific was known. I then had experience more than enough of how brutal, how arbitrary, how high-handed, and offensive an Inspector could make himself, especially where he had come into the receipt of a big salary suddenly, and had an object in view, and now, after giving a large amount of time during twenty-five years of the best of my life, which it has taken me to grow a decent orchard, besides some hundreds of pounds in money, when I contemplate the prospect of having either to chop down my trees or suffer a repetition of the Sheep Act, by having to carry out the provisions of an Act where no specific is known, and no limit to what is necessary to be done, it fills me with intense bitterness and apprehension.

Very respectfully, &c.,

WILLIAM JOHN CULLEN.

FRIDAY, 12TH AUGUST, 1898.

Mr. E. RABBITS examined.

1. *Hon. the Chairman.*] What are you?—I am a bootmaker.
2. Where do you reside?—At Blenheim.
3. You represent the Blenheim Horticultural Society?—Yes.
4. What experience have you had in fruit-culture?—Some twenty-two years.
5. What experience have you had in dealing with fruit-pests, and especially with the codlin-moth?—I have had considerable experience.
6. You have tried to get rid of it; with what results?—I have gone according to the formula issued by the Government, and I may state from my own experience that if the thing were carried out systematically there is no doubt it would be the means of eradicating the pest or of keeping it down considerably; but to make it thoroughly effective it would be necessary that something should be done which would compel others to do likewise. I believe that nothing more than systematic cleanliness and thorough work is required for keeping down this pest. For example, I, having a little freehold and wishing to derive as much profit as I can from the same, do what I can to keep my trees clean, but I have, perhaps, neighbours on both sides of me. I may be surrounded by dirty neighbours who will do nothing, and that is most injurious to me. They will not do anything with their trees because the properties do not belong to them. They are small weekly tenants, and they say, "I have no interest in the place; it does not belong to me, and therefore I am not going to trouble my head about cleaning it or putting down the pest." That is where the trouble comes in.
7. You think that remedies should be enforced?—I think so.
8. Are you in the habit of using sprays?—I am.
9. And of bandaging?—I am.
10. How do you cultivate your orchard; is it in grass?—Certainly not; my orchard is as clean as a newly ploughed paddock.
11. What is the size of your orchard?—About half an acre.
12. Have you read this Bill?—Yes.
13. Do you approve of it?—Yes. There is one little arrangement which is rather vague. It is in clause 6. It says, "Every occupier of any orchard shall at all times do whatever is necessary in order to eradicate disease." I should like to see the words "be compelled" put in after "shall."
14. *Mr. Massey.*] Are we to understand that you make a living out of fruit-growing?—Certainly not; but I have an object in view, that of doing so in the future.
15. In this half-acre orchard what fruit do you grow?—Apples, pears, peaches, and apricots.
16. Have you the codlin-moth?—I could not say that I have at the present time, as far as I can see; but it is there in the season after the fruit is set. It comes, perhaps, from my neighbours. Of course I battle with it. I bandaged and sprayed last year every ten days religiously.
17. Could you give us any idea of how many apple-trees you have got?—I think at the present time I have got about a dozen. I cut down a good many trees and rearranged the orchard, and I was revived with the idea that if I gave the orchard a rest, and a measure of this kind were passed, I should have a show.
18. Do you represent any association of fruit-growers?—I represent the Blenheim Horticultural Society.

19. In your opening statement you mentioned weekly tenants?—Yes; and that seems to me the bugbear in keeping down the pest.

20. Could you give any case of where there are weekly tenants of orchards?—Yes, a great many.

21. *Mr. J. W. Thomson.*] Do you spray for the codlin-moth?—Yes. To give you an idea of the faith I have in spraying, I have just imported a machine which cost me as much as £10. To derive any advantage from spraying it must be done effectually and well. There are a great many different kinds of spraying-machines. You might say that any ordinary garden-squirt was a spraying-machine, but it is not a proper machine for the purpose, and to go into an orchard and use a tool which is not proper for its purpose is simply wasting time.

22. Do you bandage your trees?—I do so.

23. Which do you think is the more effective, spraying or bandaging?—To deal with the enemy properly you must fight it in all directions.

24. We have had it in evidence that bandaging is much more effectual than spraying, what is your experience in that respect?—Well, I say, as I said at first, that to battle with the enemy you must use all the means in your power: for instance, after bandaging your trees it is right enough, for you will catch many grubs. But there are other means by which these grubs conceal themselves. For instance, by accident I found a willow log about the length of this table lying alongside one of my trees with a sun-crack in it. I took it up and split it at the wood-chopping log and I found it thoroughly full of these grubs.

25. *Mr. Duncan.*] Of the codlin-moth?—Yes. It shows that wherever these grubs can bury themselves out of sight it will be the means of harbouring them. Even a dirty fence with leaves lying along the bottom of it will harbour them. Therefore you must use every means to battle with them.

26. *Mr. J. W. Thomson.*] Do you think that injudiciously spraying the trees will injuriously affect their vitality?—The first lot of Paris green that I sprayed with was certainly not a great success; it seemed to me to injure the trees. Then, Mr. Blackmore was round our district some twelve months ago, and I asked him the reason why the trees were hurt, and he told me that it was on account of the brand of Paris green that I had used. So I resolved to use another formula. Last year I used arsenite of lead, and I found that very successful. You can put it on as strong as you like and it will not injure the tree, and not only that, but it will kill other insects as well, such as the pear-leech.

27. *Mr. Duncan.*] You stated that this codlin-moth came, as you thought, from other people: that is, from the small gardens which are in your immediate neighbourhood?—Most decidedly, the pest must come from the dirty neighbourhood to the clean one.

27A. Supposing this table were marked out into sections and I had a section up here, I should be as likely to receive the pest from a section at the other end of the table as from any other?—Yes.

28. Do you not think you had it plentifully yourself when you found it in that willow log that you spoke of?—Most decidedly I had. I am trying to exemplify this: that there is a necessity for clean cultivation. That would not have happened had I known of it.

29. Are you sure that you were not giving a lot to your neighbours?—Fortunately, I found it out before any damage was done.

30. Is it not possible for them to locate themselves in the soil?—No.

31. How do you account for that? You have them living in a log and not in the soil?—It is not the habit of the codlin-moth to live in the soil.

32. *Hon. Mr. J. McKenzie.*] Do you cultivate your orchard?—Yes.

33. You keep it clean and cultivated?—Yes. It is as clean as the top of this table.

34. *Mr. J. W. Thomson.*] You have an orchard of half an acre: what might the receipts be from that orchard—I do not mean the profits, but the net proceeds?—I have taken as much as £25 from it before I was troubled with this pest.

35. But not since?—No. I can assure you of this: that there are people in the district from which I come who will hail with pleasure a measure of this sort being passed, for the simple reason that they are so hopeless and tired of seeing this pest existing that they think it would be less trouble to do away with the trees than fight the pest without protection.

36. *Hon. the Chairman.*] Has a Government expert been in your district much?—Mr. Blackmore was there last year. He paid us a flying visit again this year, but it was much too short, as he was called back.

37. Did his visit give satisfaction?—Most decidedly. I must congratulate the Government on appointing such a gentleman as that, for I can assure you he has opened the eyes of many of us who have gone in for fruit-growing. I imagine that what he has taught us is going to do a great deal of good. It has put a large amount of stimulus and energy into the matter, and if the same system is continued I believe that it will make New Zealand one of the greatest fruit-growing countries in the world.

38. *Mr. Kirk.*] You say that you have a dozen apple-trees: how many trees did you cut back and graft?—I have about fifty-two trees in the garden, and I cut back the others.

39. You have dealt with the codlin-moth in a systematic way?—Yes.

40. And it has greatly reduced the pest?—Yes.

41. Consequently, it has increased your profit?—Yes, exactly so. I should like to state from my own experience my belief that if spraying and cultivation are carried out in a systematic manner, and especially in an isolated orchard, the result must be most satisfactory. I know as a fact that a man living two miles from me has succeeded in saving 90 per cent. of his fruit.

42. Did you use the quantities recommended by the Government?—I got the mixture from Kempthorne and Prosser.

43. That is mixed in the way recommended by the Government?—Yes, I suppose so.

## Mr. J. N. WILLIAMS examined.

44. *Hon. the Chairman.*] What are you?—Sheep-farmer.
45. Where do you reside?—At Hastings, in Hawke's Bay.
46. What experience have you had in fruit-culture?—I have had, outside the ordinary garden experience, which I have had pretty well all my life, during the last seven years an orchard of 10 acres in extent.
47. Have you had experience in dealing with fruit-pests?—Yes.
48. And especially with the codlin-moth?—Not especially with the codlin-moth, because there are so many pests, many of them equally bad.
49. What means have you used to get rid of the pests, and with what result?—For fungus of various kinds I find that blue-stone (sulphide of copper) is the best.
50. Have you ever used spraying?—Yes, for insects. For the scale—and there are various kinds of scale-blights—I find that resin, whale-oil, and two or three other ingredients, which I need not specify, are effective.
51. Do you use Paris green?—Not at first for the scale. Later on, when the proper time comes, I use the Paris green for the codlin-moth.
52. Do you bandage the trees?—Yes.
53. For the codlin-moth at first?—Well, the first thing to do with the codlin-moth is to spray. I spray about the 1st November. Of course, the time would vary in different districts, and it would also vary slightly according with the kind of apple you are dealing with. The commencement of spraying wants to be done just after the fruit is set, and that varies about a fortnight with different kinds of fruit. There is no hard-and-fast rule as to the time at which spraying should be commenced. When you have done one tree it may not be proper to do another. I commence spraying on the 1st November, and put on bands of old sacking, or something of that kind, on every tree. These bands have to be examined every ten days or a fortnight, right up to the very end of the summer. The spray has to be repeated about the middle of November again. Then I spray again from the beginning of December on to the middle of December. The trees and fruit have to be watched, and a man who understands his business should know whether a tree requires spraying or not. I spray again in the beginning of January, and then again in February; and that is the last spraying that will be necessary—that is, for late apples, for the early ones would have been gathered before that. If wet weather comes immediately after any spraying it has to be repeated, for wet weather washes the arsenic off the trees. Speaking generally, if you are fortunate in the weather, five sprayings would be sufficient for late cooking-apples. I think that is enough to say about spraying. With regard to the bands on the tree, they must be examined every ten days or fortnight, and all the grubs destroyed, and the bandages properly replaced. All the apples falling from the trees must be carefully collected and put in hot water or something else that will destroy the grubs. It is also necessary in storing apples to store them in a moth-proof house, for two reasons: if the grub has been very bad (as it will be for the first year or two when proper treatment has been neglected) and the apples are stored in an open building where the moth can get in they will strike the fruit in a most remarkable manner.
54. What is a moth-proof house?—A house in which the ventilation is made with perforated zinc, such as you would use in a meat-safe.
55. Will that keep out the moth?—Yes; it has this double advantage: that if you store apples affected with the grub the moths are imprisoned; when they come out in the spring they cannot get out of the house. I have found that a wonderful benefit. It has also taught me this—it is a curious thing and may not be generally known: that the crop of grubs which are put away for the winter, and which are to supply the succeeding crop of moths for next year, will begin to hatch as early as September, and they will go on hatching till the 31st December. Presumably this last lot was a fresh hatch, but in reality it is not so, and the fact is that the hatching is spread over three or four months. As far as my experience goes, I believe that if a district had a proper system of inspection it would be very useful. I may say we have never had any worth the name yet. I do not know what may be the case in other districts, but my experience is that we have not had an Inspector who has had any knowledge of his duties in this respect. He comes round and asks how your orchard is getting on, and what you have done with regard to the codlin-moth, but, as far as my experience goes, the Inspectors do not teach you anything. Anything I have learned I have learned for myself. I have gained a good deal of information from the Government leaflets, and by following the directions given in them I have been assisted very much; but I have also learned other necessary things which you cannot gain a knowledge of in that way.
56. Have you no resident Inspector?—There is a person who comes round and asks questions, but as to giving any information with regard to the destruction of pests, the thing is not done at all. They might impart information which would enable people to do something, but in many cases they do not impart information, because I do not believe they have got it.
57. What is the general practice in your district, as far as you know, in dealing with the pests? Do they follow a systematic rule?—As far as I know, they generally read the leaflet, and believe that by spraying for the codlin-moth once or twice it will be killed. These people are full of energy, and they go out and shower their trees with an amount of spray enough to drown them. They do that twice, and then they say, "I have done what the book says will kill the moth," and there is no result. There is a district near me with several orchards belonging to different people, who had every trust that what they had done would kill the codlin-moth with the greatest ease, but in process of time it came to this: that 90 per cent. of the fruit falls from the trees, and these apples are packed away in carts and sent to the nearest cider-manufactory, and made into first-class cider, grubs and all. The apples are packed in heaps, and kept there for some time. They are not made into cider at once, and the grub crawls out and gets into the sacks, and thus a stock of the pest is laid up for the next season.

58. What area do you cultivate?—Ten acres.

59. What kind of fruit do you grow?—It is an experimental orchard, and I have most kinds of fruit in it. It is not an orchard that would be planted as a commercial business at all.

60. Do you cultivate the ground of the orchard?—Yes, I cultivate it continually.

61. Do you think that cultivation is a means of keeping the moth down?—No, I do not think so. It has nothing to do with the moth. It creates a vigorous growth of the apple, and produces good fruit in the same way that all garden products and farm products are improved by cultivation. It makes them stronger than if they were left in a wild state.

62. Have you read this Bill?—Yes, I have glanced over it.

63. Do you approve of it?—There are some points of it which, I think, would be improved by alteration.

64. Would you point those out shortly?—It is principally in the schedule, and there is also the question of what is an infected district or otherwise. It appears to me that if the Act is to be of any use it should be made general. The whole of New Zealand is an infected district really, and always will be. It amounts to this: that fruit could be transmittable on receipt of a certificate from an Inspector, or something of that kind. It seems to me, after reading the Bill, that with the diseases we have besides those placed in the schedule the whole of New Zealand is an infected district, and why should you make an invidious distinction between one part and another? If this Act was made general it would simply amount to giving the Inspectors more power.

65. Is there any amendment required in any other part of the Bill?—I think the schedule would require amendment.

66. In what direction?—I do not think that any disease should be put into the schedule except those pests the non-destruction of which would enable people to do that which would be of detriment to their neighbours. In the case of the American blight I do not think that a man would do much harm even if he had a large quantity of it. It has been in the country for the last forty years to my knowledge, and it has never been very detrimental to apple-growing. There is no difficulty in growing apples so long as the grower has blight-proof stocks and confines himself to those kinds that do not take the blight badly. Moreover, I say if spraying is carried on in a proper manner it is only necessary to spray for two or three years at the outside. After that bandaging and gathering the infected apples would be sufficient to keep the codlin-moth under. Again, if spraying were discontinued there would be this enormous advantage with the American blight: that you would be aided very much by the ladybird. Paris green destroys the ladybird, and thereby prevents it from clearing the trees of American blight. There may be other pests and diseases that I do not know anything about, but what I should like to see in the schedule is the "cherry-dolphin." I think that would be very necessary, because, take the case of either a large or a small fruit-grower, some owner near to him might be a man who tried to grow a hawthorn hedge. I have not seen a respectable one in New Zealand except in a few isolated instances. These hedges are greater harbourers of the "cherry-dolphin" than anything else, and if a hedge of that kind was allowed to grow near an orchard it would be great detriment to the fruit-grower and cause expense unnecessarily in keeping the "cherry-dolphin" down. Of course, it can be kept down with spraying, but, then, spraying costs money. I think that should be in the schedule, and there should also be a provision that trees outside fruit-trees with the "cherry-dolphin" pest in them should be treated as fruit-trees, and the owners should be made to spray them or destroy them.

67. *Mr. Massey.*] I think you told us that you were not a professional fruit-grower?—No; I am not.

68. How long has your orchard been planted?—The 10 acres have been planted about eight or nine years.

69. What proportion of apple-trees have you?—About half of it is in apple-trees.

70. Would it be fair to ask you what are your gross returns per acre?—It varies one year with another. Of course, the orchard is a young one and only coming into bearing. Last year was a successful one, and the gross return was between £60 and £70 per acre.

71. Has your orchard so far been a commercial success?—No, not exactly. I am not a professional gardener, and had to learn everything by experience. Very often people come to me and say, "What a fine orchard you have got," and I say to them, "It is crammed full of the most egregious errors that any man could commit, and it is good to look at as an object-lesson."

72. You live at Hastings?—Yes.

73. Are there other orchards in that district that are properly attended to?—I know only two; there may be others.

74. Do you represent an association of fruit-growers?—No.

75. I ask you because most of the witnesses we have had have represented associations?—I am here because asked by your Committee to come.

76. You recommend spraying?—Yes.

77. Do you not find that sometimes after spraying the rain comes and washes it away—Yes; I said so, and that in such cases the spraying must be repeated.

78. A number of witnesses have told us that for some reason or another last year the codlin-moth was not as numerous as usual: has that been your experience?—It has not been less numerous than in the previous year. I attribute the decrease to spraying more practically. I have only been practically free from the codlin-moth for two years. Before that I sprayed ignorantly. I was learning the business, and the spraying went almost for nothing.

79. In your opening statement you said that you sprayed from the 1st November to the middle of February?—Yes.

80. Do you not think there is a possibility of the Paris green injuriously affecting the fruit?—Not the slightest. Possibly some men might not like to eat the fruit because it has been poisoned; but it does not affect the fruit in the slightest degree.

81. Could you give us an idea of the cost of spraying per acre?—That is a varying quantity according to the size of the trees; but, if you have fairly sized apple-trees, two men with the spray, and one man with the cart pumping and guiding the horse, and doing the work carefully and without slurring, would do about three hundred trees in a day. They would have to work well to do that.

82. How many trees have you, approximately?—I have not counted them. In part of the orchard I have plums and peaches close together. They would run about a hundred and fifty to the acre. In other parts I have planted apple-trees by themselves; they would run about one hundred to the acre.

83. Do you know anything of the natural enemies?—No, I do not.

84. *Mr. J. W. Thomson.*] Do you think it would be possible to eradicate the codlin-moth?—It would be possible to keep it down to such an extent that spraying would no longer be necessary. By growing trees the proper shape, by destroying all infected apples, and by careful attention to bandaging, the moths would be so reduced in numbers that, although it would be a constant expense, the damage done would be infinitesimal.

85. Which do you think is the more effectual, spraying or bandaging?—The one is as necessary as the other.

86. We have had it stated before this Committee that bandaging is by far the most effective: is that your experience?—No. Bandaging is absolutely necessary. You must do it; but when the orchard is very badly affected it is also absolutely necessary to spray your trees. I say if that were properly done for two or three years at the outside, and if everybody else in the district were doing it, it would then be possible to do without spraying.

87. *Mr. Buchanan.*] You have told the Committee that your orchard is about eight years old. In saying that did you refer to the 10 acres?—Yes.

88. Does your experience of the codlin-moth refer to that?—Yes.

89. You have stated that in the last two years you have reduced the moth to an infinitesimal portion?—Yes.

90. Are you quite satisfied that the reduction in the moth has not been due to other causes than the spraying, bandaging, and other remedies that you have adopted?—Yes, I am satisfied of that.

91. What about orchards belonging to other people in the district in which you reside: are they still badly affected with the codlin-moth?—They were never worse than they are this year.

92. Have they been spraying and bandaging?—I have not seen them doing it, but I believe they have done everything they know.

93. The Committee had evidence before it yesterday of two representatives of large fruit-growing associations in Auckland, those associations consisting of a great many settlers, many of whom depend upon fruit-growing for their living, and these representatives gave evidence that spraying was next door to useless, so much so that one of them stated it had been almost altogether discontinued. Now, these people represent the growers of fruit amounting to about half of the fruit grown in the colony: could you give the Committee any idea of how their experience has been so different to what you state yours has been?—Of course, I do not know what they have been doing, but I know what I have done myself, and I know that when I commenced spraying it was a perfect failure. I drenched the trees with spray and did it once or twice, as I was told that was all that was necessary, and I found I was not making any headway with the codlin-moth. More than that, I found that I was burning the leaves of my trees and making them look unsightly and only fit to chop down. Then I discovered that by spraying with a weaker solution, spraying as fine as possible, directing it as much as possible on to the fruit and as little as possible on to the leaves, and by never doing it in such a way that the solution would run off the fruit and lodge on the leaves in globules, when the water would evaporate and the poison would burn up the leaves—when I did this I found that it made all the difference in the world. You can understand a man might go in a rage and say, "I am going to settle this codlin-moth," and he souces his trees to such an extent with the wash that he would very nearly kill the trees and do the codlin-moth very little damage. Then, if a shower of rain came immediately after and washed all the solution off it would be as if he had not sprayed at all. Those points may not have been attended to by the people to whom you refer.

94. Supposing it were a district in which the rain falls with much more frequency than it does in Hawke's Bay, what would your opinion be of spraying?—It would be simply a case of a little more; that is all. It would have to be done more frequently if washed off before it had time to do good.

95. And when once the moth was got down, would the practice which you have applied in your case—namely, that of bandaging—apply also to wetter districts?—Yes, certainly.

96. You have therefore no doubt at all in your own mind that with the experience you have gained you could go to Auckland, take an orchard in hand, and produce approximately the same results, although at a little more expense, as in your own case?—Certainly.

97. *Mr. Massey.*] Have you had any experience of fruit-growing in Auckland?—No, none whatever.

98. *Mr. Buchanan.*] Have you found any difficulty in getting pure chemicals for the various sprays that you use?—No, I have not.

99. *Mr. Flatman.*] Can you say whether in your case the insect-pest is conveyed from one district to another by using fruit-cases a second time?—Of course, it would be absurd to say that in a hundred cases there might not be a few grubs, but I do not think that would have anything to do with the question. I am not afraid of it myself. I should certainly put the cases into hot water before using them again. They can very easily be disinfected; perhaps steam would be better than hot water; but it would be very easy to thoroughly disinfect them.

100. Do you think that this Bill should apply to the whole of New Zealand, and that there should be no exemption?—I see no reason why there should be an exemption. If the Bill is good for one place it is good for another.

101. You said in answer to Mr. Buchanan that you had no hesitation in saying that you could go to Auckland, take an orchard in hand, and get rid of the codlin-moth pest?—I could get rid of the pest for a week or two.

102. In the same manner as in your own orchard?—Yes. I have my orchard free now, but I am obliged to spray while I may get the codlin-moth from outside. If I was more isolated I should spray less.

103. You think you could deal with the pest as successfully in Auckland as in Hawke's Bay?—I am sure of it.

104. *Hon. Mr. Richardson.*] In the evidence given in this direction as to getting the same benefit from spraying in Auckland, the gentleman who gave the evidence said that it was not very uncommon to have heavy rain there every night during the season: do you know that?—I can only say they are very unfortunate. I may say that I have also had to deal with wet seasons as well as dry, and have always sprayed after rain.

105. *Mr. Buchanan.*] The Bill provides that these pests shall be cleared out, Would you now anticipate a difficulty from the varying practices of the different Inspectors, who would have various ideas as to the eradication altogether and the point to which these pests could be kept down? Would not the orchardist in some cases be harassed to death under these Inspectors?—As far as I know, there is an analogy in the Sheep Act, and so also in the Rabbit Act. It is the Inspectors' duty to see that those Acts are carried out, and there are a great many people who have been harassed to death by them, but I venture to think their neighbours say "serve them right."

106. But does not the analogy fail, inasmuch as there can be no denial of the possibility of killing a rabbit or eradicating scab, whereas, as to this blight, we have had before the Committee evidence of the most conflicting character?—Of course, I do not know. I may say this: that there are some blights mentioned in the schedule of which I have no experience, and do not want to. I have had to do with cherry-dolphin, the codlin-moth, the apple-scab, and scales of one or two kinds. I have also had to do with the red spider, which is a great nuisance; but with a proper system of spraying and washing for these pests it is quite possible to produce a reasonable quantity of good sound fruit. It would be absurd to suppose that an Inspector would go into my orchard and not find all these pests, but he would find the trees bearing apples in a good marketable state; and, if so, it would be his duty to be satisfied with the result obtained.

107. *Mr. Kirk.*] You have mentioned that you spray for fungus and codlin-moth?—Yes.

108. What have you used?—I have used both Bordeaux mixture and Paris green.

109. Have you ever tried combining the two, because it has been very successful in some cases that I know of, and it saves a second spraying?—I have tried it, but do not know the result.

110. What do you do now?—I generally try to finish pruning by the end of July, and then, after pruning, I have sprayed the trees with lime, sulphur, and salt, but find that sulphate of copper, 4 lb., and quicklime in 4 gallons of water, mixed in the usual way, is a very good specific. Use that mixture in 40 gallons of water for the first dressing, in July. Then, about eight days before the buds come out, use the same mixture with 60 gallons of water, which, of course, will make it weaker. I find that very efficacious, and does all that lime, sulphur, and salt, will do. In August I use resin 20 lb., whale-oil, 3 to 4 pints, and 3 lb. of caustic soda boiled in 8 gallons of water for two hours. That is sufficient for a mixture of 100 gallons. When the leaves are out in November spray again with the same mixture, leaving out the oil, or with kerosene emulsion.

111. Have you ever used white arsenic and soda?—No.

112. Or the combined Bordeaux mixture and Paris green?—As I say, I have tried it, but I do not know the result. With the Paris green I use 240 gallons of water. It has been recommended stronger, but I find that strength efficacious.

113. With regard to the bandaging, have you ever used old newspaper crumpled up and put into the forks of trees?—I have, a little, but I find the sacking more efficient. The paper is liable to get blown away.

114. I do not think you will find it is so?—I will try it.

115. Have you found any difficulty in dealing with the mussel-scale?—No; I can keep that under.

116. I think you said something about Government reports saying that to spray once or twice would be sufficient for the codlin-moth: do you mean that you saw that in a leaflet?—Oh, no. I did not say it was in a leaflet. I was referring to what was said by one or two people who came round on behalf of the Government. I know that it was generally considered sufficient, and it has been stated—I will not say in a leaflet, but in some horticultural publication—that one spraying, if properly done, would almost eradicate the moth, but that another spray might be wanted.

117. With regard to the American blight, you think that if the ladybird is allowed to breed it would keep the American blight well in check?—Yes.

118. Have you got a beam spray-pump, one that you got from Burt and Co.?—No. The one I use is of local manufacture.

Mr. J. PIPER examined.

119. *Hon. the Chairman.*] What are you?—I am retired from business.

120. Where do you reside?—In Nelson.

121. What experience have you in fruit-culture?—Intermittently, twenty-five years, and continuously about twelve years in a small way. I have been secretary of the Nelson Fruit-growers' Association for eleven years out of that time.



122. Do you speak for the Nelson fruit-growers now?—We could not get a meeting because there was not time.

123. What experience have you had in dealing with fruit-pests, and especially with the codlin-moth?—During those eleven years I have had continuous experience; in fact, it has been one of my hobbies in my retirement. I am well acquainted with the codlin-moth; in fact, I am looked upon as an expert in my district.

124. What means have you taken to combat this pest, and with what result?—Syringing. I am situated in a peculiar place: on both sides of me are small orchards, one of them a very old one, and there they do nothing; on the other side is a newly planted orchard with a few old trees, and there, too, they do next to nothing. I manage to save 75 per cent. of my fruit by syringing. In my district there are a great many who syringe with Paris green for the codlin-moth, but there are also a great many who object to do it. They do not like to put poison on the fruit, and they simply resort to bandaging. There is a gentleman named Wiesenhavern, who is a very old fruit-grower, and he bandaged the trees with paper, and he stated that with this remedy alone he had only lost 25 per cent. of the apples, whilst his neighbours, who neglected their trees, lost all their crops. Some do a little bandaging, and they send to him as an expert. There are some who take up the work to see what they can do with it. One writes to me, in March, 1897:—

Result of grubs captured in one band taken from the butt of a small apple-tree five years ago. Number of grubs taken from band, 396; reputed rate of increase per grub, 200; during season, 79,200.

To band fruit-trees: A piece of sacking or any waste material can be used to make a home for the grub. Bands should be 6 in. or 8 in. wide, and should be placed round the butt of the tree at some suitable place at the bottom of the tree. Bands should be firmly fixed at the top, and the bottom left moderately loose. Band may be secured at the top with a tack, which can be inserted with the thumb, thus rendering removal of band very simple. The time for banding trees should begin as soon as the fruit is about the size of small walnuts, and can remain until the end of the season, plunged into boiling water or burnt.

By banding: With united action of the fruit-growers this plague may be subdued to an enormous extent, and in a few years it will scarcely be heard of.

125. Would it not be better to give us your own experience?—My own experience is that bandaging is efficacious.

126. Do you think it is as efficacious as using it in combination with spraying?—It is better to combine both.

127. Do the fruit-growers in your district generally use spraying and bandaging, or is it a go-as-you-please sort of thing?—It is a go-as-you-please sort of thing. Some of them object, as I say, to using poisons on the fruit, and they get Mr. Weisenhavern, who has been growing fruit for thirty years to advise them, and he tells them that he has only used the bandaging.

128. What area is your garden?—It is only a small one; half an acre.

129. Have you read this Bill?—Yes.

130. Do you approve of it?—No, I do not approve of it.

131. In what respects?—Generally speaking, the people in the Nelson District do not approve of it. I would rather give you what I have got here, and that is the opinion of experts. I have them here in this minute-book. They say:—

#### THE NEW ORCHARD AND GARDEN PESTS BILL.

To the Editor of the *Evening Mail*.

SIR,—There exists in the south of this Island a small, but seemingly powerful, party, which represents a lately established interest in fruit-growing. This party has worked very hard for years to smuggle through Parliament a Bill for the eradication of orchard pests—that is, for the protection of their own pockets but have been twice defeated. The practical common-sense of most of our fruit-growers knows full well, by many years experience, hard work, and loss of money, that orchard pests cannot be eradicated by poisonous quackeries and Acts of Parliament, simply because there do not exist true remedies to eradicate them, least of all for those mentioned in the schedule of the Bill. We are able to check the insects and keep them in certain limits, but we can no more exterminate them than we can the bot-fly. Yet this new Act tries to do an impossibility.

Cultivating the fruit-trees and keeping them clean will always give a fair living to any hardworking fruit-grower. The lazy and foolish orchardist, if he will live, has to cut down his orchard and grow potatoes. This is done every day, and does not want the meddling interference of an Inspector. The first step of any Government wishing to encourage the fruit industry should be to keep out the importation of any new kinds of insects brought to our shores by every steamer. If this protection cannot be given, the fruit-growers demand to be left alone is but natural. It is not fair, as the late old German, Busch, used to say, to compel a man by law to wash himself three times a day if he has to sleep with a dirty fellow.

The southern party above mentioned makes the happy assertion that their souls—beg pardon, their orchards—are pure and free from codlin-moths and other evil plagues which defile the apple-tree. They want to shut and starve out the older sections of New Zealand where orchards were planted long before these southern innocents were “made.” Nelson and Motueka are very dirty and dangerous places to grow fruit in. *Quid enim salvus infamia nummis?*

The Government is therefore induced to introduce for the third time a new Bill this session, which is more monstrous and absurd than all the former ones. However, as long as Government does not make this Orchard and Garden Pests Bill a party question there can be little doubt that the miserable thing will be thrown out again. The innocent southern party knows this, therefore they give Auckland, a strong opponent always to these legal quackeries, a sop by excluding it from the operation of the Act. The worst of the new Bill, however, is that it gives power to any ignorant or spiteful Inspector to ruin any man in whose orchard he should find an apple with a hole in it, or a black spot on its rosy cheek, and should the unfortunate owner take this same apple to a neighbour's child, he is liable to a fine not exceeding £50. I recommend all fruit-growers, or any man who has an apple-tree in his garden, to study this interesting and beautiful measure, built up mostly for the creation of a new army of loafing Inspectors. It is fit for the cartoon of *Punch*, and reminds us that we are nearing the end of the century, which, as history shows, made humanity always more or less lunny.

I am, &c.,

OLD FRUIT-GROWER.

The following letter from Mr. H. Batt, of Wakefield, was received by the convener of the meeting too late to be read on Saturday night,—

Upper Wakefield, 23rd July, 1898. Dear Sir,—I should very much like to attend the meeting you have called for this evening, but circumstances are not favourable. Should the meeting decide to forward a strong protest against this iniquitous Orchard Pest Bill now before the House becoming law, it will meet with my entire sympathy. I think the writer above the signature of “Old Fruit-grower” has represented the interests of the fruit-growers very fairly. The argument often used by the advocates of compulsory cleaning of orchards is that the Sheep Act never

oppresses the farmer, consequently some compulsory measure would be in the interests of fruit-growers. Will it never occur to such thickheads that we have infallible remedies for all diseases mentioned in the Sheep Act, and easy to comply with? When the same can be said of garden pests it will be time to think of legislation. But in the meantime every legitimate effort should be used to prevent such an act of tyranny and oppression as the one in question ever being placed on the statute-book. Therefore, whatever step your meeting shall take in this direction has my unequalled support and sympathy. And, sir, your action in placing the principal clauses of the Bill before the public, and taking such prompt action in calling a meeting, is deserving of the thanks of all fruit-growers.—Yours truly,

H. BATT.

The chairman explained some of the provisions of the Orchard and Garden Pests Act of 1896.

Mr. Avery supported the motion, and characterized the Bill as iniquitous. Of the half a dozen Government Inspectors who had visited Nelson, not one could give a specific for fruit-diseases. It was also strange why Auckland, which was eaten out by blight, should be excluded from the operation of the Bill as to the pest.

Mr. Marshall said that if neighbours would only help each other and show a little consideration of complaints it would be much better than visits from Government Inspectors.

132. Will you point out what parts of the Bill you chiefly object to, or do you condemn the whole?—We know nothing about phylloxera or the San Jose scale, and we know very little about apple-scab. What we do know is the American blight and the codlin-moth. The American blight has been in our district for fifty years, and no one has ever been able to destroy it altogether. It is very eccentric in its movements. Nobody would ever think of trying to get rid of it wholly or expect that they could do so, and it does not injure the apple. The codlin-moth every one can keep down if he tries to do so.

133. Do you not think you require a Government measure to force all alike to take steps to keep their orchards clean, and keep down the pest?—No, we do not.

134. Then you are against the Bill?—Yes.

135. *Mr. Massey.*] Is the association which you represent a large one?—We had forty members when it started, but it has dwindled down, as most of these associations do, and now we just keep it alive.

136. You have told us that the fruit-growers in Nelson generally do not approve of this Bill?—They do not.

137. What do they object to?—What they say is that the Government have never been able to get an infallible remedy for the pests, and the result would be that it would be worse to have some one coming into your garden and taking charge of it than the disease itself.

138. The Inspectors would be worse than the codlin-moth?—Yes.

139. Do I understand you to say that the Nelson fruit-growers are of opinion that it would be quite time enough to bring in a compulsory Bill when we have a perfect remedy for the codlin-moth?—Yes.

140. Are there many orchards in your district which are badly affected with the codlin-moth?—In 1894 we had our annual meeting, and then we made this statement: "The codlin-moth is not now the trouble that it was seven years ago, the mussel-scale is mastered, and the *Icerya purchasi* is scarcely to be seen." Mr. Hood said the codlin-moth had been in the Nelson district for thirty years. It could never be eradicated, but it could be kept in check. The San Jose scale was nothing to be much afraid of here. Mr. Hale said that as for the eradication of the codlin-moth, by the time it was removed from one part of an orchard it would appear in another.

141. Would you approve of handing over a badly affected orchard to the experts of the Agricultural Department to amuse themselves with in trying to find a remedy for the codlin-moth?—It would be a very good thing; and if any district wanted it too—well, hand that district over to the Inspectors.

142. Do you know any of the Inspectors personally?—I know Mr Blackmore.

143. Has he been giving you advice?—Yes; he has been giving advice in Nelson.

144. Do you consider him a practical man?—He has not any acquaintance with the codlin-moth in Nelson, at all events. The information we have collected is practically from what we have been experimenting on for nine years. We say that there is only one brood of the moth in the year, and consequently we recommend bandaging in the beginning and then taking them off at the end of the season. He says that there are two broods, and I am sorry to say that he will insult you if you contradict him.

145. Is the gentleman whom you have mentioned popular in the Nelson District?—No; he is very unpopular.

146. They do not consider his advice of much value?—Not upon blights. Of course, upon grafting and that sort of thing his advice may be very valuable.

147. Do you consider bandaging effective?—Yes, it is effective.

148. Do you know anything of the natural enemy of the codlin-moth?—No; we tried to get the naturally enemy from Mr. Allan White, of Auckland, many years ago—the insect enemy. We thought that from his experience he would be able to tell us the best thing to do. At the Fruit-growers Conference in 1896 Mr Becroft stated that he had an orchard, and that he had been continuously syringing, and yet he had more codlin-moth than ever, but that his brother, next door to him, who had not been syringing had very much less of the codlin-moth than he himself had. I said at once, "It is possible that you have been killing the natural enemy."

149. You think, then, that by so much spraying there is a possibility of killing the natural enemy?—Yes; and some people in our district who sprayed have discontinued it because they were afraid that it was injuring the young fruit-buds.

150. Of course, you think the codlin-moth is the worst pest?—No; I think it is universally admitted that the mussel-scale is; that destroys the tree; the codlin-moth destroys the fruit only. If you are isolated from any other orchard, there is no doubt you can get rid of it by picking your fruit for a year or two. I may say I myself have taken the moth from the peach and also from the apricot.

151. How many years experience have you had?—Eleven years, during which I have been secretary to the association.

152. I mean in your personal capacity?—That is in my personal capacity, but naturally, of course, as I am secretary to the association, I have also had the experience of the members of the association.

153. Have you made a commercial success of fruit-growing?—I never carried it on for commercial purposes. In fact, owing to the orchards of people round me I have used my place for experimental purposes, but I have always got plenty of fruit. I sell a little.

154. Perhaps you could tell us what the effect on the Nelson fruit-growers would be if this Bill passed into law in its present form?—Well, we would have to cut down our apple-trees—to destroy them. I am sure that many of the small people would do it at once, and I have no doubt that a great many more would do it afterwards.

155. You are quite sure that the Bill would be disastrous if it went on the statute-book?—That is our opinion.

156. *Mr. Meredith.*] Do you appear here to give evidence on your own part, or have you been deputed by the Fruit-growers Association of Nelson to appear for them?—If I could have got a meeting of the Fruit-growers Association together I would have been the person they would have sent, but the department did not give me time to get them together.

157. I ask that question because in referring to documents which you have put in evidence you refer to them as coming from the fruit-growers of Nelson—now I understand that you appear on behalf of yourself?—There was no time to call a meeting.

158. *Mr. Massey.*] Do you appear in your official position as secretary of the Nelson Fruit-growers' Association?—I have already explained that it was too late to call a meeting. The department sent me a letter on Monday, and I can never call a meeting of the association except for Saturday. It was told me by Mr. Moller that the Committee would meet on Friday, and it would be no use to call a meeting for Saturday. Then the next time the department sent a notification the Committee was to meet on Thursday, and consequently it was not possible to have a meeting.

*Mr. Ritchie* explained that the department had nothing to do with sending out the notices.

*The Clerk* explained that the notices in this case were sent out at the same time as other notices to attend the Committee.

159. *Mr. Meredith.*] I wish it to be distinctly understood that you represent yourself here?—I am secretary of the Nelson Fruit-growers' Association or I would not be here. The president asked me to come.

160. I understand that no meeting has been held of the Fruit-growers' Association to pronounce an opinion upon the merits of this Bill?—The fruit-growers of Nelson came together and pronounced an opinion; it has been sent in to the members of the district and to the Minister of the Agricultural Department. The resolution was to this effect: "Mr. Hingston (Foxhill) moved, That, in the opinion of this meeting of fruit-growers and others interested in the culture of fruit, the Orchard and Garden Pests Bill of 1898 is unworkable, and could not be carried out in practice. Mr. Marshall seconded the motion."

161. I understand that your orchard is free from pests and clean?—No. I have said that I save 75 per cent. of my fruit.

162. That is the quantity that is sound?—Yes.

163. Is the Committee to infer that you have resorted to the necessary means to bring that about?—Yes.

164. Have your neighbours succeeded in obtaining 75 per cent. of fruit?—I have only to ask the owner of one of my neighbours orchards, and he will tell me that he is going to cut the fruit-trees down. The other commenced to do some work two years ago.

165. Then your orchard is comparatively clean, while your neighbours are not?—On one side of me they never do anything.

166. If your neighbours orchards are badly affected, what means should be adopted to compel them to keep their orchards clean?—I do not know that any other means could be taken than to compel them to bandage.

167. That is to say, force them to take some preventive means?—That is all I could suggest. They should be forced to do so. Our experience is that people do look after their orchards generally.

168. If the provisions of the present Bill were brought into operation would it not have a beneficial effect on those who take a little trouble in the suppression of pests and blight?—The fruit-growers in Nelson think that the remedy would be worse than the disease. They do not ask for it at all.

169. You export some of your fruit from Nelson at the present time?—About twelve thousand four hundred and fifty cases come from Motueka, which is a part of our district, every year. I may say, roughly speaking, that there are about twenty thousand cases of 40 lb. each exported every year.

170. If blight-infected fruit is exported from Nelson to clean districts, what effect is that likely to have on the fruit grown in the clean districts?—I do not think that in a general way infected fruit is ever exported from Nelson now. I believe there are some southern people who have agents in Nelson to buy apples affected with codlin-moth, and this fruit is sent south. They are not sent by Nelson fruit-growers, but they are purchased there by agents, who send them away.

171. Could you suggest any other way of preventing that than by legislation?—I do not know any other way. As long as there are people—and that is the question in Nelson—as long as there are people to buy there will be people to sell.

172. *Hon. Mr. Montgomery.*] Has the codlin-moth increased fast during the last year?—It has decreased considerably.

173. Why?—Simply from using remedies, I suppose.

174. If those remedies were used systematically by every one would it not cause a large decrease?—Yes; I think it naturally follows that it would.

175. The remedies are not now used by the fruit-growers?—Generally they do something, because in commerce self-interest is strong enough to make them do it.

176. But a number do not use them effectually?—There are some. I could not say the number.

177. And if gardens and orchards which are infested with pests are not treated so as to keep the pests down will they not affect the other orchards?—Yes.

178. And very largely?—Yes. The codlin-moth does not travel; it is a very sluggish moth. I have caught it with my finger on an apple; but you can carry it about in cases. I know of one instance where a person carried the codlin-moth in the elastic of his boot from the Wairarapa to Nelson.

179. Then, if some people keep their orchards clean by using remedies and other people do not, and you think, also, that cultivation will decrease the pest, should there not be legislation to bring that about?—If you could get some simple legislation that would bring it about it would be all right; but we have come to the conclusion that it is impossible to have such legislation. We have already three Codlin-moth Bills submitted to the association—one in 1888, one in 1892, and another in 1893—and we have come to the solid conclusion that we had better have the disease than the remedies.

180. Then, in point of fact, you do not think that anything should be done, and to allow the people to go as they please?—Yes, unless any district wants it. It might be well for the Government to try it in such a district.

181. Who is to decide that a district wants it?—The fruit-growers.

182. But you say they do not want it at all?—They do not want it in my district.

183. And fruit that is diseased is sent from there to other districts?—Not generally, only by people who send agents.

184. You say you saved 75 per cent. of your fruit, what became of the remaining 25 per cent.?—It was destroyed.

185. Those that are bought from agents and are packed in bags go to other districts?—Yes.

186. And they are infected?—Yes.

187. And would tend to infect other districts?—Yes. I may say what has surprised me more than anything else is that infected fruit which is sent away in bags to clean districts does not appear to infect them. For the last eighteen years fruit of that kind has been sent away from Nelson to the South, and especially to Dunedin, and yet it does not seem to me that Dunedin is affected at all. I understand the same is the case with Christchurch. The moth is not acclimatised there, and I do not think it ever will be.

188. *Hon. the Chairman.*] You know that in this Bill Auckland is left out?—Yes.

189. What I understand is that you would like Nelson to have a similar exemption?—Yes.

190. How many fruit-growers are there in the Nelson District?—I could not tell, but they are mostly small fruit-growers, of 3 or 4 acres.

191. Are they all in the same district?—Yes.

192. Then you have a large association?—No; it is a small one.

193. How many members?—There are about a dozen now; there were forty when we started.

194. It is a small association. Do you represent many?—We have done so. Lately we have been thinking of calling the fruit-growers together, and I think this Bill will revive interest in the matter.

195. Is yours the only association in the district?—There is one at Spring Grove, and a resolution was passed at Ngatimote on similar lines to that passed by the Nelson fruit-growers, and it was sent to me, and I was asked to send it to the member for the district, and I sent it.

Mr. A. J. LITCHFIELD examined.

196. *Hon. the Chairman.*] What are you?—I am a farmer.

197. Where do you reside?—Near Blenheim.

198. Have you had any experience in fruit-culture?—Oh, yes; the usual farmer's experience.

199. Have you had experience in dealing with fruit-pests?—Yes; a good deal.

200. With the codlin-moth?—Yes.

201. Will you tell the Committee how you have treated the pest, and with what result?—I have about a hundred and fifty apple-trees on something like 2 acres of ground. They had got into a very bad state, and I had almost come to the conclusion to cut the lot down until Mr. Blackmore paid a visit to the district last year and explained the means used by his department in contending with the pest. I then determined to give the thing another trial. He was good enough to give us a lesson, and to recommend the use of Paris green, which I did not use. I used arsenite of soda at the outset when the fruit was formed, and then until the end of January we sprayed seven times in all. We used bandages to a limited extent, not so much as we ought to have done, and we saved two-thirds of the fruit that was on the trees.

202. You say that from an infected state, by using spraying and bandaging, you have brought your orchard into profitable use?—Yes; it amounts to this: that whereas the year before we had no apples at all we have saved about two-thirds of them this year.

203. Have you read this Bill?—No.

204. Do you know the general provisions?—I may say that I am thoroughly in favour of compulsory legislation on this point. I have had considerable experience with such things as scab and rabbits, and other things that farmers are troubled with, and it seems to me that the only way to deal with those things is to compel people to do it.

205. You have the codlin-moth and other pests?—Yes; and I have to do all these things. I

have an orchard now, and my neighbour has an orchard, and he does nothing with it. The consequence is that his orchard is absolutely stinking with blights of all sorts, and I have to work his orchard as well as my own. I can safely say he gets nothing out of it.

206. *Mr. Massey.*] What distance is his orchard from yours?—Just across the road; about three-quarters of a chain.

207. Does he cultivate it?—No.

208. What is the size of it?—About 4 or 5 acres.

209. Does the owner live on it?—No; he lives about half a mile away on a farm of his.

210. Is he a professional fruit-grower?—No; he is a farmer, something like myself.

211. Do you represent an association?—No. I was merely asked to come in here by Mr. Blackmore or Mr. Norton. I do not know which, I think Mr. Blackmore spoke to Mr. Ritchie about it.

212. Were you in Wellington at the time?—Yes; it was yesterday.

213. You just happened to be here?—Yes.

214. And you were requested by Mr. Blackmore to come and give evidence?—Yes.

215. How many acres of fruit have you?—About 2 acres.

216. Have you made it a commercial success?—Yes, until the codlin-moth came about, and I hope to do so again. For the last three years it has not been a success, and I have got nothing out of it.

217. Until then you were not troubled with the codlin-moth?—No.

218. But you say you used remedies last year for the first time?—Yes; in a systematic way. We did something spasmodic before that, but it did not amount to much.

219. We have had evidence to the effect that last season the codlin-moth was not nearly so numerous as usual?—I did not know that.

220. Is that your experience?—No; I will find you plenty.

221. Which do you think most effective, spraying or bandaging?—Well, the means I employ impress us in this way: supposing a man sprayed and did not bandage, and another bandaged and did not spray, one would be no better off than the other. I do not think the two can be worked separately.

222. How often do you spray?—Seven times between the middle of October and the end of January.

223. Has it ever happened that after spraying a shower of rain came and washed it off?—Yes.

224. Then, the spraying would be of no value on that particular occasion?—No.

225. *Mr. Meredith.*] You say the Government expert, Mr. Blackmore, visited your district last year?—Yes.

226. Did you come into personal contact with him?—Yes. He gave me an object-lesson on my farm.

227. Do you consider him a practical man?—Yes, certainly.

228. Was he at all offensive and annoying when you met him at the instruction which he gave?—No; he was most courteous and obliging.

229. Supposing your opinion was in conflict with his, did you find any irritation on his part?—No.

230. Last year you had a good crop of fruit from carrying out the remedial steps recommended by Mr. Blackmore?—That is my idea.

231. Do you consider that the visits of Mr. Blackmore to the Blenheim and other districts would be beneficial?—Certainly, except that he did not stay long enough with us.

232. Then, the Committee is at liberty to believe that his visits did good, but you had not enough of them?—Yes.

TUESDAY, 16TH AUGUST, 1898.

Mr. S. KIRKPATRICK examined.

1. *Hon. the Chairman.*] What is your profession?—I am a jam-manufacturer; manufacturer of the "K" brand of jam.

2. Where do you reside?—At Nelson.

3. Have you had any experience personally of fruit-culture?—I have over an acre of orchard myself, and I cultivated it for a little time, but the whole of the fruit was stolen.

4. Have you had any experience with regard to the treatment of garden pests?—Yes. I should like to make a statement. There was a Mr. Piper over here who styled himself secretary to the Nelson Fruit-growers' Association. I used to belong to this Nelson Fruit-growers' Association, and I think the subscription to it was 5s. a year, but it simply died a natural death. It came down to two or three only attending the meetings, and gradually died. We had a president and a secretary, who were elected annually, as is usually the case with such associations. Mr. Piper has not been elected to the secretaryship of the association for years, as it died about six or seven years ago, or perhaps more. There is, therefore, no such thing in existence as the Nelson Fruit-growers' Association, and without any question there were very few what might be called commercial fruit-growers in it. I went to Takaka, Riwaka, and Motueka with Mr. Blackmore to see the orchards there. I drove him round the district and visited the different orchards. He examined the different orchards, and took an infinite amount of trouble to show men what to do and how to work properly in keeping their orchard. There is not a man in that district—and this is the principal fruit-growing part of the Nelson District—who is not grateful for the instruction he gave them. Of course, we in Nelson know Mr. Piper, but, outside Nelson, if people saw a letter signed by Mr. Piper as secretary of the Nelson Fruit-growers' Association it might bear weight, because

they do not know, as we do, that the association has not been in existence for years. Then, I heard that Mr. Piper, in giving evidence before this Committee, said that Mr. Blackmore was not courteous—in fact, I think he said that he was insolent in imparting information. I got that information on Saturday last, and then I went and saw several people who are going in for fruit-growing, who had fruit-trees, and who had come into personal contact with Mr. Blackmore, and they told me that I might use their names in any way I chose in contradicting that statement. They said that nobody could be more courteous or could take more trouble in giving information than Mr. Blackmore. I can give you the names of these gentlemen if you choose. I have the names of fourteen, and I got those in about a couple of hours on Saturday afternoon. They wished me to state that nobody could be more courteous or take more trouble in imparting information to them than Mr. Blackmore.

5. *Mr. Massey.*] Mr. Chairman, I wish to ask the witness who told him this about Mr. Piper's evidence.—Witness: I heard that Mr. Piper said it.

6. I want to know who told you?—I do not know that I could tell you.

7. It is rather a serious matter, as involving a question of a breach of privilege in disclosing matters that have taken place before a Committee before that Committee has reported. No evidence here is supposed to be disclosed until the Committee has reported.—It did not come from the Committee. It came in a round about way.

8. *Mr. Meredith.*] Did it come from a member of the Committee?—No.

9. *Mr. Massey.*] When the Banking Committee was sitting some evidence came out before the Committee reported, and Mr. G. Hutchison was brought before the House for disclosing it. I wish to know how he got his information.—I did not get it from a member of the Committee, I assure you.

10. *Hon. the Chairman.*] Will you give us some information with regard to what was done in the way of imparting information?—When Mr. Blackmore and I were at Riwaka we went into one man's orchard who had 6 acres of orchard, and Mr. Blackmore asked him what he was doing for his trees. This is rather a disconnected statement, but I am simply telling you what the man said. He told Mr. Blackmore that he was applying the remedies which the Government said would be effective in keeping the blight in check. He said that he had tried the lime and salt and sulphur mixture, but that it would not kill the scale. Mr. Blackmore asked him how he prepared it, and the man told him. Mr. Blackmore then said that it had been efficient in other parts of the colony and he could not understand how it was that it had not answered there, and then he said, "We had better go down and look at the trees." So we went down and examined the apple-trees. Mr. Blackmore took his glasses out and looked at them, and said to the man, "This blight is all dead." The man looked at the trees and could hardly find a live scale. Then he said, "The mixture has done more good than I thought it would," and we found out that there was more than 80 per cent. of the blight on the trees killed by the spraying. Now, had he not gone down the man would have said that the mixture was no good. I simply point this out to show that the Government remedies for the scale can be used so as to keep the scale in check.

11. Have you used these remedies yourself?—I have on most of my trees, and am now doing it.

12. What is your own experience? Have you had the codlin-moth?—Yes. I put the mixture for codlin-moth on the trees as soon as I found the moth was there, but there was nobody living near the orchard, and the boys stole the apples; so I pulled what was left of the apples off, and cannot say what would have been the result.

13. Have you read this Bill?—Yes.

14. What do you think of it?—In my orchard we have a lot of plum-trees, and we have the leach-blight, and I have used hellibore for that. The leach attacks the leaves; the hellibore will kill them; it will kill every leach on the place. If there were no other trees near the place one could certainly keep their place clean, but where other people have fruit-trees and do not syringe them as soon as the leach appears it is destructive to your effort to destroy the pest. If you used hellibore once on your trees and there were not other infected trees near it would be effective; but when the people near will not do anything with their trees, then you have to do it over three or four times. If you were to pass legislation which would compel every person to keep his trees clean you would soon put the leach down. But perhaps this proposed Act would be a little severe in some respects.

15. In what respects?—In not allowing people in infected districts to export any fruit.

16. You think that the provisions with regard to the carrying of fruit from one district to another are too severe?—Yes, at present. I would rather see a milder Act brought into force for a year or two, and then you could make it more stringent. With regard to sheep, you have the scab Act, which compels people to dip their sheep every year. If I have scabby sheep you will not let me keep them, but if I have an orchard, and am making a living out of it, my next-door neighbour may have two or three trees and will not do anything with them, and the consequence is that he spoils the whole of my work for the twelve months; but if you were to make it absolutely compulsory, as you do in the Sheep Act, you would certainly get rid of the pests. Some fruit-growers have said that sheep-dip is a remedy for the fruit-scab, and they think that when they kill the scale it will drop off the tree, but it does not until the bark expands a little.

17. Who is president of the Fruit-growers' Association of Nelson?—It is so long ago that I forget. It is some seven or eight years since the association was in existence.

18. Did you belong to it?—Yes.

19. Did the president ask Mr. Piper to come here?—There is no such person now. There was an annual election of officers, but as the thing died out there is no such thing as president now.

20. Is not the president an officer who holds office until his successor is elected?—I cannot tell, and do not know who the president is.

21. Would you be surprised to hear that Mr. Piper said that he was requested by the president to come here?—Not at all. He may call himself president to the association, but that office does not exist any more than that of secretary.

22. You are not connected with the association?—No, unless in this way: that I did belong to it ten years ago or something like that.

23. Then you do not represent any association here?—No.

24. And you speak for yourself only?—Yes; but I have been through every orchard in the district, as it is my business to go to them.

25. What size is your orchard?—I have an acre of land at Nelson, and I have another acre at Blenheim, where I grow apricots.

26. Have you made it pay?—It paid at Blenheim.

27. Not in Nelson?—Well, the boys stole the apples.

28. Who asked you to come here and give evidence?—No person. I wrote to Mr. Ritchie and offered to come.

29. Are the Nelson fruit-growers generally in favour of this Bill?—They think it is too stringent.

30. You do not think so?—Yes; I have said I think it is a little too stringent to begin with. The Nelson District is shaped in this way: that up along the railway-line to Wakefield and Foxhill is not the largest fruit-growing district of Nelson, but in the direction of Takaka, Riwaka, Motueka, and up the river to Ngatimote fruit is grown for commercial purposes. Every man there is growing fruit to make a living out of it, and there is not one of them who belongs to the Nelson Fruit-growers' Association. It is from that district that we get most of our fruit, and the people there are growing their fruit and cultivating it properly.

31. *Hon. the Chairman.*] Then you speak for them when you say that this Bill is too severe?—I think only one or two of them have seen a copy of the Bill.

32. *Mr. Massey.*] What particular provisions do you object to?—That with regard to infected districts, I think, should not be so strict. When this Nelson Fruit-growers' Association was in existence they met and discussed one of these Bills, and the only thing they could agree to was this: that the importation of fruit from outside of New Zealand should be prohibited on account of the danger of the fruit in the district being blighted; but the Nelson fruit-growers were to be at liberty to send their infected fruit wherever they liked.

33. How long ago was that?—About eight years. That was the only result after twelve months' or two years' talking over the matter. At that time there was no blight in the Wairarapa district, and we were sending infected fruit up there to stock it with blight.

34. Am I to understand that the Nelson fruit-growers succeeded in stocking the Wairarapa with codlin-moth and other pests?—I think so.

35. You have used remedies in your orchard for all these pests?—Yes.

36. Will you kindly tell the Committee the remedy you use for the codlin-moth?—Some people want to get rid of it in one act, but there are three or four things you must do if you start out to get rid of it. You must bandage your trees. By doing that you catch a lot of the grubs. Then you must syringe the trees when the apple is formed and the blight is on the tree, and you then kill the young grub. You use the lime and salt and sulphur mixture on the trees in the winter time. This is not recognised as the remedy, but it helps to kill the pest. If a new hand uses this mixture and any of it gets on his hands he will find that it will burn the skin off. When the codlin-moth comes out of the apple it spins a thread, and with that it lowers itself to the ground. If it does not strike the branches of the tree, it goes right down to the ground. It next crawls back up the stem, and is then caught in the bandages. In coming down the tree, if it happens to strike a branch it may crawl down that branch and get caught in the fork, or under a loose piece of bark. Then, when you are using this mixture which is recommended for the scale-blight, if it touches any of the cocoons which the grub spins it burns them up and kills the grub. With the bandaging of the trees when the fruit is formed you will kill a very large percentage of the grubs. But there is no use one man doing it, or half a dozen, if there is one man in the neighbourhood with two or three trees who will do nothing.

37. How often do you remove the bandages?—About a couple of times in the year.

38. Do you say twice a year?—Once or twice.

39. Have you many apple-trees?—About twenty.

40. When you talk of these remedies do you speak from your own experience?—No, not from what I have used myself, but from what I have seen in other orchards, and also in California, where I have been fruit-preserving.

41. You say that you bandage twice a year; how often do you spray?—You keep your bandages on all the time and kill the grub.

42. But how often do you spray for codlin-moth?—It depends a deal upon the weather. If you spray the trees and it comes on heavy rain it will very probably wash off all the spray, and then you want to go in for fresh spraying, but if the bandaging is well carried out you will catch nearly all the grubs, and, of course, every grub would have been a moth.

43. Am I to understand that bandaging would be effectual without spraying?—You must use both.

44. Do you often spray in the season?—I fancy about twice.

45. *Mr. Brown.*] That is in the Nelson District?—Yes. Different climates require different usages.

46. *Mr. Lang.*] You say that the difference of climate in different parts of the colony affects the moths?—Of course it does; they would breed more in some climates than in others.

47. In a warmer climate you would have greater difficulty in dealing with them?—Yes; you would have to spray more often.

48. They would breed more quickly?—Yes.



49. Are you aware that there was a meeting of the fruit-growers of Nelson to protest against the passing of this Bill?—Yes, I was told that there was a meeting, but I was at Motueka, and was not able to get back in time to attend it.

50. And that they were unanimous in their opinion with regard to the Bill?—Yes; but there were not many persons connected with growing fruit for commercial purposes present—in fact, I hear that it resolved itself into a sort of political meeting.

51. Was it not a public meeting called in the usual way?—It was advertised. Mr. Piper called the meeting.

52. How many were there present?—I do not know; but there was no one from the Bay, which is the principal fruit-growing district of Nelson.

53. Do you know the opinion of the fruit-growers as far as Mr. Blackmore is concerned?—I do.

54. You can speak for the Nelson fruit-growers on that point?—Yes; they want Mr. Blackmore back there. They want him to settle in the district, if the Government will only allow it. They think a great deal of him and of the information he has imparted.

55. I think you say the codlin-moth can be cured?—Yes.

56. And it is to be found throughout the Nelson District?—Yes.

57. And do you think that the Nelson fruit-growers are so blind to their own interests that they will not take the necessary steps to get rid of it?—Well, if you had an orchard and wanted to make a livelihood out of it you would do all you could to keep the pest down; but if you have a neighbour with a dozen or half a dozen trees who does not think it worth his while to do anything—not even to syringe his trees—he is simply breeding the blight to stock your orchard, and you cannot help it.

58. I understand the fruit-growers are not taking these steps?—They are in the part of the district where the fruit is grown for commercial purposes, and where people are making a livelihood out of it.

59. Are there many fruit-growers in the Nelson Province who spray their trees regularly twice a year with arsenic, and so on?—I do not take as much interest in apple-growing as I do in plums and raspberries, and strawberries and other small fruit.

60. I want to know what steps are taken by the Nelson fruit-growers to keep the codlin-moth down?—They are using remedies. Mr. Blackmore recommended them to use a special pump called a beam spray-pump. I wrote to California about it, and some of the fruit-growers over in Nelson want to get this pump, so as to use it in spraying. They are taking a lot of interest in spraying.

61. You mentioned a certain portion of the district where there are many commercial fruit-growers. Do they keep it down?—They are endeavouring to do so.

62. Have they been successful?—Yes; they are able to get a hundred clean fruit from a tree now where they were only able to get one some time ago.

63. As far as you are personally concerned, you have had no experience in keeping the codlin-moth down?—No, because it was no use; the boys stole the apples.

64. So that your evidence is given more from what other people have told you?—Yes; but I have been in every orchard in the district and saw what was going on.

65. Then, your own practical experience has not taught you anything?—Of course, I had only a few trees, and the boys stole the apples off them, not only taking the apples but breaking the branches off.

66. You mentioned other pests besides the codlin-moth—the leach and the scale: are these mentioned in the schedule to the Bill?—I think so. I am not sure. The apple-scab is mentioned, and the codlin-moth and the San Jose scale.

67. Which scale do you speak of?—The apple-scale.

68. That is not mentioned in the schedule?—It is called the apple-scab; I believe that is the same thing.

69. Would you be in favour of adding other scales to the schedule?—Yes; the apple-scale and the leach most certainly.

70. *Hon. Mr. Richardson.*] Talking about the climatic effect upon these pests, is it not a fact that in Nelson you have very severe frosts sometimes at night during the season?—It depends upon what you call a severe frost. I have never seen ice more than a quarter of an inch thick on the water there, whereas in America you cannot go outside the door sometimes without fear of being frost-bitten. There is a great difference in degrees of frost.

71. Are not the frosts in Nelson sufficient to kill a great portion of the blight?—No, I do not think so, because they do not sink deep into the ground.

72. My reason for asking is that I understand from my son, who is living there, that this year the ground has been covered with hard frost, and that they had water in jugs inside the house frozen.—We certainly have had more frost this season than I have seen since I have been there, but, still, having had experience of America and Home winters, I do not call the Nelson frosts very hard. The water in a pool might have a little ice on it, but that is all.

73. *Mr. Meredith.*] How long is it since the Nelson Fruit-growers' Association broke up?—Speaking from memory, I should say it was about six or eight years.

74. Since that no association has existed to your knowledge?—No. I was a member of the old association, and paid my subscription as long as it lasted.

75. You are the Kirkpatrick of Nelson?—Yes.

76. Are you able to procure sufficient fruit in Nelson to meet the requirements of your industry?—No.

77. You import largely?—No; I do without it. I am putting up a building now in Nelson which will cover three-quarters of an acre, on one floor, and that will show you the faith I have in fruit-growing. I hope to have it finished in November.

78. Is your home industry expanding?—Yes,

79. Could you give the Committee an idea of the weight and value of the output from your factory for last year?—Of course, that is what no business-man would like to do; it would be making his affairs too public.

80. Then, how many hands do you employ during the jam season?—Last year we had to work very hard; we had to work from about 7 in the morning to 9 at night all through the season; but when the new factory is up we shall be able to do away with overtime and employ more hands. I think it was about forty hands I employed during last season, and in Nelson we cannot get enough hands.

81. You say that you have met Mr. Blackmore, the Government expert?—Yes.

82. Do you consider from your knowledge of that gentleman that he is a competent fruit expert?—I do. I may say that I have been round with him through a lot of the district. I drove him round, and we spent two or three hours in each man's orchard while Mr. Blackmore was showing him what to do, and every person in Motueka and Riwaka has the highest opinion of his capabilities.

83. You found him courteous and respectful?—I have in every instance. If you chose I could get all these people without exception to sign a statement to that effect.

84. *Mr. Lang.*] How many years is it since the codlin-moth made its appearance in Nelson?—I went to Nelson in 1881, and the leach was not there then, and I do not think there was much of the moth. They grew magnificent fruit then—greengages and plums, and fruit of that kind—and then the leach came, and the people thought it would do no harm, that it only attacked the leaves, and would not affect the fruit; but the leaves are the lungs of the trees, and if the leaves are destroyed you cannot get good fruit.

85. That is rather apart from the question I asked you, but I will ask you now whether the leach attacks apples?—No.

86. What I was referring to was the codlin-moth: how long has that been there?—I do not think there was much of it in 1881. There were some districts in which it was, but I do not think they had it in Collingwood or Takaka.

87. How long is it since it has been a recognised pest in Nelson?—I think, when I first went there eighteen years ago, and it has been getting worse until the remedies which have been suggested were used.

Mr. W. J. PALMER examined.

88. What is your profession?—I am a surveyor and road engineer. I practised my profession for over thirty years in Auckland.

89. Where do you reside?—My residence at present is in Palmerston North, but previously I resided in Auckland.

90. Are you in the Government service?—Yes; I am a Pomologist.

91. Will you tell the Committee what experience you have had in fruit-culture?—I am only an amateur, but I have had a good deal of experience in the Old Country. I was employed for seven or eight years under Mr. ———, in England.

92. Have you had experience in dealing with fruit-pests?—Only as an amateur, but I can take it on myself to say that I have imported more plants and done more work in that way than any other man in New Zealand.

93. What experience have you had in keeping down pests, and especially the codlin-moth?—I have been more successful by bandaging the trees, destroying the infected fruit, and by clean cultivation than I have been with spraying. With spraying I have been more successful with scale-insects and with fungus and that sort of thing, but I have used it for other purposes.

94. Is it your business to go about among the different gardens and give instructions?—Yes; it is now four or five years since I commenced with the Government as Pomologist.

95. Are the growers taking steps to cure diseases?—Some of them are spraying more for the fungus and scale-insects, and particularly for the scale, than for the codlin-moth. They have not been successful with spraying for the codlin-moth. They have burned their trees with the Paris green in consequence of not keeping it properly agitated.

96. What is your opinion as regards the Bill we are considering?—I think, on the whole, it is a very useful measure, and I do not think there can be very much alteration to improve it. I only received it a few days ago, and I have only looked at it during the last day or two, but I cannot see that there is a great deal to improve upon it. I certainly think that the Auckland portion of New Zealand should be put under it as well as any other portion of the country.

97. You believe that with systematic treatment the codlin-moth and other pests can be got rid of?—Yes; they can be kept down so far that they will do very little injury. I think that bandaging systematically, using arsenite for spraying, and spraying occasionally for codlin-moth, destroying the infected fruit, and clean cultivation, will enable fruit-culture to be carried on satisfactorily.

98. How often do you spray the trees?—Whenever I find it necessary.

99. How often do you mean—two, or three, or four, times during the season?—Yes; or five or six times, if necessary; any time that I have seen the pests make their appearance.

100. *Hon. Mr. Richardson.*] I understand you had long experience in Auckland, and probably you know the state of the large bulk of the orchards as regards the codlin-moth. Do you think, speaking as an expert, as you are here, that you could take in hand any ordinary orchards that you know in Auckland are badly infected, as they are said to be, and commercially clear them of pests—by “commercially” I mean that you could do it at a cost which would pay the owners to do it?—I have not the least hesitation in saying that I could do it if the orchards were isolated.

101. Then, I understand your reason for supporting this Bill is that it would compel your neighbours to take such steps to clear their orchards as you took to clear yours?—Yes.

102. And then you would clear the whole district?—Yes.

103. *Mr. Massey.*] Following up the Hon. Mr. Richardson's question, I would ask you whether you have heard anything of the codlin-moth taking to the bush-fruits in the Auckland Province?—No; it is so reported, but it has never done it.

104. I think you gave us to understand that since you have been in the Government service you had been most of your time in the Auckland Province?—Yes.

105. And you would recommend spraying there for the codlin-moth?—I would recommend spraying; but I think systematic bandaging, destroying the infected fruit, and clean cultivation would be effective. You could not destroy the moth all at once, but you could so reduce it that it would be no injury to the district.

106. Do you mean that if other precautions were taken spraying might be used?—Yes.

107. Is there not a great loss sometimes in the moist climate of Auckland in connection with spraying, in this respect: that you may spray one day and then heavy rain comes down and washes it all away?—This year I have recommended bandaging instead of spraying in the North.

108. Are there many fruit-growers in the Auckland Province?—A great many, but only a few who are making their living out of it. The greater portion of the orchards are carried on in connection with farming or other businesses.

109. I suppose you have personally visited a good many orchards there?—I know most of them.

110. Are a good proportion of them well kept, or are they otherwise?—Some of them are badly kept; there are very few which are properly cultivated. There are a few whom I could mention who take a great deal of trouble in cultivating their orchards; but one thing I have found is that there is very little attention paid to proper pruning.

111. How will the orchardists there compare with those in other parts of the colony?—Taking them all through, I think they are better in the Hawke's Bay Province, and in parts of Taranaki, than they are in Auckland.

112. That is, the orchards there are kept in better order?—Yes.

113. Are there many people engaged in fruit-growing in Auckland who have a thorough knowledge of their business?—There are a few, but generally they are a class of people who are very bad to instruct. They get into a certain rut, and it is very difficult to get them out of it. In most instances the trees have never been properly started from the beginning. They were put in young trees, and they have been allowed to grow without pruning to keep them within bounds, and consequently they are very difficult to deal with now.

114. We have had evidence with regard to the different orchards in the Auckland Province, and I would ask you with regard to one. Do you know Mr. ——— at Tuakau?—Yes, I have known him for many years.

115. Do you know his orchard?—Yes.

116. Is it well kept?—It is well kept.

117. Does Mr. ——— understand his business?—From appearance and from results I think there are very few people in the country who understand it better.

118. My reason for asking the question is that we had evidence from a Government expert to the effect that Mr. ——— did not understand his business?—Well, he is only an amateur.

119. Do you know anything about the natural enemies of the moth?—I do not believe there are any natural enemies. There may be a few, it is true, but they are very few indeed. I believe there is no natural enemy.

120. Of course, you are now speaking of insects?—Yes.

121. Do you know anything of the kohlmeise, the codlin-moth-eating bird?—I do not know what it is. Is it anything like an English titmouse?

122. It is like the titmouse, but it is not known in England.—I have had a great deal of experience in natural history, and I think the titmouse family is one of the best insectivorous birds I know of, especially the blue-cap. The long-tail titmouse lives more in the plantations, but the black-cap and the blue-cap are more domesticated, and will come about the house.

123. Do you believe a variety of the titmouse would be valuable if imported here?—It is very difficult to say, because many of the birds here which were innocent, if you may term it so, in the old country are obnoxious here. There is the skylark, for instance.

124. *Mr. Lang.*] In your evidence you said if you had an infected, isolated orchard in the Auckland District handed over to your care you could get rid of the codlin-moth?—I feel confident it could be done without difficulty, with proper attention.

125. You mentioned that there are a large number of orchardists in the Auckland Province, many of whom have isolated orchards: are you aware whether a number of those orchardists have done everything in their power to rid their orchards of the codlin-moth?—No; some have done something towards it, but very few. To begin with, they have not destroyed the infected fruit, but have left it on the ground. It is true that the greater portion of the insect life leaves the fruit before it reaches the ground, but, still, there is some there, and yet they leave the fruit on the ground.

126. Up to the present there is no known cure for the codlin-moth?—No.

127. Then, do you not think it would be a better plan for the Government to take an infected orchard into their charge, and so see by what means the orchard could be relieved of the pest, than to compel people to clean their orchards when they do not know what they are to do?—I think it would be very advisable to do so; but it would require some one to continually reside on the place.

128. Of course, I mean that it should be under the charge of the department?—Yes.

129. I understand you to say that you have been a long while connected with fruit-growing in some shape or form?—All my life; it is what I have followed ever since childhood.

130. You mentioned that the Napier and Taranaki districts were better looked after in respect to their orchards than Auckland?—Yes; there have been great improvements in those districts, and, taking them as a body, I think their orchards are better kept than the northern ones.

131. Would not a number of their orchards be younger than those in the Auckland Province?—Yes.
132. That might to a certain extent account for their being better looked after?—Probably so; but some of the younger orchards in the Auckland District have not been properly looked after.
133. Would not that be calculated to make people who are so troubled with the codlin-moth give up hope and throw it up in disgust?—I think the codlin-moth has been the means of preventing people doing as much as they would have done. In many instances they have dug up their apple- and pear-trees and planted stone fruit instead.
134. Do you not think that any orchardist would gladly try any remedy which would rid him of this pest?—Yes; but the difficulty is that his neighbours will not do as he is doing. They may have trees which have been thoroughly neglected, and in that way they counteract everything that the man has been trying to accomplish.
135. I understand you are more in favour of bandaging than of spraying. How often is it necessary to remove the bandage?—Every ten days. I have experimented with the codlin-moth, and I find that it takes about three weeks from the time the egg is laid for the insect to leave the fruit, and it takes another twelve days before it assumes the chrysalis state, and then another seven or eight days before it emerges as a perfect moth. I think there is a great want of knowledge with regard to the habits of the codlin-moth. I have found them to remain in the grub state when they have been hibernating in boxes put away in a cool place for over twelve months, and only then develop into the pupæ.
136. You think an average of ten days would be sufficient in removing the bandages?—Yes.
137. In hot weather more frequently?—Yes.
138. Sometimes oftener than every ten days in the hot part of the season?—Yes. I think with regard to the first brood that the eggs are laid very near the middle of November. I think we are mistaken in believing that the eggs are laid as soon as the petals fall, and that in many cases the eggs are not laid until the apples are about the size of the top of your finger.
139. You say that on an average the bandages would have to be removed every ten days throughout the season?—Yes.
140. And in the warmest part of the season perhaps more frequently?—Yes. I do not think that at any time do they leave the apple. Some think that they do when the hatching is over, and some in eight days.
141. Is it not a fact that the grub will move from one place to another, and it is quite possible for the grub to be under the bandage for three days and then turn into the chrysalis?—I do not think that it will turn into the chrysalis in less than ten days. I have never found them turning in so short a time.
142. Then, what would be the effect if the bandages were only removed twice a year?—They would not be of very much use.
143. Would it not amount to their being breeding-places?—No doubt a large quantity would be destroyed, but at the same time the second brood, whose eggs were laid in November, would come out some time in January.
144. I wish to know if the bandages are removed only twice in the season would they not become breeding-places?—It would be of very little use.
145. Would they not be worse than useless?—They would be of very little use; a large proportion of the pest would have moved.
146. *Mr. Meredith.*] Allowing for the climatic condition of the Province of Auckland being conducive to the breeding of the codlin-moth and other pests, do you consider that a liberal application of the specifics recommended would be effective in getting rid of the pests there?—Yes.
147. You say you have read this Bill through?—Yes.
148. You advance no reasons why this Act should not come into operation in the Province of Auckland?—None whatever. I think that the only means of dealing with these things is to take them in hand at once, and I feel certain that the very people who now most object to the provisions of the measure will be the very people who in the end will most appreciate them.
149. If the Act is not brought into operation in the Auckland District, what effect is that likely to have on fruit-growing there?—If the Act is not brought into force in the Auckland District I think you will very soon have applications that it should be brought into force—that in time the people would see the utility of it, and that they would desire to be placed on the same footing as other parts of the colony.
150. May I infer that you think that in time the very people who are now objecting to this measure would be found petitioning the Government to have the Act brought into operation in their district?—I think that in time they would see the benefits of it.
151. *Mr. Kirk.*] Is there any reason why if the materials which are recommended are used properly they should burn the trees?—My experience is that most of the fungicides and insecticides, as in the case of artificial manures which we have been using, are very much stronger than they ought to be; and in the case of the Paris green, which is the remedy chiefly used, it is owing to the want of its being properly agitated—that either pure water only has been sent through the pump or else nothing but arsenic.
152. There is no reason if these sprays are of good material and properly put on that there should be any danger?—No.
153. You believe that spraying with Paris green will help to keep down the moth, although you believe that bandaging is better as regards the Auckland District?—I believe in carefully bandaging the trees, examining the trees, destroying the infected fruit, and clean cultivation. There is less danger by taking that course than there is in spraying with people who do not understand spraying.

154. In a recently affected orchard would you not use spraying in connection with bandaging?—I would use it; but I would place more reliance on careful bandaging and destroying the infected fruit than I would on careless spraying.

155. If you had your choice, and you must do either one or the other, which would you prefer?—I would prefer bandaging.

156. But if you had an infected orchard in your charge you would do both?—Yes.

157. You mentioned that you did not know any natural enemies to the codlin-moth. I suppose you did not mean that literally, but that you did not know any effective ones?—I do not know any effective enemies. I have seen two or three instances of enemies. One came to my notice at Tauranga, when, in taking the bandages off trees, I saw several of the grubs enclosed with a white fungus, and dead. The white fungus had formed round the grub and shrivelled it.

158. Your remark as to the effectiveness of spraying referred only to the Auckland Province, I presume?—Only to the Auckland Province.

159. *Mr. Lang.*] Are you aware whether continuous spraying with Paris-green or other ingredients in which there is arsenic would be injurious to the trees?—I am afraid it would if continued for any length of time.

160. *Mr. Kirk.*] Would the trees get any harm through the poison being in the ground? You are aware that trees cannot take up the compounds of arsenic?—No; but it is dangerous to use it in extreme quantities.

161. *Hon. Mr. Richardson.*] How would it affect the young bark?—If put on for a week it would affect it very much. I have seen trees much affected from it in that way.

Mr. S. B. WILSON examined.

162. *Hon. the Chairman.*] What is your profession?—I am a fruit-grower.

163. Where do you reside?—At Chaney's, between Belfast and Kaiapoi.

164. Have you had considerable experience in fruit-growing?—Six years at my present orchard, and previously at other places since boyhood.

165. What is the size of your orchard?—Twenty-five acres in the whole, eighteen or twenty of which are planted.

166. What class of fruit do you grow?—Chiefly apples and pears, a few plums and peaches.

167. Have you had experience in dealing with garden pests?—Yes.

168. And especially with the codlin-moth?—No, I have had none with the codlin-moth.

169. Would you tell the Committee what means you use to get rid of the pests, and with what result?—For the oyster-shell- or mussel-scale I use lime, sulphur, and salt in the winter, and lime and sulphur in the spring when the scale is first out, but I find the lime, sulphur, and salt not to be as beneficial as it should be. Perhaps I applied it too early; next time I shall apply it later. For apple- and pear-scab I use Bordeaux mixture, and find it very good. For the shothole fungus in the apricot, and the curly-leaf in the peach, it is a certain cure if applied at the right time.

170. How often do you spray?—I spray twice with the Bordeaux mixture; spray for the black leech twice. I formerly used hellebore, but last year I adopted Paris-green. It is cheaper than hellebore, and one application suffices, instead of two as with hellebore.

171. Does that deal with the whole of the garden pests?—There is one pest that these washes do not affect, and that is the American blight or woolly aphid. I have used mixtures for it, but without effect. It is one of the things I object to in this Bill that that blight is put in the schedule. It looks unsightly, but it does not hurt the fruit. I have had as fine fruit on trees badly affected with American blight as I have had on the cleanest trees.

172. Do you cultivate the 20 acres which are planted, or are they in grass?—The 18 acres in trees are all cultivated. You cannot get good fruit unless you do cultivate. It must be done if you want to grow fruit properly.

173. Have you many neighbours?—No; I am rather isolated.

174. Do you know the means that other orchardists there employ?—They use lime, sulphur, and salt chiefly. Some use only lime and salt because it is cheaper, but it is not so good.

175. Is there any codlin-moth in your district?—Not that I know of. I have always been particular not to have old cases; I always use new ones.

176. You think old cases are the means of spreading codlin-moth?—Yes.

177. Have you read the Bill?—Yes.

178. Do you approve of it?—Yes; but I take exception to the American blight being in the schedule. Again, supposing 50 per cent. of the fruit in an orchard is affected with codlin-moth, I think it would be a hardship if the other 50 per cent. could not be marketed. If the Inspector is away from the district a man's fruit might be rotten before he could get it passed. It would be a hardship if a man could not market his clean fruit.

179. Is there any other point in the Bill that you would like to draw attention to?—Yes, there is another point. Clause 9 says that an Inspector shall have power to "open packages." I have heard complaints about Inspectors opening cases of oranges and not nailing them up again, to the great loss of the importers. It is only a small thing, but I have heard importers in town complain of it.

180. Do you want any diseases added to the schedule?—No.

181. *Mr. Lang.*] I understood you to say that there is no codlin-moth in your orchard?—There is none in my orchard.

182. I suppose there is a considerable amount in the province?—I do not know.

183. Is it scattered over the province in different parts?—It is in Akaroa.

184. I understand you take exception to clause 8 of the Bill?—Yes, to subsection (3) of that clause. I would allow plants to go out if they are clean under supervision.

185. Your position is this: that if a person has a certain amount of codlin-moth in his orchard it is unfair to prevent him sending clean fruit to the market, which this clause would do?—Yes.

186. You believe in cultivating an orchard: does that mean keeping the ground clean or growing other crops on it?—Keeping it clean.

187. You mentioned spraying with Bordeaux mixture twice. At what time do you usually spray?—Just when the buds are bursting, and again after the petals drop. I have sprayed with ammoniated carbonate of copper as well, and found it equally efficacious.

188. *Mr. Meredith.*] Is the Provincial District of Canterbury comparatively free from the codlin-moth and other fruit-pests?—It is comparatively free from the codlin-moth, with the exception of Akaroa. I am not speaking from my own experience, but I am told that it is so. The scale and the red spider are universal.

189. You have very strong objections to importing infected fruit in cases to Canterbury?—Yes, I have very strong objections.

190. You find that the indiscriminate distribution of cases helps to infect fruit?—Yes.

191. You have read the Bill?—Yes.

192. Have you read clause 3, which proposes to exempt the Auckland Provincial District from the provisions of this Bill?—Yes, I have read it.

193. Are you in favour of exempting any portion of New Zealand from the operations of the Bill?—I see no objection as a fruit-grower if they send out clean fruit only under supervision.

194. I am speaking now in the interest of fruit-growing throughout the colony in its large and general sense, and not from any local view. Do you think that it is in the interest of fruit-growing generally that Auckland should be exempted from the operations of the Bill?—No; I do not see any reason why it should be exempted.

195. Are you aware to what extent fruit-growing as a commercial pursuit is carried on in Canterbury—that is to say, as an industry taking up the whole of a man's time?—During the last six years it has increased very much, and people are going in for it very largely now. I consider myself it will be a very big thing, second or third only to the frozen-meat trade and the dairying industry. I think it has a very large future before it if properly carried out, and the only way to do it successfully is first to plant your orchard properly, and cultivate and spray systematically. People put in their trees and expect to get fruit from them without doing anything else. They will even run cattle among their trees. The sooner they are brought to see that they are doing wrong the better it will be for their own interest and for their neighbours in preventing the spread of diseases of all sorts. We are now shipping large quantities of fruit from Canterbury to other parts of the colony and to South America.

196. *Hon. the Chairman.*] Is it not already an important industry?—Yes. During the last five or six years much greater energy has been shown by the growers, resulting in a vastly increased production.

197. *Mr. Wason.*] You will recollect that last year at a meeting in Christchurch it was stated to the members representing the district in the House that a large number of cases of infected fruit were sent down from Auckland to Canterbury, and that as they were being taken along in carts the codlin-moths were actually dropping out of them?—Yes, that is correct.

198. Do you think that this Bill gives the Inspector sufficient power to deal with such cases—I mean under section 9 of the Bill? From what was said at that time it seemed to be absolutely necessary that the Inspectors should have power to destroy all infected fruit: do you think it was necessary?—I do.

199. *Mr. Massey.*] In answering Mr. Meredith you said that the fruit-growing industry in Canterbury was prosperous, and that it was growing more so?—Yes.

200. Do you think that this Bill would make it still more prosperous if it were to come into law?—Yes, I do. There would be more and better fruit grown, which would result in outside markets being further developed. People would then find that they would get regular prices for their fruit, as is the case in Tasmania, and it would induce merchants to buy for shipment abroad.

201. Do the people in Canterbury at present produce sufficient fruit for their own requirements?—No, hardly enough.

202. You import a certain quantity?—Yes, a certain quantity.

203. Are you here as the representative of an association?—Yes, I am one of the representatives of the Canterbury Fruit-growers' Association.

204. Has your association held a meeting since this Bill has been circulated?—Yes; they had an informal meeting, at which I was appointed one of their representatives.

205. Lately?—Yes, it was lately; within the last three weeks.

206. At that meeting were you appointed as their representative?—Yes, I promised to go.

207. Did the association consider this Bill?—Yes, at this meeting.

208. *Hon. the Chairman.*] Have you only had one meeting since this Bill was circulated?—I do not know how long this Bill has been circulated.

209. Has the Bill been considered by the association?—By some members of it.

210. But not as a body?—No, not as a body. It was considered by the committee at this meeting, and I was appointed to be representative.

211. *Mr. Meredith.*] Is your committee the executive of the Fruit-growers' Association?—Yes.

212. *Mr. Massey.*] Did they go through the Bill clause by clause?—Yes.

213. Are they in favour of the whole of the Bill?—Some amendments drafted by the chairman are desired.

214. Would you tell us what clause they object to?—Clause 3.

215. That is the clause which relates to the Auckland District?—Yes. They also object to clause 8, which says that no fruit can be removed from an infected orchard, whether it be clean or

not. They also object to the American blight being put in the schedule, so as to cause the orchard to be proclaimed infected. [See chairman's amendments, to be handed in.] It was proposed at the meeting that the members should go through it again and see what they thought of it, and then that they should meet again and consider it, but there was not time. We were expected here last Monday, and as there was not time to go through the Bill again the amendments were left to the chairman to prepare.

216. So that, as a matter of fact, very little has been done in that way?—A good deal has been done by the executive.

217. Are there other clauses to which you object?—We object to clause 9. At that meeting it was resolved that Mr. Wilding, as chairman, should go through the Bill and make suggestions and amendments.

218. Are you secretary to the association?—No; I am a member of the committee.

219. Have you had any experience with the codlin-moth?—No.

220. *Hon. Mr. Montgomery.*] You object to the provision in subsection (3) of clause 8; which requires the consent of the Inspector before clean fruit can be removed from an infected orchard: you think that if the Inspector were not present it might be too late to obtain permission; but what would prevent a dishonest person from sending infected fruit out of his orchard?—I certainly approve of the Inspector inspecting all fruit sent out of an infected orchard, but the question is how it should be done. There are many orchards and few Inspectors, and there may be delay in getting fruit passed.

221. Have you any suggestion to make?—I think it must be left to the orchardists themselves, and if they send out infected fruit, then they must be subject to a penalty, as proposed in the Bill. What I object to is that, supposing an Inspector can trust a man with regard to the condition of his orchard, it would be rather hard on the man if he could not send out his clean fruit until the Inspector came to examine it, because the fruit might have to lie so long that it would rot.

222. You said that cases of fruit had come from some other part of the colony, and that the codlin-moth had dropped out of the cases as they were carried along in carts?—Yes, that was so. They were packed in sacks and cases.

223. Do you think that clause 18 would prevent such fruit from coming into your district?—Yes, I do.

224. *Mr. Kirk.*] You mentioned that you were using the Bordeaux mixture for the peach-curl?—Yes.

225. You know that some people say that the pest will not be controlled by the Bordeaux mixture?—Yes.

226. You are fully convinced that it is?—Yes.

227. You said that none of the washes are effective against the American blight?—Yes.

228. Have you tried kerosene emulsion?—I have used that also. I have used it more for the red spider and scale.

229. Was there any American blight?—Yes. Of course, in spraying for the red spider I expected that the kerosene emulsion would have an effect on the American blight.

230. You know that the red spider is easily treated as compared with the American blight?—Yes.

231. Have you ever tried a little carbolic acid with the kerosene emulsion for the blight?—No.

232. You said that in the inspection of imported oranges some cases were opened and not nailed up again. Whose duty was it to see that they were nailed up again? Is it the Inspector's or the importer's?—That is a point I do not know. I do not know whose duty it is. I only mention it as being hard on the importers, who cannot always get down to port in time to see the cases opened.

233. You said that the Canterbury orchards have very much improved within the last six years. Could you tell the Committee what induced the orchardists there to go in for those improvements: was it through the action of the Government and on the advice of the Government experts, or was it on the motion of the fruit-growers themselves?—I think the improvement has been more noticeable during the last four years, roughly speaking; and I think the reason why the orchards have been improved is that the Government have sent Inspectors round to give us information, and they have given a great stimulus to the industry. It has also been encouraged by the duty which has been put on fruit imported from abroad. Before that we were never certain of a market. The Tasmanian fruit came in by thousands of cases at a nominal freight, and glutted the market. Since the duty of 1d. in the pound has been put on we have had a regular market, and the consumer has not been affected; he has not to pay more for his fruit. Apples are sold as cheaply now as ever they were.

234. You are fully convinced that fruit-growing cannot be properly carried on without efficient spraying?—That and cultivation.

235. I understand you to say that your association has not had a full discussion on this Bill?—Yes.

236. Is it not true that the association discussed the matter before and drafted a Bill of their own?—Yes.

237. How long ago: was it last year?—We had several meetings with the Canterbury members, and thoroughly discussed a Bill, and drafted one. We have always urged our views in favour of legislation such as now proposed.

WEDNESDAY, 17TH AUGUST, 1898.

MR. F. WILDING examined.

1. *Hon. the Chairman.*] What is your profession?—I am a barrister and solicitor by profession, and I am also managing director of the Styx Apple Company.



2. Will you tell the Committee what experience you have had in fruit-culture?—My boyhood was passed amongst orchards in the West of England. During the last fifteen years I have been managing the Styx Company's orchards. Nine-tenths of the capital of that company has been found by myself—I might almost say that I am the company. We have 33 acres of orchard, old bush land, which has been highly cultivated and planted.

3. What kind of fruit do you grow?—The great proportion are apple-trees. There are 3 or 4 acres of pears and a few plums. I only claim to have any practical knowledge of apples and pears. I do not profess to know much of other fruits.

4. Would you tell us what experience you have had with such pests as you have, and which you find the most troublesome?—In our orchard we have no codlin-moth at all. We have the scale and the red spider and the American blight. I understand that Mr. Wilson in his evidence yesterday said there have been some isolated cases of the moth near Christchurch, but not in our district. There are none in our orchard.

5. Which of the pests have you found most troublesome in your orchard?—I should place the scale first, and then the red spider, and last the American blight.

6. What means have you taken to get rid of these pests?—For some years it was a case of *laissez-faire* policy. We had an antiquated system of pruning. We simply went on the old lines of severe winter-pruning and letting the trees alone at other seasons, but for the last seven or eight years we have adopted an entirely different policy. We prune close in summer as well as in winter, and give the trees plenty of air and sunlight. Thus we grow our fruit on the thick branches and have no weedy shoots. We cut our trees down to a reasonable height, and crop the main branches only. That is most important, not only to prevent loss from the prevailing high winds, but also for convenience in spraying the pests.

7. Has that resulted satisfactorily?—Unquestionably. We have sprayed systematically. We are doubtful about the efficacy of winter spraying for scale. We find that it completely destroys most parasitic growths, and from repeated examination with the microscope we find, also, that it destroys a good percentage of the scale, but it will not exterminate it.

8. Has the scale been well kept under?—Yes; I doubt whether it is possible to eradicate it altogether without a great expenditure of labour and money, but it has been kept under so that the trees have grown well, and the fruit has been so clean that we have been able to market it to advantage.

9. Will the dressing for scale last for a year?—No; we dress with lime, sulphur, and salt in winter, and with weaker dressings in summer. I have also used caustic potash and soda in winter. It is more effective, and corrodes the scale better than lime-sulphur-and-salt wash.

10. Could you tell us your own experience, and also that of other people generally: have they generally adopted the same system?—Yes; Mr. Sisson and Mr. Wilson, and a good many other fruit-growers there, adopted the same system.

11. And the codlin-moth has been no trouble in your district generally?—No, I do not think it has been any trouble at all. There have been isolated cases. I know of one instance, but, very properly, steps were taken, under the supervision of Mr. Blackmore, and it was stamped out. There is no possible doubt of the efficacy of spraying. You cannot grow good fruit in any quantities without considerable spraying. I should say that if it is to be effectual you must certainly spray four times at least in the year, and with many trees as often as six or seven times. This has been our practice.

12. You have not had any occasion to use bandaging, as you have not got the codlin-moth?—No.

13. Have you read this Bill?—Yes.

14. Would you give the Committee your opinion generally on the provisions of the Bill?—I think that it was a dozen years ago that our Fruit-growers' Association started, and I have been chairman of the committee ever since. From that time till now we have been persistently urging our views in favour of legislation in the direction aimed at by this Bill. Our industry has been growing with every prospect of success, and our chief complaint has been that infected fruit has been brought in from foreign places, from Tasmania and Australia, and from distant parts of New Zealand, and would infect our orchards. In many instances the cases in which the fruit was sent were simply reeking with moth. We knew that once the moth got established in our orchards it would be almost fatal to our industry. It has been said that the strong winds prevalent in Canterbury would prevent the moth propagating freely, but I am satisfied that this view is erroneous. The winds there will have no effect in stopping the inroads of the moth once established. The damage from all other pests put together would be nothing as compared to the damage from the moth if once it got a firm hold.

15. Can you suggest any points in the Bill in which practical improvements can be made?—I have gone through the Bill carefully, and I venture to make a few suggestions. In the first place, I draw a distinction between the pests which can be disseminated through the country by means of the fruit and the pests which I think cannot be disseminated by means of the fruit. The only one that I am practically concerned with which can be so disseminated is the codlin-moth. Mr. Wilson in his evidence yesterday stated that large quantities of fruit were imported from other parts into Canterbury for the purpose of cider-making, and that the moths and their larvæ were absolutely swarming about the Lyttelton Wharf. Every sack was reeking with the moth. We saw that it was very dangerous, and we made strong representations to the firm who imported the fruit, and they courteously stopped the importation of any more such fruit; but there was no law to prevent them, and there is nothing to prevent a recurrence of the danger.

16. Then there have been steps taken to prevent the importation of infected fruit?—Yes; but such steps were voluntary. Infected fruit can still be brought from other places inside the colony. It may be stopped coming in from other colonies, but there is no law which prevents it coming from other parts of this colony and thus infecting clean districts.

17. Then, you think that is one thing the Bill should make provision for?—Yes. I have suggested putting the codlin-moth and all pests now existing in the colony, or likely to come into the colony, which can be disseminated by means of the fruit, in a schedule by themselves. That might be called Schedule A, and that no fruit coming from an orchard infected with pests mentioned in Schedule A should be allowed to come to a clean district, except under the supervision of an Inspector. The orchardists in Canterbury do not wish to urge anything unfair or unreasonable on districts which are not so happily situated as their own. Therefore we do not ask that fruit should be absolutely tabooed from an infected orchard, but merely that the Inspector should examine and pass it if clean, and that there should be a penalty if people knowingly sent infected fruit into a clean district, or offered it for sale. I have suggested one schedule for these pests that can be fruit-borne, and another for pests which cannot be spread by means of the fruit, such as the American blight, the red spider, and the scale. These latter pests, of course, can be disseminated far and wide through the country by means of nursery stock. I saw a nursery in Canterbury a few days ago from which quantities of trees were being sent to auction-rooms in Christchurch. Some of them were as badly infected as they could be with the American blight, with the red spider and the scale. Persons ignorant of fruit-culture would not notice the eggs of these insects in the nodes of the trees, would buy them cheap at auction, and pests of every kind would thus be disseminated through the country. That sort of thing should be stopped, because it is useless for people with large orchards to spend their time and money improving them and keeping them clean when they may have people near them who are thus spreading and propagating pests.

18. *Hon. the Chairman.*] The Bill makes this provision:—"The Governor by Order in Council gazetted may from time to time make such regulations as he deems necessary for any of the purposes following, that is to say,—(1) Prescribing the manner in which diseased plants or fruit and infected packages shall be treated, cleansed, destroyed, or otherwise disposed of; (2) Providing for the registration of such orchards as are nurseries, and the terms and conditions of such registration." Would not that meet the case?—Yes, partially, and that brings me to another suggestion for dealing with all pests in nurseries and orchards, which is embodied in the amendment which I have drafted and hand in. I have based my amended clauses on the Rabbit Act, for this reason: the Magistrates, the public, and the lawyers understand the working of the Rabbit Act. It has been tested in Court over and over again; it has gone through the fire, and is workable. The clause I have suggested provides that the Inspector may enter at any time into an orchard or nursery; the Inspector's opinion as to whether there are pests which ought to be checked is conclusive. It is no doubt a large power to put in the hands of the Inspector, but it is necessary that he should have it. There should be a printed form of notice to be signed by the Inspector calling upon the orchardist to adopt measures to prevent the spread of or eradicate as far as possible the pests. The Inspector should have power to say what ought to be done. There are different remedies well known to experts, which have been tested not only in New Zealand, but in all parts of the world. People ignorant of them ought to be notified what they should do. If an orchardist neglects within seven days, or whatever time may be fixed upon, to take the measures prescribed in the notice to check the pest, or if, having so begun, he does not continue to do it in a manner satisfactory to the Inspector, there is a penalty. If the orchardist persists in neglecting to take reasonable action the Inspector may put on men to treat the orchard, and the cost is to be charged to the owner. Those amendments are modelled on the Rabbit Act. Some gentlemen are inclined to doubt the possibility of dealing effectively with fruit-pests, in parts of the colony at all events. I say that no one who has had any experience in growing fruit can have any doubt upon the matter. But to suppose that you are going to destroy the pests in a badly neglected orchard, particularly where the trees are forty or fifty feet high, with one dressing is absurd; well-directed labour for two or three seasons is necessary. I should like to give an instance of what can be done with an infected orchard. I have visited Mr. Wilson's orchard frequently before he took it up six years ago, and since. The trees were upwards of thirty years old, and had been terribly neglected. Couch-grass was growing all over the land. Cattle were allowed to graze amongst the trees. The grass had also been cut year after year and taken away for hay, which is fatal to the health of the trees. The consequence was that the little fruit grown in that orchard was valueless and unmarketable. Mr. Wilson set to work, cultivated highly, syringed the trees systematically, and manured. The result is that the pear-trees, which he had been advised to cut down, are now bringing in £3 and £4 per annum apiece. Therefore gentlemen in other parts of the colony who have old orchards need not despair. It will take two or three years to do all that is necessary, but it can be done, and will pay well. Therefore I think some mild compulsion on slovenly orchardists is desirable, even in their own interests apart from the danger to their neighbours.

19. From your evidence, it would appear that you are in favour of cultivation?—Yes, and plenty of it. I should like to say, with regard to the prospects of fruit-growing in Canterbury, that I am exceedingly sanguine. For a great number of years the orchard in which I am largely interested was run at a dead loss. Year after year there was a dismal result of the loss of some hundreds of pounds. That has changed, and it is now going on steadily to the good. The production is increasing every year. We were the first to start the cider-industry in New Zealand on anything like a large scale. We have imported fruit scions of the best cider-trees from Devonshire and Herefordshire, and grafted them with success. I look forward to the cider industry being a very large thing in Canterbury and in the North Island. My company also started exporting fruit to England, but during the last five or six years we have had an excellent market in Rio. A considerable quantity of our best fruit has been purchased by an Auckland firm for sale in South America, and they have paid us a good price for it.

20. Better than in the colony?—Certainly. We send some thousand of cases each year to Rio, through two or three firms, who buy it from us.

21. What is your opinion of the kind of land which is most suitable for growing fruit successfully? Have you obtained the very best land, or does land of a moderate quality grow fruit as well?—Our land cost us in the rough state over £50 an acre, and we have spent another £50 an acre on it in draining, fencing, &c., apart from the cost of planting.

22. What was it?—It was an old bush-swamp. When I first came out I lost myself in the high flax growing there.

23. Is it necessary to have rich land?—No, that is not absolutely necessary, but it is certainly desirable. The point is this: you ought to have the very best land, because the interest on the cost of the land is a small item compared with the annual cost of the labour, in spraying, pruning, and cultivation. For instance, with 33 acres of orchard we have nearly always six men employed. We cultivate highly, and latterly we have been using manures from the Islington factory.

24. If this industry was encouraged in the district would you recommend the setting-apart of good land for it?—Yes. Of course, good fruit will grow on poor land if cultivated and manured, but much more fruit and of better quality will be produced from good land, while the annual cost of labour, &c., is not greater than on poor land.

25. Is your orchard situated in level country?—Yes. The district round Papanui is very good land. It is affected by water and wants draining.

26. Have you shelter?—No. I have had poplar and willow shelter-belts planted amongst the fruit-trees, but I have cut them out, as they robbed the soil too much. Personally, I do not believe shelter is necessary. We keep our trees cut down as low as we can. Last year we had a very high wind in Canterbury, and we had two or three exceptionally heavy gales, so that in some places the ground was literally strewn with apples. In many orchards where there had not been close pruning the crop was practically destroyed. We had adopted close pruning, and so saved most of our fruit. Sometimes people say that the climate of Canterbury is not adapted to fruit-growing. I entirely differ from them. I am convinced that fruit can be grown there profitably in large quantities, and that there must be a good export trade. We have Rio now, but the time will come when we shall be sending fruit in large quantities to England.

27. *Mr. Meredith.*] You paid a high compliment to Mr. Wilson's skill in working his orchard of 25 acres at Chaney's, and you spoke of his success in the cultivation of pear-trees, making them a commercial success: would the same remark apply to all other fruit-cultivation in the same orchard?—Certainly; there is a good market now for all kinds of fruit.

28. It is not to the market that I am referring, but to the success of the specifics applied?—I do not know much about any fruit but apples and pears, but there is no doubt the same liberal treatment would apply with equal advantage to other fruit-trees.

29. *Mr. Massey.*] Have you had any trouble with the codlin-moth?—No.

30. Consequently, as far as the moth is concerned, you are not prepared to recommend a specific?—No; but I have read a good deal about it.

31. You have had no personal experience?—No.

32. Do you think this Bill too stringent?—No. I think it rather errs in the direction of being too mild.

33. Have you had any experience of fruit-growing in the North Island?—No.

34. You have been in the North?—Yes.

35. And know that it is very much warmer, and that there are climatic reasons why it is easier to deal with pests in the South than in the North?—I doubt it. We have had great difficulty in dealing with them in Canterbury—in fact, even now it is a case of incessant warfare to keep them down.

36. The fruit-growers in the North have no difficulty with the other pests; it is only with the codlin-moth; and you can only speak from the Canterbury point of view?—Yes.

37. Have you made the Styx Apple Company a commercial success?—Well, yes. I think I may say it is now. It depends upon how you keep your books. Formerly we went to the bad £300 or £400 in the year. That was the result year after year, but now the balance is the other way.

38. It is paying working-expenses and interest on capital?—Yes, now it is.

39. *Mr. Wason.*] Mr. Wilson told us that, although you were successful with fruit-growing in Canterbury, you could not grow sufficient fruit to supply the local wants, and you tell us that you have been exporting lately: how do you reconcile the two statements?—I do not think Mr. Wilson meant to convey that impression. I am sure that we are producing far more apples and pears than are required in Canterbury. Practically all my fruit has gone away. With regard to plums, too, we export largely to Dunedin. We grow a great many more plums than we want. Apricots are imported to Christchurch. I think Mr. Wilson was referring more to the soft fruits. We get strawberries and currants, and that class of fruit, from a distance.

40. Not from outside Canterbury?—No; from Waimate; and, of course, a great deal of stone-fruit comes in from Nelson, Teviot, and elsewhere.

41. *Hon. the Chairman.*] Do you not import apples and pears from Australia?—Very little. A few hundred cases of Tasmanian apples have come in this season, but they were inferior, and are not to be compared in quality with the best Canterbury fruit.

42. Then the fruit one sees in the shops is locally grown?—Yes; our growers send their second-class fruit to the Christchurch shops and the best away.

43. *Mr. Wason.*] Then, with respect to this Bill the objection of the Auckland fruit-growers—and there is an enormous quantity of fruit grown there—is that if we stop the fruit going out it will be a very serious injury to them. Do I understand that there is a large quantity sent down to Canterbury for the purpose of making cider?—Last year there was.

44. Would it be possible to bring that fruit down in pulp in the same way as they do at Home with oranges? In that case the fruit is not imported, but the pulp is sent.—No; it would not be

possible. Fermentation would set in unless the pulp was heavily sulphurised, and you could not make good cider with pulp so treated. Latterly, I understand that Fletcher and Humphreys, who take our fruit-juice from the Canterbury orchards to manufacture cider, have started a branch in Auckland, and they buy the Auckland fruit, and partly manufacture the cider there.

45. Then it would not be practicable to bring the pulp down from Auckland?—I do not think so.

*Amendments suggested in certain Clauses of the Bill by Mr. Wilding.*

Clause 8. Any Inspector, or other person authorised by an Inspector, may at any time enter on and remain on any orchard for the purpose of inspecting any plants therein, and shall have free right of ingress, egress, and regress with, over, and across such orchard for such purpose.

9. Any Inspector may give to any one or more of the owners of an orchard in which the Inspector believes there are plants infected with any disease named in either Schedule A or B hereto notice in writing to the effect set forth in Schedule C hereto, requiring such owner, within seven days after the service of such notice, to take such steps to eradicate and prevent the spread of such disease as the Inspector in his discretion shall think necessary and shall specify in such notice.

10. If within seven days after the giving of such notice such one or more of the owners to whom the same is given do not commence to do all such acts, deeds, matters, and things as the Inspector shall think necessary for the purpose of eradicating and preventing the spread of such disease, and shall have specified in the said notice in the shortest time possible, and having so commenced do not continue such action with all reasonable diligence to the satisfaction of such Inspector, each one of the owners to whom such notice shall have been given shall be liable to a penalty of not less than one pound nor more than twenty pounds.

11. After the expiration of one month from the date of a conviction under the preceding section, if any disease shall, in the opinion of the Inspector, still continue to exist in the plants in the said orchard, and the owner so convicted shall, in the opinion of the Inspector, have failed to have taken all proper measures with reasonable diligence to eradicate and prevent the spread of disease, the owner so convicted shall be liable to a further penalty of not less than five pounds nor more than twenty pounds, and so on for each succeeding period of one month during which such owner shall fail or neglect to take or to continue such action as the Inspector may have prescribed in the said notice.

12. If any owner to whom any such notice shall have been given shall neglect or fail to comply with any such notice, then, in addition to or in lieu of proceedings for recovery of a penalty as aforesaid, any Inspector, or any person authorised by an Inspector, may enter upon such orchard and use all such means, and take all such measures, and do and perform all such acts and things, as to him may appear proper or necessary to be done to eradicate and prevent the spread of any disease, and the total cost, charges, and expenses of all work, and all things so done by or by the authority of the Inspector, shall be immediately recoverable by the Inspector as a debt due to the Crown.

Schedule C.—Notice under Section :

To [*Name of person or body to whom notice addressed*], of [*Address*].

TAKE notice that I, the undersigned, an Inspector under the above Act, pursuant to the provisions of the said Act, hereby notify you that I believe certain of the plants—to wit (*Here specify the trees or plants referred to*)—in your orchard at (*Here describe locality of orchard*) are infected with (*Here name disease*), and I hereby require you forthwith to take the following measures to eradicate and prevent the spread of such disease (*Here specify steps to be taken*).

Dated at \_\_\_\_\_, this \_\_\_\_\_, day of \_\_\_\_\_ 189 \_\_\_\_\_.

Inspector.

N.B.—Your attention is directed to the clauses of the said Act printed on the back hereof. On neglect or failure to comply with this notice, in addition to the penalties prescribed by these sections, the eradication and preventing of the said disease may be effected by the Government at your expense.

Mr. F. Sissons, examined.

46. *Hon. the Chairman.*] What is your profession?—A fruit-grower.

47. Where do you reside?—At Papanui.

48. Would you kindly tell the Committee what experience you have had in fruit-culture?—I have been growing fruit for thirty-five years in this colony, and I also had experience at Home. Of course, I find, as Mr. Wilding said, that high cultivation is best. I always prune my trees, and keep them highly cultivated. I do not use horse-labour, but do all by hand, and I believe the results are satisfactory and will continue to be so.

49. What kinds of fruit do you grow?—Apples, pears, cherries, and plums chiefly, and a few peaches, but not many.

50. What is the size of your orchard?—About thirty acres.

51. Will you tell us what kinds of pests you had had to deal with, and how you have dealt with them?—I have had the scale and the American blight for a number of years, and also the red spider, but I have always managed to keep them down. My fruit fetches the best prices, and I am satisfied with that.

52. With the codlin-moth has your experience been the same as Mr. Wilding's?—I have had no experience with the codlin-moth in this country, but I have known it a little in the Old Country, where the natural enemies keep it down.

53. What are they?—The cuckoo is the principal one. Wherever you hear the cuckoo in an orchard you may be sure that the codlin-moth is there. They keep it down wonderfully.

54. What has been your course of treatment of the blights that you have had to deal with?—Applications of lime and sulphur. I have done no spraying in winter until lately, but with the scale and the red spider we syringe about November. Of course, I have adopted a method of my own. In some portions of my orchard it would not be advisable to spray very heavily, but I have treated other parts very strongly, not minding whether it destroyed the fruit or not. You may destroy it one year, but you will get all the better fruit the next, and so you keep up the balance every year. I eradicate the scale one year, and then the next year the trees want very little dressing.

55. You are satisfied that continuous spraying is necessary?—I have always sprayed my orchard for the last twenty-five years, and I could not grow marketable fruit without doing it.

56. You have seen this Bill?—Yes.

57. Will you tell us what you think of it generally: whether you think any alterations are required in it, or do you consider it useful?—Most decidedly I do; but I fancy, so far as the codlin-moth is concerned, if we do not take remedial steps at once to keep it in check we shall have Canterbury overrun with it as is the case in the North, and we shall be put to great expense in getting rid of it. Now, when there is so little of it, is the time to combat it.

58. Have you considered the points put by Mr. Wilding—the danger from the want of proper supervision of orchards, and so on?—Oh, yes; we have been thinking over them for years. Our association has been considering them, and we have always been in favour of Canterbury having proper supervision.

59. Then, you think the danger to the district is great of getting this pest?—Yes; it would simply mean ruin.

60. And you approve generally of the recommendations which Mr. Wilding has made?—Yes, I thoroughly approve of them. There is one little matter that Mr. Wilding has drawn your attention, and with regard to which I should like to say something: that is, if there is very little moth in an orchard, and there may be hundreds of bushels of clean fruit, it should be allowed to go out, but, of course, under inspection. I think it would be hardly right to condemn the whole quantity, clean and infected alike. It would be a matter of a year or two before a man could get rid of the moth if it once got into his orchard.

61. Is there anything else you would like to say in reference to the Bill?—No, I do not know that I have anything more to say.

62. *Mr. Meredith.*] Have you had any assistance in the cultivation of your orchard from the Government fruit experts?—I have had very valuable suggestions from them. There are two or three of the remedies which they suggested which I have tried, and found them beneficial. For instance, the Bordeaux mixture is very effective with the black-spot. I find it very beneficial to the fruit-trees; it cleans them thoroughly.

63. Have you been favourably impressed with the qualifications of the Government experts?—Yes; I have found Mr. Blackmore a very efficient officer indeed. In fact, he is most courteous in every way, and I think he has done his duty, and we are thoroughly satisfied with him in Canterbury. He has gone to many orchards where there were men who did not know much about fruit-growing, and he has advised and assisted them. I think he is a very excellent officer.

64. Have you found Mr. Blackmore offensive when his views did not agree with yours?—I do not suppose there is any anybody in Canterbury who has had more arguments with Mr. Blackmore than I have. At the same time, I have always found him most courteous. I do not think I could wish to have an argument with a man who is more fair.

65. Is the Committee to infer that you are practically carrying out the suggestions of Mr. Blackmore?—Oh, not always. I do not carry out everything he tells me, because I have had as much experience as he has.

66. Have you read this Bill?—Yes.

67. What do you think of clause 3, which proposes to exempt the Auckland Provincial District from the operation of the Act?—Of course, I think it is a pity that the Auckland people should wish to have that clause exempting them from the operation of the Bill, but if they will be lazy and indolent, and will not clean their orchards, I do not see why they should be allowed to have their infected fruit running all over the place. If I were there I would advise them to put a little more energy into their work, and cultivate their orchards, and then they would get rid of the pest.

68. If we are to encourage and develop the fruit industry of the colony as a whole, is it your opinion that it is eminently desirable that no part of New Zealand should be exempted from the operation of the Act?—Of course, I wish the Canterbury District to come under the operation of the Act, but I can hardly give advice as to other parts of the colony.

69. What I mean is that if fruit is imported into a district comparatively clean from an infected district should not the Act be brought into force in the infected district, or it would be a menace to fruit-growing generally?—Of course, if the fruit is examined by an Inspector and is found to be clean I do not see why it should not be sent out.

70. You are aware that considerable quantities of fruit have been imported into Canterbury from Auckland, and that these have been infected with the codlin-moth?—Yes.

71. Do you think that is a desirable thing in the interest of fruit-growing generally?—No, certainly not. I think it is ruinous, and would affect the whole country.

72. *Mr. Massey.*] Following up Mr. Meredith's question about infected fruit being imported into Canterbury from Auckland, I would ask you whether you are aware that very large quantities of seeds have been sent to Auckland from Canterbury, and that they were infested with dock and sorrel and Californian thistle and such things: is that desirable?—Well, that is rather outside my department.

73. You are not prepared to answer the question?—No. I will leave that in other hands.

74. Have you ever been in Auckland?—No.

75. Then, so far as Auckland is concerned your opinion is of no value?—No. I have been at Napier and Wanganui and other places in the North Island, and if all the orchards are like what I saw there I do not think much of them.

76. You represent the Fruit-growers' Association?—Yes.

77. Did they ask you to come here and give evidence?—No, they did not do that. I rather put myself in the way of coming. Mr. Blackmore told me that Mr. Ritchie would like to have my opinion in writing, and I thought it would be better for me to come here and speak for myself.

78. Are you here to give evidence at Mr. Blackmore's request?—Well, Mr. Blackmore wrote to me and said that Mr. Ritchie wished me to express my opinion in writing. I spoke to Mr. Wilding, the chairman of the Canterbury Fruit-growers' Association, and he thought it would be better to come up and then I could be heard.

79. Did he mention anything about expenses?—No.

*Mr. Ritchie* explained that Mr. Sisson was practically a departmental witness.

80. *Mr. Massey.*] Do you know anything about the natural enemies of the moth? You say that the cuckoo is the natural enemy of the codlin-moth in England: do you know anything of the titmouse?—No.

81. Have you heard anything of the kohlmeise, the German codlin-moth eating-bird?—Only what I have read about it. I do not know anything of it myself.

Mr. L. B. WILSON, re-examined.

82. *Mr. Wason.*] You gave the Committee to understand yesterday that a large quantity of fruit was imported every year from other places into Canterbury, and that we did not grow sufficient fruit to meet our own requirements. It was understood that you referred chiefly to apples and pears; would you explain what class of fruit you referred to?—I referred chiefly to soft fruits and stone fruits, to raspberries and blackcurrants, and to apricots and peaches. Of apples and pears we grow more than enough, as we export a lot to other places.

83. *Hon. the Chairman.*] Have you a knowledge of the amount of the fruit-supply into Canterbury from other places?—No.

84. *Mr. Wason.*] Do not the apricots and peaches come chiefly from Teviot, in Central Otago?—Yes, and Nelson.

85. And the blackcurrants?—They also come from Teviot, Nelson, and elsewhere.

86. *Mr. Meredith.*] Are you aware to what extent the fruit industry in the Canterbury district has advanced within the last five or six years?—I could not give you any figures. I know it has advanced a great deal. It has quite a different aspect now from what it had five years ago.

87. Am I to understand that the people are going into it with greater heart?—Yes.

88. And are determined to make it a commercial success?—Yes.

THURSDAY, 18TH AUGUST, 1898.

Mr. MILLS, M.H.R., examined.

*Mr. Mills:* There is a paragraph in the written evidence of Mr. Cullen, of Cullensville, which reads thus: "The Member for Wairau went to the expense of sending a competent man from Blenheim to spray his trees, and although the work was carried out most carefully, the result was object failure." In reference to that I would wish to tell the Committee that I never sent any man from Blenheim. I did employ a man to spray my orchard in Havelock, but under no superintendence, and I really could not say whether he sprayed the identical tree Mr. Cullen referred to as having codlin-moth. That is all. I might add that from my experience of spraying I am perfectly satisfied it was efficacious, and had done a lot of good, and took much less time to do than I expected it would.

1. *Mr. Massey.*] Have you had much experience of fruit-growing?—Not a great deal. Mine is a private orchard.

2. What do you call a private orchard?—An orchard of two hundred trees.

3. Was that your own property?—Yes.

4. How long have you been fruit-growing?—About twenty years.

5. How long since you first noticed the moth?—About seven or eight years.

6. You say you found spraying beneficial?—Certainly.

7. Have you managed to get rid of the moth?—No; but a large proportion. I may tell the Committee I sprayed the trees myself one year, and the result was that I got about sixty per cent. of sound fruit from the orchard, whereas the year previous I did not get thirty per cent. That is my own private experience, and I sprayed the trees with Paris-green at intervals of about a fortnight or three weeks.

8. *Mr. Lang.*] You sprayed and got a certain proportion of sound fruit. How long ago is that?—About four years.

9. And you have discontinued spraying?—No; I do not live in Havelock now and am not able to supervise the work, but I always employ some men there to spray the trees.

10. You have had the orchard sprayed?—Yes. But my neighbour never sprays and there is only a hedge between us.

11. Have you any experience of fruit growing for market purposes?—No.

12. You speak as an amateur?—Yes. As a private owner.

Mr. MONK, M.H.R., examined.

*Mr. Monk.*] In the district I represent there are a considerable number of very valuable orchards. They are of great importance, as the owners make their livelihood out of them. And by these I have been desired to oppose legislation, that is the legislation which would make it imperative upon people

to do or not to do certain things under the control of Inspectors. And the chief argument used is that they consider legislation undesirable until the Government have demonstrated some effective remedial treatment of fruit trees as against the codlin-moth. There is Mr. Morrison, of Kaukapakapa. He is, however, one rather in favour of legislation. He has a very fine orchard and makes considerable profit out of it. He does nothing else. He sprays his trees and he informed me he found it beneficial. With an arsenical mixture he had used lime-water, and, in his opinion, the sediment remaining on the fruit was beneficial in keeping the moth from laying its egg on the fruit. I cannot give any expression of approval so far as arsenical spraying is concerned. But with the exception of the Mr. Morrison I have mentioned, all the principal fruit-growers that I know are opposed to spraying with arsenical mixtures. I have been advised by Mr. Morrison, Warkworth, who is one of the most successful fruit-growers in the colony, as he is growing all kinds of fruit, that legislation is undesirable as no definite instructions can yet be given to fruit-growers by the Government.

*A Member of the Committee (to the Chairman):* It is the same Mr. Morrison sent to the Queensland Conference by the Government last year.

*Mr. Monk:* Then, Mr. Matthews, who has perhaps the oldest and best pear orchard in the colony, is not inclined for legislation. Passing round to Port Albert, which has a name for fruit-growing, the orchards managed by the Beecrofts are not sprayed with arsenic, and two of the brothers are eminently successful as fruit-growers, and their orchard, as witnessed last autumn, was a marvel of beauty, the trees were so heavily laden with fruit of very fine quality. I have examined their orchard the last two seasons, and have found a difficulty in finding a codlin-moth in their place. Their process is bandaging, and they are very assiduous in this. They employ all the children they can get to come round and bandage and take off the bandages, and they pay the youngsters so much a dozen for the grubs. One of the Beecrofts thought that legislation should prevent their neighbours keeping orchards without exercising any control over them. Mr. John Beecroft, another one of the family, is unfortunately crippled, and not able to give the same attention to his orchard. He has made an experiment that I am very anxious to know the result of. He had all the fruit pulled off his trees last spring, and the Committee can imagine what the cost was. The result of that experiment I am looking forward to with great interest. It is an experiment of importance, and I trust will be of some value to the Government. He is not isolated, and that is the unfortunate part of it. But he will be able to tell one thing, and that is whether it has afforded him a remedy against the pest. I do not know whether the neighbour adjoins. There are many orchards in the district where no attention is given. I merely mentioned the above experiment by way of showing that experiments of various kinds are now taking place amongst those who conduct fruit-growing as a livelihood, and until some of them can determinately instruct the Government as to what is the best legislation in the interest of the whole, I think it is right for me to express myself averse to the Bill before the Committee. No doubt if this Bill is introduced a large number of trees will be cut down. I shall cut down a few hundred myself, and keep only the particularly valuable fruits, in the hope that Providence will furnish a natural antidote. I am not sceptical but that it may come, and such destruction will no doubt enhance the price, especially in favour of those who do nothing else. It is demonstrated that those who devote their attention to fruit-growing manage to make it pay, but that it is one requiring assiduous attention. The grazing and fruit-growing industries will not go well together. My own experience in spraying was unfavourable. I sprayed at considerable cost in arsenical mixtures, and did not find myself benefited as some have said. I know those who have told me that there has been an improvement in the trees without any attention being given to them, which led me to suspect that some natural antidote was coming to their aid, but I cannot furnish proof that such is the case. It is a matter I feel very great interest in, and I like to have the opinion of others whose experience has been lengthened.

13. *Hon. the Chairman.]* Does the Committee understand that you are against the measure?—Yes, against the Government interference with the fruit-growers.

14. Your evidence tends to show, at any rate, that the bandage is a service?—There is no doubt that the bandaging is of service, inasmuch as it destroys the insects.

15. Could you tell the Committee if the orchard where the pears were the best in the colony compares favourably with other orchards?—It is isolated. I take the Beecrofts as being the best example that can be given. They are partially isolated. The nearest orchard is within half or quarter of a mile.

16. You speak of the fruit-grower being more successful than the man who has a mixed occupation?—Yes, as it is needful to give his whole attention to his fruit-growing.

17. Does that not show that steps should be taken to have him protected? What chance has the grower got to pursue his occupation with success unless his neighbour is compelled to spray?—As I suggested, it would be to the interest of the professional fruit-grower that others were compelled to practise the same assiduous attention to the reduction of the pest as he does; but I question whether legislation simply in the interest of the person obtaining his livelihood out of fruit would be equivalent to the interest of the great mass of settlers who supply their families with fruit, as in the North, where it is one of the most important articles of food. What I suggested is this: that it would be very hard indeed to compel farmers and graziers, men engaged in general agriculture, to bestow that assiduous attention on their orchards which pays a man, and is beneficial to a man, who does nothing else but grow fruit. I know of a letter from America, the writer of which advises us not to trouble about codlin-moth, as those who pay attention to their fruit, and do nothing else, get all the better prices for it than if produced to drug the market.

18. *Mr. Massey.]* I suppose there are a good many orchards in your district?—A large number.

19. It is a fruit-growing district?—Yes. It is one of our staple resources, and many of the orchardists are experienced men, or have been at it so long that their experience should be valuable.



20. You told the Committee that a large majority of these men were opposed to the provisions of the Bill?—I know only one or two who would be in favour of compulsory bandaging.

21. Are they in favour of any of the provisions of the Bill?—Only that one provision.

22. Are they in favour of the Bill as a whole?—No. I have received advice and been instructed to oppose the Bill.

23. Have you any experience of the orchards in other parts of the colony?—No; personally, no experience.

24. Can you tell me whether the services of the Government experts are considered to be of any value to the fruit-growers north of Auckland?—I have not heard the fruit-growers express anything favourable as to the result of inspection. They are very nice gentlemen, and we are pleased to entertain them.

25. Have you heard them express themselves unfavourable?—Yes, I have.

26. You told us if this Bill became law the result would be that a great many trees would be cut down. Why would they be cut down?—Because of the imposition of compulsory labour about those trees. The result would not pay them to do so.

27. As a matter of fact they resent compulsory legislation in respect to fruit-growing?—Yes; strongly so.

28. Why do the fruit-growers object to the visits of the Government Inspectors?—Because in the first place they do not consider the Inspector can give them instruction as to what will be an efficient remedy. In the second place they think it would be interference with their general success in the management of their business, and would be carrying out operations which would be futile, and therefore wasteful, and a hardship on them as settlers inasmuch as they would have no confidence as to the result.

29. I would like to know from your experience if it makes any difference or not if the orchards are in cultivation, that is as a protection?—Yes. I at one time kept my own orchard as clean as a flower garden; used to cultivate it three or four times a year, and the men who are successful (the Beecrofts for instance) keep their orchards clean digging up between the trees. I do not do so now with mine. I have abandoned it so far as digging is concerned. The return did not remunerate me for the labour. I think that orchards are better to be kept clean among the trees.

30. Did I understand you to say that it is an advantage for the growth of the trees to keep the ground worked. Would that make any difference to the spread of the codlin-moth?—Personally, I think that it makes no difference, but I have had it asserted frequently that orchards that are now left in cocksfoot have done better in respect to the moth than when cultivated.

31. You speak about the good results that have accrued from bandaging. How often do you consider it necessary to remove the bandages?—Every week, so far, as they tell me. It should be done assiduously and periodically. It is not a haphazard process.

32. Suppose the bandage was not removed, what would be the result?—Simply futile. I have myself traced a codlin-moth start to lay eggs in November, and I am certain laid eggs in April.

33. And it would require to be removed once a week?—Yes, not exceeding eight days.

34. Do you consider spraying with arsenical mixtures injurious to the trees?—It has been told me that continuous spraying must inevitably poison the ground. In my own experience I know that the strength must not exceed a certain measure.

35. If a man sprays orchards for a number of years he may destroy the trees before the moth?—Unless he counteracts it by other applications. It will certainly deteriorate the soil for the growth of plants.

36. How long has the moth been in your part of the district?—About eight years. And I may mention the way it came to my orchard. The orchard was isolated, and I thought I was going to get immunity from the pest, but another man, some miles down the line, had a large orchard attacked by the moth, and he allowed it to take its course. He used to take his fruit to the station, and, as the train stopped, the codlin-moth was scattered up and down the line. I believe no one has escaped.

37. When the moth first appeared in your district did not the orchardists try to eradicate it?—Yes. All sorts of methods at great cost, but they failed. I spent £10 myself in spraying apparatus.

38. Do not the fruit-growers take up this position: That the Government should show them some remedy before they introduce legislation to compel them to do things which they have already considered have proved useless?—Yes, invariably objections to this legislation are being made all over the district.

39. Speaking of the Government Instructors, I think you said that some of the orchardists consider they get no practical results from them. Is it not a fact that perhaps the majority of the orchardists are better up in fruit-growing than the Government experts?—I would not like to put it in that form. I am certain a large number of fruit-growers in my district have got an efficient education through experience obtained in their own interests.

40. Have you a knowledge of Whangarei?—Not intimately.

41. *Mr. Wason.*] You have just admitted that the codlin-moth was decimated by a gentleman in your district over your own orchard?—Yes.

42. Do you think it a good thing for your own district that that state of things should be allowed to continue?—As it is there I think we will do the best in our own interest. Our efforts will be to exterminate it as far as we can.

43. You would be perfectly willing to leave other districts alone and not send infected fruit to them?—Those who wish to send away fruit from our district are very careful to send away only the very best fruit, in their own interest and for their own reputation.

44. What objection would you have to making it compulsory?—It would be a hardship to a certain number who are obtaining a benefit out of their orchards.

45. I am speaking of the people who send the fruit away?—They now try to send out the fruit as clean as possible.

46. What is your objection to send only clean fruit away?—They do it now without you making it compulsory.

47. The main portion of the Auckland District is exempted from this Bill?—Well, I am not saying anything to your exemption. The desire of the Auckland people is to be exempted.

48. The desire of some Auckland people is this: that they should be allowed to send diseased fruit all over the colony.—They would in their own interest, only send away sound fruit. They send away fruit in the winter. They do not send away much fruit in the summer-time.

49. You told us that if this Bill was passed people who made a living out of fruit would receive an enhanced price for it?—Yes, because so many orchards would be destroyed, which would restrict the amount of fruit sent to the market. I send many cases of apples that I believe to be sound though my orchard is infected.

50. If you got an enhanced price for these apples would it not be for your benefit?—No, it would not be: for this reason, I could not feel sure that there was not some undetected apple in the case infected, and I might be made to pay the penalty.

51. *Mr. Symes.*] How long since the Government expert was around your district?—What I mean to convey to the Committee is that there is a considerable variety of opinion as to whether he does afford remedial relief. Not from want of assiduity on his part, but from his inability to tell them how to eject the pest. I am not offering any censure to the experts, for I believe them to be informed men though not more than many of the fruit-growers themselves.

52. Do you know any of the orchardists in question who have followed the instruction given by the Government expert?—Not that I know of. He may have given specific instructions and they may have been followed, but I do not know.

53. Then you do not know of your own knowledge if sufficient time has elapsed since the visit of the Government expert as to say if those remedies recommended by him would be efficacious or not?—I know the remedies he has recommended have been practised assiduously by some of the orchardists, and part of them have been discarded. Bandaging has been mostly decided as the best method of attacking the pest.

54. You have other pests besides codlin-moths in connection with the orchards?—Numerous ones.

55. The bandaging would be no use for those?—No.

56. Then how do they propose to get rid of those if they only believe in bandaging?—There are none of the orchardists that do not adopt the process of spraying, and wash with sulphate of lime in the winter. This is most efficacious. And in the summer-time they use Bordeaux mixture upon pears and vines and other fruits.

57. You are aware that from Auckland they send away fruit and trees in large quantities?—Yes.

58. Is it your opinion that they should still be allowed to send out from Auckland the diseased fruit and trees affected with various diseases?—I have mentioned several times that they would not in their own interest send diseased fruit away. I myself have bought trees from the orchardists, who, I think, have exercised the utmost care in selecting them. Those wishing to get trees should only go to those nurseries they can rely on the proprietors exercising all the precautions that a Government could direct.

59. Then you do not know of your own knowledge of orchardists sending out those trees?—No. In the olden days, of course, the guilt lay somewhere.

60. You said in sending out the apples you examined the whole of them?—In winter-time you do so, but in the summer-time, when apples are used chiefly for cider, they do not consider the codlin-moth much disadvantage.

61. *Hon. the Chairman.*] Have you seen the pamphlet of remedies circulated by the Government?—I saw it before it was circulated. We have to thank the American Horticultural Bureau for those remedies.

Mr. R. THOMPSON, M.H.R., examined.

*Mr. Thompson:* I have no practical experience in dealing with the codlin-moth pest in the North, but represent a district which is one of the oldest fruit-growing districts in the colony. I think it, therefore, my duty to place the views of those I represent before the Committee in reference to the proposed Bill. It may seem strange to southern members that there is such a strong feeling of objection to this proposed legislation on the part of the fruit-growers in the Province of Auckland, but the principal objection they have against the proposed Bill is in the enormous powers proposed to be placed in the hands of Inspectors. They contend that the Inspectors, so far as they know them at present, are in no way more competent to deal with the question than they are themselves. In fact, the old fruit-growers in that part of the colony look upon the present so-called fruit experts with a certain amount of contempt. There are many men in that part of the colony who for the past twenty-five or thirty years have devoted their whole time to fruit-growing. Most of them are very sensible men, and have paid a great deal of attention to their orchards. What they complain principally of is this: that the Government, while taking steps to organize all other branches of the Agricultural Department and securing the services of experts—which they have done in the Dairying Department and in the Stock Department—but seem not to have been able to realise the great benefit which would accrue to the State by encouraging and assisting the fruit industry. For instance, in dealing with the proposed measure you will be placing powers in the hands of a class of men who are really not qualified to administer such a law properly. I have no desire to say anything disrespectful to the present Inspectors, nor do I wish it to be understood that I wish to prejudice their position in any way. You will remember that a few years ago an agitation was got

up, principally in the Province of Wellington and in connection with new settlements in the bush districts, to the effect that a large number of new settlers were anxious to gain some information about fruit-growing, and pressure was brought to bear on the Government to appoint officers to go round and give them information about tree-planting and so forth. That was what brought about the appointment of the present Fruit Inspectors. The men in those new-settled districts were inexperienced men, and the experts could be of great service to such men. But those Inspectors are likely to be called upon now to perform a class of duty for which they never were intended. As nurserymen—that is practically what the Inspectors have been—they can do good service in the districts where there are new settlers, in advising them how to lay out orchards and plant fruit-trees. There those men can do very good work. But now they are called upon to undertake a class of duty for which they were never intended, and that is altogether beyond their capabilities. And that is one of the principal reasons why old and experienced fruit-growers in the North look almost with horror on the proposals contained in this Bill—that to place such enormous powers in the hands of men, who, with the very best intentions, might do a permanent injury to the fruit-growing industry through want of experience. What the fruit-growers expect of the Government is this: that they should treat the fruit-growing industry as they did the dairy industry, and secure the services of a thoroughly practical expert—a man who had practical knowledge in fruit-growing for commercial purposes, because there is a very great difference in the fact of a farmer keeping a few fruit-trees and a man going into it for a commercial enterprise. Why they complain of the Government is that they have hitherto failed to secure the services of a man who has had sufficient practical knowledge and experience of growing fruit for commercial purposes, not only growing it, but preserving, tinning, and bottling it. Because you will notice, if you go down to a grocer's shop, that the preserved fruit all comes from California and other places. Some £50,000 go out of New Zealand annually for fruits we can produce in the colony, and through want of expert knowledge the fruit-growers are unable to go into that branch of the fruit business. The Victorian Government, recognising some years ago the great advantage of the value of encouraging the fruit industry in all its branches, set up a department after the Mildura fruit colony was established, and they actually took in cadets to train them, and they got appliances from America for drying and preserving in a special form, with the result that the fruit industry in Victoria has made rapid progress during the last eight or ten years. I have been expecting that the Government would have adopted similar methods in this colony, but hitherto the whole matter appears to be allowed to drift and to remain in the hands of men who really are not competent, and who are now called upon to undertake a duty which they were never intended for. I have no doubt that if the Government could see its way clear to secure the services of a really first-class expert to organize the whole department that at least the £50,000 a year which is now going out of the colony could in a few years be saved to the fruit-growers of New Zealand. There is no class of fruit that we require to use, with the exception of island fruit, that we cannot produce in New Zealand. Owing to the difference in climate and the variation in soils I think I am safe in saying that we can supply our own markets with fruit of every description, with the exception, of course, of the island fruit. In that part of the colony in which I reside the climate is suitable for growing semi-tropical fruit, which cannot be produced anywhere else in the colony. It would be necessary for the Government to secure the services of a man who had been engaged in that class of fruit-growing: probably such a man could be got from Victoria or South Australia or America. If we had the services of such a man as that to instruct the settlers as to the best kinds of fruit-trees to procure it would be an assistance. There are many kinds of semi-tropical fruits being introduced from China and Japan, which would, after the trees became acclimatised, be grown in that part of the colony, but hitherto the fruit-growers have had no practical assistance whatever. I do not wish to say anything disparaging of the Agricultural Department, because I recognise that in all other branches they have done good work for the colony, but, unfortunately, the fruit question does not appear to be understood by the department. It is a new branch altogether, and they have never been able to grasp the importance of the industry. Of course, it is really impossible for them to do so until they place at the head of the fruit department some competent person who has had a practical knowledge and experience of it. Of course, a man qualified for such a position must not only have had practical experience of fruit-growing for commercial purposes, but he must have a special intelligence qualifying him to go round as a lecturer. He must be a man qualified to go round and deliver lectures on fruit-growing, and work up the industry the same as our dairy experts have done. I feel confident that, if the Government could see its way to adopt that course, in a very few years time the fruit-growing industry of this colony would make very rapid strides. Take, for instance, the country north of Auckland, a district about two hundred miles in length; it is a class of country that cannot be farmed successfully for agricultural purposes, as it is a class of country naturally adapted to be worked in small holdings, and in that country, where it is sheltered, I believe it could be very profitably occupied and worked for the cultivation of fruits of different kinds. It could be worked by small settlers who have families to help them to carry on the work, but they require that assistance in the way of expert knowledge, which can only be supplied by the Government. They do not ask for any monetary assistance. If the Government could secure the services of a man experienced in the cultivation of citrus and other semi-tropical fruits, and start a small experimental nursery for the purpose of introducing and acclimatising the best kinds of fruit grown in Japan and China, then I believe that a very profitable industry could be worked up if assisted in that way by the Government. In reference to this question of diseased fruit, I have listened to Mr. Monk's evidence, and I may say that I have had no experience of it, but I am clearly of opinion that some legislation is necessary. That is my candid opinion as a fruit-grower. Some legislation is necessary, though not in the shape of this Bill. I entirely object to the proposed powers being placed in the hands of the Inspectors

and I believe the simplest way to make the growers of apples do something with regard to the codlin-moth would be to pass legislation making their fruit liable to confiscation—that is, for diseased fruit sent into market. If a Bill was passed to enable the Government, through their Inspectors in the various towns, to have all diseased fruit confiscated or made liable to forfeiture it would be quite sufficient to make growers of apples clean their orchards, or consume their apples at home. But I certainly do not approve of the principle of allowing any fruit-grower to pack up diseased fruit and ship it all over the colony. I may state in my own district, in the newly settled parts, they are quite clean yet, but the moth is found in the old-settled districts, twenty miles back. In the new districts they have no moth as yet. It is only a question of time, of course; but if the growers of apples are permitted to send their codlin-moth fruit into the market all over the colony, well, of course, this measure will be useless; it would be useless to attempt to check it at all. I would suggest to the Committee and the Agricultural Department the simplest way, in my opinion, would be merely to take sufficient power in the Bill to enable the Government, through their Inspectors, to have all diseased fruit exposed for sale forfeited. We do not want any heavy fines or penalties: if the growers found the fruit was liable to be forfeited they would not send it to market. Then, in reference to the phylloxera pest, I think the Government should retain the power they have now—to take measures to stamp it out. The Whangarei district has been carefully examined, and, with half a dozen exceptions, every vinery has got phylloxera—in fact, the whole district is rotten with it. Steps have been taken to ascertain the extent of the disease, proclamations have been issued, but there the matter has stopped. What the intentions of the Government are I do not know, but no action has been taken as yet to eradicate the disease. Many of the vines have been destroyed, and the result is that the district is in a very serious condition, for many of the people depend upon the crops for their livelihood. And those which are clean will take the disease unless the others are destroyed. In the meantime their vineyards are proclaimed as infected, but no steps are being taken to eradicate the disease.

62. *Hon. the Chairman.*] In many cases?—In dozens of cases. Nearly the whole district, with very few exceptions, and I should not wonder that on a more rigorous examination even those would be found affected. I had a very small vineyard. Some years ago it was inspected, and declared clean. At that time there was not more than three or four places affected in the whole district. During the last two years I noticed that the vines got sickly-looking, and I began to suspect that the disease was there. A short time ago I got a man acting for the Government to examine them. We commenced to examine the vines on the side of the vinery that showed most symptoms of disease. We examined the roots of every vine along that side of the vinery, but could find no insect. Strange to say—I am speaking now as an amateur—the roots had a sort of dried-up look about them, which aroused my suspicions, but we could find no living insects. Then I called his attention to a very healthy-looking vine, and the first root we took up we found covered with the insect. I came to the conclusion that the insects had been on the roots of the others and extracted all the sap. Of course, I had the vines taken up and burnt. By the time the proclamation reached me they were burnt. I think that as regards the phylloxera in that district it is a very serious matter. There are there a large number of people who since they received the proclamation thought they were not to touch them. I believe if it had been explained to these people they would have taken them up and burnt them, and three-fourths of the diseased vines would have been destroyed before now. They have made no attempt to burn them, because they thought they dare not do it.

63. *Hon. the Chairman.*] How long has that been going on?—Three or four months. I think it is a serious matter, and so I thought it best to mention it. I know nothing about codlin-moth, though I am certainly of opinion that we should have legislation in regard to the transportation and sale of diseased fruit. The same would apply to the scale-infected trees.

64. What is the extent of the industry in your district?—It is a very large industry; as large, perhaps, as there is in the colony. I should say the largest, for I do not think any other district produces so much fruit.

65. Does that include the growing of pears, apples, &c.?—Yes; but there are many kinds of fruits we cannot grow successfully—small fruits.

66. Can you tell of any general system of remedial measure for any of the pests?—Yes; many of the growers have tried systematically remedies they have seen in works they get from America and elsewhere. Some of them have nearly ruined their eyesight by using the same remedies year after year, and I think that many of the apple-growers have practically stopped arsenical dressing, but the bandaging is considered very good.

67. Are the orchards highly cultivated?—Yes, in some cases, very highly cultivated. I will tell the Committee what I did with my own few apple-trees. I found that the codlin-moth took the early apple, so I simply cut them down, and I only kept the very late kinds, and I have very few moths in them. They do not seem to take the late apples. I believe there are certain kinds of apples that the moth likes to live on, and I think it almost wise to do away with them altogether.

68. Where is the principal market for the northern fruit?—All over the colony—right to Dunedin.

69. How are they situated in regard to export facilities?—Well situated. It is all collected by boats, and better situated than in the Waikato, where they have to send it by train. We can put our produce on the market at a much less cost than they can in the Waikato.

70. What is the general feeling in your district in regard to the Bill?—Strongly adverse.

71. Are they adverse to any system of restriction of export of fruit?—That I could not say. I have not heard that question debated. I get regular communications from the fruit-growing associations, and I know their opinions on these matters. Of course, it is my own individual opinion that the prohibiting of the sending of this diseased fruit to market would have a sufficient check.

72. You have given considerable evidence about canning fruit: is it not practical to dry fruit for export?—Yes.

73. Is the fig produced here?—Yes. I believe all tinned and bottled fruit now imported could be produced in New Zealand.

74. Could you particularise any of the tropical fruit?—Lemons, oranges, persimmons, and many other Japanese fruits introduced lately, but have not advanced enough to show whether they are profitable or not. The nurserymen are introducing new kinds every year. But the nurserymen are under this disadvantage: that the new kinds introduced are hard to sell. That is why I would like to see the Government establish a small nursery for the express purpose of introducing and acclimatising semi-tropical fruit-trees. They would require to have it under the control of some man who had the necessary knowledge of the whole subject.

75. *Mr. Massey.*] Can you tell whether the Government experts visit Whangarei regularly?—Yes, I think so, at regular intervals. I have seen them several times. I am told the fruit-growers there do not attach much importance to their visits.

76. Are the visits well received by the settlers?—Well, the settlers are always telling me that they do not attach much importance to their visits.

77. Then you think the visits of the experts are of no value?—Not to the old fruit-growers. I believe there are districts where they can be of use. I have no doubt they can be useful in many parts of the colony, but not to any old orchardists.

78. Do you know Mr. Blackmore?—I have seen him once at Whangarei, a few months ago.

79. Was Mr. Blackmore in business at Whangarei as a fruit-grower?—If so, it must have been over thirty years ago. I have never known him there.

80. In your statement you said that if this Bill became law we would be placing power in the hands of men not capable of administering it?—I refer to the present so-called fruit experts. Mr. Palmer and Mr. Blackmore I have met.

81. You say your constituents are opposed to it?—Yes, strongly opposed to it.

82. Would you tell why?—The great objection is in the proposed powers to be given to the experts. The Bill, if passed, would practically place the whole of the fruit-growers at the mercy of the Inspectors, and the experts, probably with the best intentions, would order them to do all sorts of things to the trees and do no benefit whatever. I believe myself that if the Government could secure the services of a good fruit expert, who could go round and give them lectures it would be the best thing. I notice the Victorian Government has sent their cadets round with drying-machines, and I have seen them at work in the exhibition at Melbourne. I consider the Victorian Agricultural Department have worked up the thing most creditably in that way. I would strongly suggest the Government here do something of the same kind, and secure the services of a really good expert who could give the fruit-growers that class of information they are in need of at present, especially as in the fruit season here a large portion goes to waste and cannot be consumed. But if they had sufficient expert knowledge, then they could bottle it or tin it, and the fruit-growing business would become more valuable. That is where I think the Government have failed to grasp the situation—in not securing the services of a first-class man to place all that class of information before the fruit-growers.

83. *Mr. Wason.*] Your district is exempted from a portion the Bill?—Practically not; I do not consider it is. The Orders in Council overrule everything.

84. Would you have any objection to the passing of the Bill if that was made perfectly clear?—Of course, if you made the Bill not to apply to the Province of Auckland at all, then the fruit-growers would not have anything to say against it.

85. If the people were not allowed to send out diseased fruit, and if power was given to the Inspectors to destroy diseased fruit, would you approve of that?—I would. I have seen apples offered for sale not fit for pigs.

86. Does not the Bill provide for that—the Bill only applies to the Auckland Province in that it cannot send away diseased fruit?—If the sale of diseased fruit is prohibited it must be enforced in all parts of the colony. It is very easy to make that perfectly clear in the Bill.

87. Is not that practically effected in the Bill?—I do not think so.

88. Did you say that the majority of people whom you represent are not desirous of sending out diseased fruit?—I would not like to say that. I was only expressing my own opinion. I believe there are some fruit-growers who would not hesitate to send diseased fruit out. At the same time, I do not think it ought to be allowed.

89. Are there any industries in Auckland to provide for the fruit?—A lot of the fruit is made into jam-pulp.

90. And cider?—Yes, a lot of it goes into cider.

91. Are there any cider-manufacturers there?—A few of the orchardists now have cider-mills and crush the apples on their own place, and if you prohibited the sale of codlin-moth apples they would convert them into cider on their own orchards.

92. You say that the codlin-moth only attacks the early apples?—It attacks them worse than the others.

93. You heard Mr. Monk say that they sent the codlin-moth away in the winter apples?—No; it is mostly in the early apples.

94. You have no canning-works?—No.

95. Are there any works in Auckland for the evaporation of fruit?—No. They have started a factory there lately, but a very small affair. That is just our trouble in the regular fruit season. A large quantity of it goes to waste through having no means of canning it.

96. You would be in favour of having a thorough expert. Can you say of your own knowledge that the present men are not experts?—It is a difficult thing to say what an expert means. My own experience was that after talking to them they gave me the impression that they

came to get information from me. I did not blame them for that. They have not had the opportunity of getting the information of that class of fruit I am engaged in growing.

97. Do not you think that if the Government went to the expense of getting one of the best men on the face of the earth that the Auckland people would know more?—No. I believe the Government could get the class of man I refer to from Victoria. The Victorian Government have paid a great deal of attention to the matter, and if application were made to them such a man would be recommended.

98. Do not you think that the first time he trod on their corns that they would say they knew more than he did?—Perhaps they are a little pig-headed in their own way, but they are always eager to get information. If they meet a man who can give them any information they are only too pleased to get it.

99. Such an expert would hardly be a fit man to go into the back-blocks and instruct "cockatoos."?—The present men are very suitable for that. They can instruct settlers how to graft, bud, and plant. In the initial stages they can be very useful. Of course, I do not blame the experts for not being able to perform duties for which they are not qualified. If the department puts them to perform duties they are not capable of performing it is the department's fault.

100. *Mr. J. W. Thomson.*] Is it not just as necessary to have first-class Inspectors in districts that have been newly started as in districts started in years past?—I alluded to the expert knowledge required for canning and preserving. In the old fruit districts the great trouble is the waste that the market cannot absorb as fresh fruit. We are wanting in that knowledge to enable us to establish preserving-places.

101. *Mr. Ritchie* (Secretary for Agriculture).] About two years ago, when the first Bill came into operation, so far as he knew, only four or five places were affected with phylloxera—one at Whangarei, two in Auckland, and one at the North Shore. A recommendation was made that the department should clear these places free of cost to the owner. Only when we had completed the eradication at Whangarei we discovered other places affected. When these were discovered I immediately sent one of the men to inspect every vineyard in Whangarei. He has discovered forty or fifty. There is a recommendation before the Committee dealing with these. To clear them it will cost, say, £800. What we propose to do is to treat the resistant vines with bi-sulphide of carbon. Where we can save any of the vines by sulphide of carbon, which is perfectly efficacious,—that is, in the early stages—we will do so. If we find that the insect is destroyed we will not touch the vines at all. Many of the Whangarei vines are growing wild: these should be eradicated. We have secured the bi-sulphide, and so soon as the weather clears up we will put on the men. The proposal before the Committee is that the Government bear the cost of treatment. When we started we thought we had our fingers on the whole spots of infection.

102. *Hon. the Chairman* (to *Mr. Ritchie*).] What is the process of destruction?—The vineyard at Whangarei was very low-lying. It was an old glass house, which had been neglected, being overgrown with weeds, and the vine-roots growing 4 ft. or 5 ft. underground. There was another place higher up the hill where the vines had been allowed to run wild. We had to trench the whole over, and it was a very big job. Thinking it was the only source of infection we thought it advisable to go to the expense. By the injection of bi-sulphide the insect can pretty well be got rid of.

Mr. H. A. FIELD, examined.

*Mr. Field*: I may say that I am not interested from a pecuniary point of view in fruit-growing: as an occupation it is a hobby with me. I have got an orchard of 4 or 5 acres on the West Coast, between here and Otaki, which is kept in fair order. Next door my neighbour has an orchard of half a dozen acres, which is infested with blight of half a dozen descriptions, and I notice that the side of my orchard which adjoins his requires a great deal more attention than the rest.

103. *Hon. the Chairman.*] How far away?—A fence only divides us. I may say that I have had no experience of codlin-moth, but, so far as other pests are concerned, I am perfectly certain from my own knowledge that ordinary and intelligent application will keep you perfectly free from them. I use a sulphur-wash and Bordeaux mixture; sometimes kerosene emulsion. In the summer time I use Paris-green for pear-slug. If the trees are badly affected I find wood-ash is effective. It can be thrown on with the hand, or for large trees it can be put in a scrim bag and the bag shaken over the tops of the trees. I live close to the sea-shore, and I burn firewood off the beach, which contains a lot of salt. I notice that the ash from this wood not only kills the insects, but in some cases it scorches the young leaves and tender shoots. One thing I have noticed is the objectionable distribution of diseased fruit: I have frequently seen apples affected with codlin-moth sent about my district, and I regard it as a very great source of danger. *Mr. Grapes* emphasized the fact that there is a danger in the use of second-hand cases, and I indorse cordially everything he said upon that point. Stress has been laid on the question of cultivation or non-cultivation of orchards. I may say, speaking from my own experience, that it pays handsomely to cultivate. Occasionally in my orchard I grow a little clover, but it is cultivated nevertheless. You get from the cultivated orchard more fruit, and the fruit that you get is of better quality. Further, from my own observations in my travels I am satisfied that a persistent and intelligent grapple with the codlin-moth will keep it within bounds, if it does not eradicate it. It is my opinion that where fruit-growers have grappled with it, it is not so prevalent as it used to be. In Auckland I can quite understand its prevalence: they have a very difficult climate to deal with. A humid climate induces the spread of the disease. I feel satisfied that when the fruit-growing industry becomes the established industry it should be that Auckland fruit-growers will discover that it is no longer profitable to grow apples at all, and will then turn their attention to the growth of fruits more suited to their climate. The southern part of our colony, and some of the southern parts of the North Island, are better adapted for apple-culture than Auckland is. I have seen the



same varieties exposed there for sale that I grow myself, and I am satisfied mine are of very much better quality. I attribute that to the fact that my climate is better suited to the growth of apples than their climate is. And I think, therefore, that, as far as actual quality is concerned, the South Island apples are very much better than the ones we grow here. There is this to be said: that different varieties are better suited to different localities. I started by planting 250 varieties—approved varieties grown in various parts of the world—and I have discovered that there are only about fifty varieties that do particularly well with me—in fact, I might reduce the list to twenty. Further than that, I can grow apples that will not grow so well a few miles from my place. That is a question that must be always left to the intelligence of the individual. Still, I think that the Government might wisely establish experiment stations in various parts of the colony, because it is only by experiment that a man can tell what his situation and soil are suited for. No expert in the world could go into my orchard and tell me the varieties of apple better suited for it than the ones I am now growing. With reference to fruit-growing and grazing, I think if a grazier devotes the same amount of attention to his orchard as he does to his stock that he will be equally successful. Mr. Monk says that a Canadian recommended the leaving of the pests to take their natural course, and leaving them to their natural enemies and he made this allusion more particularly in connection with the codlin-moth. I would remind the Committee that it is only in part of Canada that apples will grow at all, and only a few varieties thrive there, and it is in the adjoining States of America that the apple has its home. Even in the favoured districts of California they go in more for stone-fruits and pear-culture than for apple-culture. I think it was Mr. Thompson who emphasized the fact that if an orchardist were allowed to send to market fruit that was not affected, even though it came from an infected district, that he should be allowed to do so, and should not be restricted; and he advocated that no oppressive measure should be enacted which would affect any one who was not a seller of fruit. It is the man who is not a seller of fruit who is the chief source of danger. He has not the inducement to take the necessary precautions, and he may, therefore, keep a few pest-infected trees to the danger of his neighbours, and the result may be a grave injury to his neighbourhood. Mr. Thompson also referred to the system of inspection, and that the present Inspectors would have charge of the inspection. We are not justified in supposing that will be the case. If we are to have Inspectors to go round and show people what to do with their trees, they must certainly be men who understand the chemical action of the various remedies. It does not necessarily follow that a man who is an expert nurseryman knows anything about chemical action. I have seen numberless instances of men having no idea of the chemical formulas. I have seen a man dissolving his blue-stone in an iron vessel. It is not the fault of the thing itself, it is the fault of the user. I do not think anything can be ascribed to the fact that past efforts have not always been successful. I recollect the time when men in New Zealand said we could not eradicate the scab from our flocks, but it was done. There is no reason that we should not do the same thing with the pests that infect our gardens. Judging from our climatic position, our country is eminently suited to the growth of fruit. And not only should we do away with our present imports, but be large exporters ourselves. I have referred to the fact that I think there should be experimental stations established in various parts of the colony, and in connection with this they might have experimental nurseries. We get fresh fruits from outside every year, and, further than that, I think in the future we will find there are new varieties which we have established which will do better than those from elsewhere. Speaking of apples, my experience has led me to believe that the American varieties are better suited to our climate than English ones. The finest varieties I have growing are American, and I have the best English varieties. The Ribstone Pippin does not thrive. I find it is too tender. And Cox's Orange is very good, but is not to be compared, as far as quality is concerned, with three or four American varieties. Jonathan is most valuable, and Adam's Birthday is one of the best grown, and American Golden Russet is good. These are medium to late varieties. With reference to preserving fruit, my own impression is that we can do the preserving all right, but I do not think that we can ever desiccate fruits in New Zealand. Our climate is such that it is not suited for the growth of fruits suitable for that purpose. We should, however, be able to preserve anywhere. I think it is essentially necessary that we should take every precaution we can in the establishment of new nurseries in a clean state. If you are certain that your trees are clean when you put them in, and exercise ordinary care, you need have no fear of infection. When I get new trees I always wash them in kerosene emulsion or lime and sulphur. Kerosene is a certain cure for the American blight, and one application at this time of the year will absolutely destroy every trace of it. In the case of a young tree, we prefer to take it up and wash it with kerosene emulsion, used hot and strong. It is an absolutely certain cure. I use a pound of common household soap to a quart of kerosene, and dilute with two quarts of water. That is in the winter-time. You can wash them in it and plant them without doing any harm in the world. You must use it warm or it becomes of the consistency of soft-soap. When you are dressing trees you have to carry it about with something under it to keep it warm. In the warm state it is more effective and spreads more evenly. My experience leads me to believe that, if we grapple with this subject intelligently and energetically, there is nothing to prevent us from eradicating these diseases from the colony, as we have eradicated the scab. I think the fruit industry should become a very valuable one. To do so you must have legislation, and to some extent that legislation must be of a drastic nature.

104. *Hon. the Chairman.*] Are there any remedial steps being taken on the west coast of the North Island?—By a few only.

105. Would the Bill be well received?—I think so. I think every one thinks a measure of this kind is necessary.



## APPENDICES.

## APPENDIX A.

## MARKET QUOTATIONS.

DEAR SIR,—

Wellington, 11th August, 1898.

As promised, I enclose herewith a few copies of our produce report of the 25th June.

I regret to find that I have no spare copies of report giving relative values of Auckland and Nelson apples, but the following is an extract from our report of the 12th March, 1898: "Apples—Large quantities of inferior qualities of fruit affected with codlin-moth continue to reach our market, and for this description only nominal rates are obtainable. We realised for a nice line of ribstones to-day 10s. to 11s. per case. We quote Auckland-grown, choice well-coloured dessert, 7s. to 8s. 6d.; good, 4s. to 5s. 6d. per case; Nelson-grown, 5s. 6d. to 7s.; large cookers, 3s. 6d. to 5s. 9d.

Yours, &amp;c.,

F. B. FARMAR, Managing Director.

W. F. MASSEY, Esq., House of Representatives, City.

## APPENDIX B.

(Telegram.)

EXPENSES on Tasmanian apples delivered in store here 6s. 11d. Were none available March, April, then value not exceed good local.

F. W. Lang, M.H.R., Wellington.

TOOMAN.

## APPENDIX C.

From Secretary of Agriculture to L. Hanlon, Whangarei.

WHAT is your experience of systematic spraying for codlin-moth? Reply.

RITCHIE, Secretary.

J. D. Ritchie, Secretary of Agriculture, Wellington.

I CONSIDER systematic spraying unreliable. Sometimes it seems to do much good, at others none at all. Bandaging, destroying infected fruit, and searching for grubs in winter keeps the moth in check. After all, codlin-moth is growers' best friend: without it markets would be everlastingly glutted, and apples practically worthless.

L. HANLON.

## APPENDIX D.

From Secretary of Agriculture to Mr. Morrison, Kaukapakapa.

KINDLY wire me fully your experience spraying for codlin-moth. Give size orchard, number of sprayings. Reply.

RITCHIE, Secretary.

J. D. Ritchie, Secretary of Agriculture, Wellington.

DEAR SIR,—I received your wire last night. I sent you a wire this morning. I have sprayed my orchard for the last few years, and had good results; but some of my orchard I can only spray once, as when the fruit develops the branches are weighed down and meet, and I cannot get the hose and spraying-pump between the trees; but where I can spray three times I have very little grub, and I am convinced that were we all to spray three times and bandage as well we would soon destroy the moth; but I am the only one in this district that does anything to destroy the moth.

*Approximate Cost of Paper.*—Preparation, not given; printing (1,925 copies), £44 18s.

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