1898.

NEW ZEALAND.

EXTENSION OF COMMERCE COMMITTEE

(REPORT OF THE) ON THE FLAX INDUSTRY, TOGETHER WITH MINUTES OF EVIDENCE.

(MR. MCNAB, CHAIRMAN.

Report brought up on the 3rd day of November, 1898, and ordered to be printed.

REPORT.

I HAVE the honour to report with regard to the flax industry: The Committee regrets that time did not permit of all the witnesses available being called; but the Commissioners' report, together with the evidence called, give very hopeful indications of valuable improvements, both in chemical and mechanical directions.

On account of the great expense incurred in experiment in connection with the preparation of flax, your Committee considers the present inducement in the shape of a bonus is insufficient, and recommends the Government to increase the amount offered to £5,000.

3rd November, 1898. ROBERT MCNAB, Chairman.

MINUTES OF EVIDENCE.

FRIDAY, 2ND SEPTEMBER, 1898.

WILLIAM TOOGOOD examined.

1. *The Chairman* said that Mr. Buchanan had suggested that the Committee should call some witnesses to give information in regard to the flax industry, and had suggested certain names in that connection. Consequently, Mr. Toogood had come down under the impression that a meeting would be held that morning. As, however, the Committee did not sit in the morning, he (the Chairman) had asked and had secured the permission of the House to sit in the afternoon, so that Mr. Toogood could be examined. (To witness): Your name is William Toogood, and you come from Featherston?—Yes.

2. I understand that you desire to give evidence before this Committee in connection with the flax industry?—Yes.

3. What is the nature of your connection with the industry?—I have been connected with it, more or less, for the last ten years. I had a mill when the "boom" was on, and for the last eight years I have been experimenting. I think I have got my machines to work very well now, as you will see by the last report. I think the industry is wrongly worked altogether; it is worked on a wrong principle. There is too much waste by the present process, and that is what I am trying to improve. I have spent a good deal of money in this direction—£1,500 or £1,600. I have, therefore, some knowledge of the subject.

4. Your attention has been chiefly directed to improving machinery in order to prevent a great deal of the waste that takes place at the present time?—Yes, preventing the waste, and saving the labour, and improving the fibre.

5. What are the difficulties that flax-producers have to contend against at the present time?—In the first instance, the miller has to pay for the cutting, carting, washing, stripping, and everything else, and then throw 4 cwt. or 5 cwt. to the ton away in tow; if plenty of mills running, no sale for this article. By proper machinery 3½ cwt. can be saved, besides time in bleaching. I do not know whether Mr. Gardner has sent in his report, but you would see from that the result of my last trial.

6. No, it has not yet been sent to us. What are the difficulties that the flax, when manufactured, has to contend with in the markets?—It has to contend with sisal, and, more particularly, with manila. I do not think that sisal will be grown to the extent it has been in the past, because the Government of Bermuda some time ago offered a bonus of £2 per ton, I am told, on all sisal exported, but they have since withdrawn it, and the quantity manufactured is therefore likely to decrease. In 1895 the quantity manufactured was from 19,000 to 45,000 bales per month (350 lb. bales).

7. Can you recommend any steps that would lead to flax successfully competing with manila and sisal?—Yes; but the only thing, I think, is by means of improved machinery, especially in regard to the dressing. There is also, as I have stated, the possibility of saving time, and preventing the loss of tow, and improving the quality of the fibre. In my opinion, there is too much waste in the production.

8. Do the producers find the market regular, or variable?—Very variable. Of course, the price of manila rules the flax-market. If manila is cheap it affects the flax. There is another thing I may mention: I believe the flax stretches more than the manila. I think that will be found to be the case in experience. The cause of this may be that the flax is not soft enough to spin up tightly, and when a strain is put upon it it stretches. This is only a suggestion. The cause of that should be ascertained by the Committee by means of experiments. Private individuals cannot do these things. I am aware that people will not buy flax rope as against manila, but I do not know that the true reason for this has yet been ascertained. It is not as soft as the manila, and it is not spun so closely. These samples [produced], washed and scutched by my machines, are much softer than those by another machine [also produced], and have been bleached in half the time. These samples treated by my machines are worth from £1 to £1 10s. more than the others, because they are ready for the rope-making machine without further dressing.

9. *Mr. McLean.*] What about the gum?—I do not know much about the gum, but I know there is gummy or some other matter in the flax, and it holds the fibres together. If, however, you dissolved the gum, as it is popularly called, there would be no continuous fibre. Manila, I believe, is one long thread. If you were to boil this flax it would all go into short pieces about three or four inches long, or perhaps a little shorter. I think that if the thing is properly looked after, and if the matter is gone into thoroughly, the fibre can be improved, and be sought after instead of having to push it.

10. *Mr. Wason.*] Are there different qualities of flax?—Yes, there are several different qualities or varieties; I think, over twenty. Flax grown on dry land is generally considered better than that grown on the swamp.

11. But it is the same flax right through?—Well, there is the pink edge, and the black edge, and several other varieties.

12. And, as a gentleman experienced in the flax industry, have you any idea as to the best quality to cultivate?—No; you cannot pick it out when cutting for a mill.

13. Can you give us any idea as to how much native flax there is left in the district?—There is a good deal left, but it is being grubbed up as fast as possible in some districts, and fostered in others.

14. What I want to know is if there is much of the native flax left?—Mostly down Foxton way; but, of course, there is a good deal left in the Island.

15. Do you think this Committee should recommend the Government to give a bonus for improved machinery for dressing flax?—I should think so, considering that a flax-mill employs more hands than a station. Directly and indirectly, I suppose a flax-mill employs fifteen to twenty hands.

16. But you are unable to give us any idea as to how much flax there is left?—No, I have no idea of that; you can get it from statistics.

17. Do you think it would pay to cultivate flax?—I believe it would if you had the market for it, and if you brought the article to perfection. At the present time merchants take our flax when they cannot get manila, and now that there is a spurt I think the Government should take steps to produce an article that will command a sale of itself. Flax is now at £15 10s. per ton, but the merchants are taking seven months' contracts, so you may be sure it is going up. I mean £15 10s. here.

18. *Mr. Symes.*] I thought it was £25 or £26. Is £15 10s. profitable?—Yes.

19. *Mr. Wason.*] Would it pay farmers to grow flax if they got that for it?—I do not know what you reckon on.

20. Suppose £8 or £8 10s. an acre was paid for the land, would it pay to grow flax on that?—No; I do not think it would pay if the land was more than £6 an acre. I could not recommend a man to give more than £6 an acre for flax land, unless the article is improved and a better price always maintained; then a better royalty could be given.

21. *Mr. McLean.*] Will flax grow on poor land?—I do not think so; but I have seen swamps drained in this colony, and directly the draining is completed, up comes the flax. It is indigenous to the soil.

22. *Mr. Symes.*] Was this flax of yours [produced] washed before being bleached?—It is washed as it comes from the machine, which saves the labour of two men, or about 10s. a ton.

23. I understood you to say it was bleached inside?—Yes, not in the sun, though I may say that the shed was open.

24. And by that process there is a great saving in the tow, as it does not get entangled so much?—The scutcher is not yet complete, and I do not know exactly what the saving will be, but it will be considerable. The stuff will be ready for the rope-maker at once.

25. What do you think about the sending-away of falsely got-up flax: do you think it has had anything to do with damaging the market?—Yes; but what is the cause? A merchant gets an order to buy so much flax, and he enters into a contract with the miller. Perhaps the flax is low—say, £12 per ton. Then it rises to £20 per ton. The man at once becomes dissatisfied and careless, and wants to throw over the contract. But, on the other hand, a merchant makes a contract for, say, £18 per ton, and the flax goes down to £12 per ton. He is not satisfied and rejects, and says it is not up to the standard. That is one of the causes, therefore, why a grader should be appointed.

26. What do you consider the lowest possible price at which a good article such as this [produced] could be turned out?—I should say at about £10. It depends upon cost of the green flax. It makes a difference where you are situated. Take my own case. My green flax would cost about 15s. a ton or more as at present situated; if I had the mill on the field, much less. In Foxton, however, they can get it landed for 10s. to 12s. a ton at present.

27. How many tons of green flax does it take to make 1 ton of dressed flax?—About 7½.

28. But with your new process it will not take nearly so much?—Not if you save the tow, because nearly 25 per cent. of the dressed fibre is thrown away after all this expenditure is made on it. No industry in the world would stand that.

29. Do you know of your own knowledge that the sisal-grass crop has failed in the Island to a very considerable extent?—I think they have stopped cultivating. I have a small paragraph here which I sent to the *Evening Post*, and which appeared in 1895. It reads: "A correspondent forwards us the following cutting from an Auckland paper, which will, he thinks, be interesting to our readers, and the colony generally: 'In a recent report on the trade and commerce of Vera Cruz the subject of Yucatan hemp is referred to. This hemp is now generally known at sisal, from the fact that the fibre was first exported from Sisal, a small coast-port about twenty-seven miles west of Progreso. In view of the low price that has ruled for sisal hemp for some time past, it will be of interest to know that the export from Vera Cruz varies from 19,000 to 45,000 bales per month, the average weight of each bale being about 350 lb. It has been remarked that this year (1895) will have the maximum quantity of land under hemp-cultivation in Yucatan, which means that the production of hemp has reached its limit. Under the existing circumstances of low prices, high monetary exchange, and the scarcity of Indian labour, many of the farmers are planting maize instead of replanting hemp. New land, as well as old hemp-growing areas, is now being used for growing maize and other products.'" The sisal, I may say, is not as good as our hemp. I think rope-makers prefer our hemp.

30. *Mr. Symes.*] I dare say the Spanish-American war will account for the rise?—Exactly; but if sisal becomes scarce this will help us.

31. *Mr. Duthie.*] I know that you have given a good deal of attention to this subject, and that you have spent a great deal of time and money upon it. In any of your experiments, have you hit upon any idea to prevent the tendency of the flax rope to break off short after it has been in use for a time: is there not something in the fibre that causes the thread to break a few months after the rope is in use?—I do not know about that. I think, as I said, that should be discovered by experiment by this Committee.

32. But none of your own machines has been devoted to experiments in that direction?—No; they have been confined to the matter of dressing. I may say that in 1871 I was connected with Mr. Kebbell's mill. At that time Mr. Kebbell was conducting some experiments for Dr. Hector in regard to the durability of the flax fibre, and I was asked to look after the experiments. I did so, and the result is embodied in this book, which contains Dr. Hector's report. The result shows that the New Zealand flax, after being saturated with whale-oil, gives nearly five and a half times the durability.

33. Do you know why this idea has not been adopted?—No.

34. Are you aware that none of the steamers on the coast nor the Government railways use the flax rope to any extent?—They will not have it. I would like to know why.

35. Is it because it has the tendency to break off short?—I want to know the reason, but I think it is for the Committee to get at that.

36. As a witness you can only say you do not know?—Yes.

37. Binder-twine is another direction in which there is a good deal of consumption of the article: why is not flax used in that connection?—I do not know why it should not be used in that respect. I think it is only prejudice.

38. They do not use it in New Zealand?—I am quite sure they would not know that fibre [produced], if spun, from manila.

39. As a matter of fact, there is very little of it used?—I do not know. You people, the merchants, should know better.

40. Are you aware that it was largely adopted some five or six years ago in America and then discontinued?—I believe it was.

41. Do you know the reason for that?—No.

42. Is it not that the flax is so much heavier that it is safer and cheaper to use manila, even at the higher market price?—That is what I am trying to get at.

43. It is a question of whether it should be substituted?—I think it would be substituted if it could be produced to answer the same purpose as manila.

44. What I understand is this: that the farmer finds it cheaper to use manila?—I do not know; we have sold both.

45. How is the demand going for flax: is it increasing?—I do not know; I think it is about the same—just now on the increase.

46. That is, it maintains the same proportion?—Yes. My own opinion is that the flax has been stripped too coarse. If it was made soft, the same as manila, it would be better for some purposes.

47. Can you make it soft?—Yes.

48. Why do they not all do so?—I do not know. They have to put it through at a certain price.

49. What I want to get at is the intrinsic worth as it is used in New Zealand. If we in New Zealand cannot use it as rope, and if we will not use it as binder-twine, is it fair to get the Government to prepare the article for export?—There is no answer to that, excepting supply and demand. The only thing is that it may be produced cheaper, and perhaps better. You know, many colonial products have been brought to perfection in that way, and so come into use.

50. *Mr. McLean.*] Where is your market?—I am only experimenting; I have no mill for export.

51. At what stage would it pay to cultivate the flax: what is the earliest age at which you could use it?—At about four years, but I reckon that the best time is when the flax is five years old.

52. Have you had any experience in Irish flax?—No, but I know what it is.

53. Do you think it would do well here?—I do not see why it should not.

54. Would it grow here?—Yes. There would be two crops a year, but I think it would impoverish the ground.

55. In regard to durability, has the native-dressed flax the same durability as that dressed on a machine?—Exactly the same, according to Dr. Hector's report. I would bring under the notice of the Committee the following table from Dr. Hector's report, and ask the Committee to recommend that these experiments be again taken up, and the strength of the different fibres ascertained:—

TABLE No. 1.—RESULTS OF EXPERIMENTS MADE TO ASCERTAIN RELATIVE DURABILITY AND WEAR OF PHORMIUM AND MANILA ROPE.—WELLINGTON, MARCH AND APRIL, 1871.

Description of Rope.	Circumference before Experiment.	Length.				Weight.			Number of Days run.	Number of Miles run at 4,575 ft. per Hour.	Durability (per Cent.).
		Before Experiment.	After Experiment.	Percentage of Stretch.	Percentage of Shrinkage.	Before Experiment.	After Experiment.	Percentage of Loss or Gain.			
Dry—	In.	Ft. in.				Oz. dwt.	Oz. dwt.				
Manila	1·43	17 8	..	2·6	..	Not	accurately	noted	20	173·3	100
Phormium (white) ..	1·56	18 3	..	3·5	..	13 10·8	10 14·2	− 20·3	28	242·6	134
„ (tarred)	1·56	18 4	..	7·6	..	16 2·4	15 8·9	− 0·3	15	129·9	74
Wet—											
Manila	1·43	18 2	..	1·9	11·0	Not	accurately	noted	22	190·6	110
Phormium (white) ..	1·56	18 2	..	6·1	6·0	13 9·9	12 3·8	− 10·0	20	173·3	100
„ (tarred)	1·56	18 1	..	7·9	3·8	16 14·8	17 0·4	+ 0·6	19	164·6	95

TABLE No. 2.—EXPERIMENTS IN 1872.

Dry—	In.	Ft.	Ft in.			Lb. oz dwt. gr.	Lb. oz. dwt.							
Manila	2·00	16	17	5½	9·1	..	1 9 11 30	1 9 0	− 2·8	39	337·9	100		
Phormium, native-dressed	2·25	16	19	5	21·4	..	2 1 1 5	1 13 4	− 11·5	57	493·8	146		
Phormium, machine-dressed*	2·00	16	18	6½	15 9	..	1 8 6 0	1 7 0	− 5·6	64	535·4	159		
Phormium, machine-dressed (oiled)	1·62	16	18	10½	18·0	..	1 5 8 0	1 2 13	− 12·5	92	797·1	236		
Wet—														
Manila†	2·00	16	17	4	8·3	8·6	1 10 2 30	1 12 0	+ 7·0	30	259·5	77		
Phormium, native-dressed	2·25	16	20	9	20·7	7·3	2 1 0 0	1 15 9	− 4·3	22	191·0	57		
Phormium, machine-dressed	2·00	16	18	2½	13·8	8·6	1 9 10 0	1 9 8	− 0·5	22	191·0	57		
Phormium, machine-dressed (oiled)	1·62	16	19	10	23·9	3·0	1 4 8 5	1 5 5	+ 0·5	135	1,022·4	303		

* This was made expressly for experiment. Mr. Kebbell remarks that it was "got up in the best manner, and felt as if a small amount of some kind of grease had been used in the manufacture. This might account for the dry line running seven days longer than the dry native-dressed."

† The manila was from a piece of whale-line, apparently of the best quality. I think it ought to have been respliced and run again.

56. Then, you cannot tell much difference between the two kinds?—No; but that is a matter which could also be found out by means of an experiment.

57. Do you think there is an improvement in the present machinery as compared with that of 1871?—No, there is no improvement, except, of course, that you can put more through the machines. There is no improvement as far as quality goes. They use the same stripper and the same process as in 1871. A man named Price was the original inventor of the stripper, and Captain ———, of Taranaki, introduced the two-fluted feed-roller, driven by a separate belt.

58. About this matter of spontaneous combustion: does the flax itself take fire?—No, I do not think so.

59. Well, does not wool take fire?—Yes, wool takes fire if it is wet. I never heard of a wool-ship taking fire. I do not believe in spontaneous combustion with regard to flax.

60. But, without doubt, it has done so more than once?—I should like to test it.

61. *Mr. Symes.*] Do you know of your own knowledge if an arrangement was entered into by the New Zealand and the Australian merchants whereby binder-twine was not to be used in New Zealand except at a higher price than that of the Russian hemp?—I do not know.

62. Are you aware there are distinct fibres through all flax? About how many kinds are there?—I believe there are twenty kinds.

63. Do you know that spontaneous combustion is nonsense, and that millers, in bundling up the flax, apply water?—Well, suppose the fibre becomes too brittle to scutch, it may be damped a little, but not otherwise.

64. But this is in the bale?—Oh, no. It would ruin their market name.

65. *Hon. Mr. Ward.*] What is the average price per ton at which you can produce flax?—It depends upon the locality and the situation of the mill, and also on the price of the green fibre. As I stated, the process I am trying to bring out will reduce the cost of producing, I think, between £2 and £3 per ton.

66. Have you patented your process?—Rather. The various patents have been in existence for the last eight years. I have taken out several patents for the different machines. I took out my first patent in 1871, and worked at a machine for three years on the scraping principle. This did not prove a success. In 1890 I took out two more patents, and others from time to time. In all, I have made and tried practically four washing-machines since 1890, the last one, of recent date, only proving successful. I have also made and tried practically four scutching-machines. Only the last one of these came anywhere near the mark, and that is not yet completed; but, from trials with a small machine, gives very good results, and proves to be on the right lines, and will eventually, I think, be a great success, turning out a better fibre, with little waste, less power, and will command a far better price.

67. To enable this export of flax to succeed against the Russian article, do you want assistance from the State in the way of a subsidy or a contribution?—I have spent a great deal of time, and between £1,500 and £1,600. I understand that a bonus has been offered, and I think Government, if they think proper, should award me some proportion of that bonus to help me in the matter of making further experiments. You must understand that it is not a small thing. You have to have a whole flax-mill lying idle at your disposal, in order to try these different ideas, and the thing takes years. Seeing that there has been no improvement in the flax-making machinery for the last thirty years, although there have been hundreds at it, it is no small task to undertake. I would not undertake the same task again for £4,000. The work that I have done could not have been done in a foundry for £4,000. I have made eight different machines, and have tried them practically with a mill. I am sure the machinery can be improved very much.

68. Perhaps a bonus would enable you to develop your machinery?—Certainly.

69. If you do perfect your machine do you intend to sell to anybody who might desire to buy?—Anybody could have it at a certain royalty. It would be very foolish to kill the goose that lays the golden egg. I should charge a very small royalty so as to induce millers to take the machines. If these machines would save, say, £2 or £3 per ton they would be worth at least 7s. 6d. or 10s.

70. *Mr. Meredith.*] I understand you have a practical knowledge of the preparation of flax for export?—Yes.

71. What price do you think flax should command in the colony so as to offer sufficient inducement to develop the industry?—It would all depend on the Home market.

72. But what price should the prepared flax command at the port of export so as to justify encouraging the development of the industry?—It is a matter of supply and demand.

73. Then, at what figure could you produce the article so as to pay you?—I should say that if it could be delivered at 10s. a ton at the mill it could be produced at the mill at about £9 or £9 10s., or even less.

74. Then, you think that if prepared flax of good quality was £12 per ton at the mill, that would be sufficient inducement to encourage enterprise to develop the industry?—Yes, £12 or £12 10s. That is, not in the winter with the present process. With the present process it would be produced at the mill at £10 or £10 10s., in the summer, if royalty was low. With a better process you would save the tow, or a great portion of it.

75. If the tow had a commercial value?—It has not, only to a small extent.

76. But say it was £4 or £5 per ton: in that case the best quality of flax could be prepared at the mill for less than £12 a ton so as to justify encouraging the industry?—But I maintain there is no tow in the fibre, unless cut by the stripper or entangled in the field by wind, &c. The tow is caused by the scutcher dragging out the good fibre that should go into the bale. This can be proved by hackling the tow. By proper machinery this could, to a very great extent, be avoided, and a large saving effected.

77. We must take things as they are. It could be produced at £10, but that figure would not leave much for the miller. What is good prepared flax worth at the present time?—About £15 per ton in Wellington.

78. Therefore the value of prepared flax at the present time is above the margin?—Yes; but £10 would not leave any profit for the miller, or very little.

79. *The Chairman.*] Outside the assistance that you suggest should be given for improving the machinery, do you know of anything else the Committee could consider in regard to encouraging the industry?—I think the Committee should vote a sum to enable small experiments to be carried out. For instance, an experiment could be tried in the way of testing flax rope and binder-twine as against the manila and other fibres.

80. *Mr. McLean.*] You say that the New Zealand article stretches more than the other?—Yes. If the New Zealand flax were made softer it would spin closer, and I think that would do away with the difficulty. They have all been going in for coarse fibre, but why they are doing so I do not know. I asked a rope-worker in Auckland about this matter, and he said they wanted the stuff as soft as they could get it; but, as I said, the machines are stripped for the coarse article; at present some makers want fine, some soft.

81. *The Chairman.*] I understood you to say that the Committee should direct attention to having scientific experiments conducted, with a view to comparing New Zealand flax with other fibres, and should give the public the benefit of the information secured?—I think that would be a very good thing. If the Government acquired some flax land, and leased a little of it, they would gain in the end, because the amount of money that would be distributed by that means would more than compensate for any loss in the way of interest. Even if the Government paid 3½ per cent. for the land and got only 2½ per cent. from it in return, the money that would be circulated would compensate. This would also use up a good deal of labour that would otherwise be not used and thrown on the country. I think it is for the Government to try and find out the real reason why the New Zealand flax is not used to a greater extent. It would take a private individual years to do so.

TUESDAY, 20TH SEPTEMBER, 1898.

Mr. R. DUNCAN, Chief Inspector of Machinery, examined.

Mr. Duncan said that manila hemp is a product of a species of banana, and is cultivated in certain localities in the Philippine Islands. His information was chiefly procured from the *Engineer*. The plant, called "abaca" by the natives, throws up a cluster of sheathing leaf-stalks to the height of 20 ft. or 30 ft. It is cut down when three years old, and the stalks torn apart and reduced to strips. These strips when fresh are drawn between a knife and a wooden block until by continual scraping by the expert natives the soft cellular matter is removed. The fibre is then hung up to dry in the open air until it is ready for use. Each stalk yields about 1 lb. of fibre, and two natives cutting down and scraping will produce only 25 lb. a day. The whole supply of manila hemp practically comes from the Philippines. In 1897, out of 825,028 bales exported, America took 417,473 bales; Great Britain, 385,182; and the Continent of Europe, 22,372. It is the most valuable of all fibre for cordage. It will take about two hundred men to produce a ton of finished manila fibre. It will require twelve men in New Zealand to cut and clean a ton of fibre, with the aid of an 8-horse-power engine, which is equal to the labour of forty-eight men, so that it requires sixty men to produce the same quantity that takes two hundred in the Philippines. These figures are only approximate. With regard to jute, which is the product of a kind of lime-tree, it takes three weeks for retting, and is then softened by being passed through a mangle, using oil and water, there being four sets of fluted rollers having a slightly lateral motion.

1. *Mr. Symes.*] Does not this break it into bits?—No; pressure can be regulated. It is only cold water and oil that is used.

2. *Mr. McLean.*] Why is it that the manila fibre is so much easier to work?—It is longer and better fibre perhaps. New Zealand is, perhaps, shorter in its make.

3. On the whole, has there not been a considerable improvement in machinery for flax-dressing in New Zealand of recent years?—Not much. It does not pay a man to spend much in machinery in New Zealand, as the market is uncertain. It is the quantity that pays. By the time he had machinery the price may have gone down. The uncertainty of the market accounts for the diminution in the number of flax-mills in some years. One machine examined by the Flax Commissioners, belonging to Mr. Toogood, of Featherston, stripped the flax under water, and then passed it between a series of rollers under water-pressure. The process will save two or three days in the bleaching, and will make a difference in the profit. It is a step in the right direction. It is the best washing-machine I have seen. I have only visited flax-mills in New Zealand as Inspector of Machinery, taking notes. Flax will grow in three years in New Zealand.

4. Do you think it would pay to grow flax now?—I do not know what soil it requires.

5. Do you think it would be profitable for settlers to cultivate?—Settlers would require help from the Government for machinery. We would want a central factory.

6. Do you think the supply of flax would be adequate if they had a market?—I have heard of districts in Taranaki which grow but flax.

7. It must be good land to grow flax, only poor flax grows on poor land?—Clay land grows the best flax.

8. *Mr. Wason.*] Do you know whether manila fibre is cultivated?—I cannot tell you. Mr. Gardener and I recommended that the chemical process should be tried at the agricultural farm at Momohaki. The green leaf is boiled for four hours in arsenicated water, then passed between a pair of smooth rolls.

9. *Mr. Duthie.*] You mentioned that flax takes three years to grow: have you any knowledge of the average crop per acre?—No.

10. I understand that when ropes made from New Zealand flax are a time in use they are liable to break. The railways are giving up using New Zealand in favour of manila?—They do not want to be bothered with it.

11. Their sympathies would be with the local article against manila had they not some difficulty with it?—Manila is the strongest fibre known.

12. Could you offer any evidence to show that this defect could be remedied?—No.

13. From your knowledge of the fibre it cannot be remedied. The fibre is a larger fibre and much heavier?—It is about 20 per cent.

14. Do you think that, from the evidence which you had before you, there was any method of reducing the weight?—If better dressed it might reduce the weight. When jute was introduced into Dundee in 1833 they would have nothing to do with it. Now they make it so much better.

15. Is there any hope of it being better dressed at a reasonable cost?—We have the chemical process that will help it. The tow is much less.

16. I understand the inquiry of the Commission was as to the making of a marketable article. So far nothing has been accomplished?—Yes; we have recommended the Government to try the chemical process. It is possible they will try it.

17. Unless it is very expensive?—It is not very expensive; the saving would be about £2 a ton.

FRIDAY, 23RD SEPTEMBER, 1898.

Mr. ROBERT GARDNER, Piaka, Koputuroa, examined.

1. *The Chairman.*] You are Mr. Robert Gardner, of Piaka, Manawatu?—Yes.

2. You desire to give some evidence before the Committee on the question of the encouragement of the flax industry?—Yes.

3. How long have you been connected with the growing of flax?—Ten years, now.

4. In what capacity?—I bought out a flax estate at Piaka, Manawatu, about 1,000 acres altogether. I have a flax-mill there, and had one at Waikanae, and one at Foxton. So I have been pretty well into the flax industry for ten years now. I continue to run it. I have gone on with it all through. I was appointed by the Government to go round to every one desiring to compete for the bonus for improvement in the dressing of flax. I think we all recognise flax is most profitable now. We know what flax is. I have been twice round the colony. I have just come off the last Commission, and we have published our report. So far we have seen two things that we think will be hopeful. One is a washing-machine at Featherston. Unfortunately, at the time that we went round (the Commission, Messrs. Duncan, Rutherford, and myself) to inspect Mr. Toogood's machine, we could not recommend anything at all to him for it. It was not working well; but he applied to the Minister for a reinspection of it. We went there, and we are of opinion now that there is something in it. It washes the flax, and generally much depends upon the thorough washing of the flax as to its quality. The other is a departure altogether from the ordinary way of dressing, which is a sort of grinding process. It is a chemical process. A man named Gillman experimented up at Auckland. Sir James Hector has been experimenting on the effect of alkali, but by it we find we lose the colour. However, Mr. Gillman has discovered by the use of arsenic he can, we believe, still retain the colour. We can get a fibre clean and dry. We could never get the colour back by Sir James Hector's plan. The colour, of course, affects the fibre in the English market. Gillman has not money enough to carry the thing through, and we have applied to the Government asking if they will grant money for carrying out Gillman's plan. We think there is something advantageous in it. I saw him take the flax, put it into a copper boiler, and boil it. After it was boiled for four hours he passed it through a pair of rollers, washed it, and left the fibre entirely free. If that can be done in quantity, and at a price, it will certainly solve the difficulty. It will make our flax very much more valuable. I believe a very great deal of the damage to our flax is the result of the present machine-dressing. It is put over the field, and exposed to atmospheric influences that lessen the strength of the fibre. We have been trying to get over the bruising of the cells. There is no grinding in Gillman's process, and we think it ought to be encouraged. I do not know whether the Government will consent to do that or not. I reckon that we have got about twenty mills working at present, and we turn out nearly sixty thousand pounds' worth of flax. We were turning out something like four hundred thousand pounds' worth some years ago.

5. Have you anything you can suggest to the Committee that would be in the direction of encouraging the production, or improving the trade in any way?—In the first place, we, by Gillman's process, if successful, cheapen the production charges.

6. Successfully?—Very considerably, as well as improve the quality. We calculate that we will be able to turn it out for £6 per ton; if so, we will bring it to about the price of jute. Our fibre is vastly superior to jute.

7. *Mr. Wason.*] With reference to cheapening the production, I do not quite follow you?—We think it will take less manipulation, less labour, to produce the flax by this process.

8. I do not understand what you mean by the term production?—It will decrease the cost of production.

9. That is supposing you have the raw material delivered to you?—Oh, yes.

10. You use a wrong expression in production, you mean cheapening the manufacture, do you not?—I have not taken into consideration the green flax. The royalty may be increased by growers of the green leaf.

11. It is to cheapen the manufacture, you mean?—Yes. Then there is another thing, and that is, we ought to be able to sell the article in England at what it is—that is to say, at the present time, a lot of flax is sent from here to England, and it is not carefully examined before it leaves the colony. The buyers in the Old Country discount the uncertainty in quality. They discount it on the ground that there is a great deal of carelessness in dressing and baling. I think it is imperatively necessary for us to keep up the quality. We should have it inspected generally. For instance, I myself was on the wharf not so long ago. I went down to examine flax I bought before I passed it and dealt with it. The bales were wet. They had no appearance of this from the outside. If we had shipped that flax, in another fortnight's time it would have been perfectly black, and in a month's time it would have been a black powder. That flax was afterwards sent by another party, and it would be perfectly worthless when it reached England.

12. *Mr. Hogg.*] If you had sent it Home you would have given your material a bad name?—Yes, the whole colony's output would get a bad name. When the price is high the buyers will take almost anything, but when the price is low they (the buyers) will reject flax they would have taken when the price was high. The unfortunate miller is at the mercy of the buyers. What a merchant himself calls G.F.A.Q., or inferior, the unfortunate miller has to accept. The merchant has a perfect right to reject flax not being G.F.A.Q.; but the miller may come down and say you passed this before as G.F.A.Q., and you should take it now. I really think this is a very important thing. The Government should step in and examine the flax. We, as millers, are perfectly willing to pay a fee for our own security, to keep up the quality of the flax or have our flax graded for what it is. We want to be protected against anybody who does not try to keep up quality.

13. *The Chairman.*] Are there any other matters, Mr. Gardner, you would like to give evidence to the Committee on?—Yes. I think we might seek another market or two for our flax. We are going to have direct intercourse with New York at a low rate. I think we might get into the Canadian market. The Argentine also is a produce market. I have been sending to Japan. At the present time there is a prospect of opening up trade there. It is rather strange, for Manila is so much nearer, but yet it is a fact.

14. Is there any other matter, Mr. Gardner?—No; nothing specially.

15. *Mr. Meredith.*] I would suggest that as this gentleman has spoken of his attempting to initiate a trade between New Zealand and Japan, he might give to the Committee more information?—I have done it always through merchants here. They have got their correspondents in Japan. Messrs. Murray, Roberts, and Co. and Messrs. Bannatyne and Co. have sold on my account, and the consignments sent point to their being repeated, showing there is a trade. If we sent one consignment, and nothing else came of it, it would be different. Instead of this, we have had repeated orders, proving there is a market.

16. *Mr. Hogg.*] Can you tell us the periods of time between those consignments being sent?—The first consignment was about eight years ago. We are just sending some now. When I sent it before I sent it repeatedly. I must have sent 50 or 60 tons in 10-ton lots.

17. You are aware others have been sending consignments?—I am not aware of any one else sending to Japan.

18. *Mr. Buchanan.*] What has been the rate of royalty paid per ton for green flax, with reasonable expense for carriage from the field to the mill?—Well, we are paying at the present time (although I have my own flax, we are sending out and using neighbours')—and we calculate ours is costing £1 per ton on the dressed flax from the green leaf we buy—that is about 2s. 6d. per ton on the green; but we have had it as low as 1s. per ton. People who own flax vary its price according to the state of the market.

19. What would that mean, approximately, per acre to the grower of the flax?—We have averaged about 32 tons per acre, or about £4 per acre—that is for a fair field of flax.

20. You are quite satisfied that the grower got £4 per acre?—I know that is what we have calculated. We are just purchasing from the Moutoa Estate. We are paying that for a cutting; but we only cut once in three years, or about £1 7s. per acre per year.

21. We may assume the Assets Board were dissatisfied with what they were getting from flax, or they would not cut it down?—There was some time ago such a depreciation in flax that there was very little used. The price now yields an excellent return.

22. Do you think the prices that have been paid for some time for the green flax would encourage owners of flax-country to keep their country in flax, even if they could turn it to other purposes?—Of course, there are places that grow flax—patches, and so forth—that could be made use of for other purposes, but most of the land that grows flax is useful for very little besides.

22A. Generally speaking, do you think the prices that have been paid lately would be sufficient to encourage people to keep their land in flax?—I think that land which is suitable for flax, in most cases, would hardly pay to be used for other purposes. The flax-land is wet generally, and is subject more or less to floods. And, speaking especially of the Moutoa Estate, I know this land which my sons were creating some disturbance about. I know it would never have paid to clear that land, and they are getting a far better rent now than for any other purpose.

23. Have you ever noticed how you could follow with the eye the course of a drain as soon as it is dry through the land?—Yes. There is another peculiarity. You must have a good damp subsoil. We have our drains running about 3 ft. deep. We have a continuous current of water underneath when the upper part of the soil is dry, and that is the part of the land we get the best flax off.

24. How much reduction in the cost of manufacturing flax per ton would be required to enable the owners of flax-growing land to keep their land under flax? The late depreciation in flax, I may take it, pretty nearly compelled every manufacturer to shut down. How much per ton would the cost of manufacturing have to be cheapened on the one hand, or how much per ton more would be required for the manufacturer to be encouraged to take the flax?—Take the royalty at 1s. 6d., and

taking the current rate of wages that we have been paying, I do not think the flax could be a payable industry under £10 10s. per ton. When it comes below that it ceases to become a payable industry.

25. Am I right in understanding you, Mr. Gardner, that at ten guineas, under the present process of manufacture, a flax-manufacturer, who would be not only the grower, but also the manufacturer, could make the industry pay? You think that would pay?—I am sure it would.

26. Anything over that would be a benefit all round?—Yes.

27. The present market-price is £16 per ton: can you give us any idea of the cost in labour per ton—the ratio of cost—or, rather, can you give us any idea how much of the ten guineas would be the portion of labour?—Yes; nearly the whole would be spent in labour, you may say.

28. The machinery and coal have some part, and the royalty, of course?—We are spending on each machine for fuel equal to £1 10s. a day. About 75 per cent. in labour is spent on a ton of flax.

29. What is the nature of the labour usually employed: largely boys?—A great many boys. We pay rather a high rate of wages; but it is hard and constant work.

30. What was the minimum price offered, at the lowest point, per ton for the manufacture?—£9, that is the lowest point it has ever reached.

31. You think the chemical experiment of Mr. Gillman, and the mechanical experiment of Mr. Toogood, would get you over the difficulty in which you find yourselves, even at the £9?—That is my own impression at the present time.

32. £2,000 has been offered for some time by the Government as a bonus?—Yes.

33. Taking the expense to which Mr. Toogood has gone, do you think that bonus sufficient to encourage inventors or experimenters like Mr. Toogood to persevere? I have been told, for instance, he has expended no less than £1,500, not counting his own time or labour, in experimenting. Do you think £2,000 sufficient?—It would not encourage very many men, because his £1,500, unless something comes out of it, is simply thrown away. The uncertainty of experimenting is too great without some big prospective advantage.

34. Taking the importance of the whole question, the employment of a large amount of labour that would ensue, are you of opinion that the Government ought to increase the amount of bonuses, seeing that no payment would be made without value received?—Yes, I think it would be perfectly justified in increasing the amount of bonuses. I have been twice round the colony and seen many men who have been experimenting. They have simply said they have only gone to a certain stage. With only £2,000 ahead, they have stated, we might spend far more than that and then get nothing out of it.

35. If the Government grade flax, would there not be equal justification for grading wheat, wool, and various articles of produce produced by settlers. You have instanced damp flax. You have heard of damp wool?—Yes.

36. You have also heard of a settler, naturally wishing to get a price for his wool, putting a little ballast in the middle of the bale to the consequent loss of the innocent purchaser—in short, would not some arguments attach to grading of the different articles of produce as you have been putting forward for the grading of flax?—Of course, I cannot exactly speak on the other articles but flax. I know that there are many opportunities in the export of flax for an unprincipled man to injure the whole colony. As for the other produce, I should say if there was scope for trickery the things should be checked. I have never shipped grain myself.

37. *Mr. Meredith.*] Has your trade with Japan in flax been a commercial success?—Yes. I will tell you how we did it. Messrs. Bannatyne and Co. acted for us first. They have correspondents in Japan. They wrote out asking the firm to send them so much flax. I think the first consignment we sent was 10 tons. When they got it we got a cable to send more, and we sent 50 or 60 tons.

38. Have you any idea what the flax is manufactured into in Japan?—No.

39. Do you employ many hands?—We employ about thirty altogether.

40. Mostly boy-labour, I suppose?—Well, no; we do not care so much for boy-labour.

41. What is about the rate of wage paid?—We give the boys 5s. a day; from 5s. and up. I think the most expensive man we have in the place is about 9s. 6d. a day.

42. Is there any local demand for fibre in your district to be manufactured into binder-twine?—No; I am manufacturing ropes myself. I have a spinning-rope factory as well. Messrs. Donaghy and Co. have nearly the whole trade for ropes in New Zealand. I think there are about four altogether, besides Donaghy and Co., in binder-twine, but they have the greatest output; they have a place in Auckland, Dunedin, and Invercargill.

43. I understood you to say you have been pretty well over New Zealand, and know in New Zealand all the flax industries. Have you any knowledge of a Mr. Andrews in a place called Waikuku, in Canterbury?—I think I was at his place.

44. That is near Ashley, beyond Kaiapoi?—Yes; I went there.

45. How long is it since you were there?—About four months ago.

46. Did you notice if he were manufacturing binder-twine at the time?—Yes; I think he had about six twine-spinners. It is a most excellent plant.

47. The plant I refer to was imported by the Farmers' Co-operative Association?—Yes; it is a most excellent plant.

48. *Mr. McLean.*] You said you made rope?—At present.

49. A considerable quantity, I suppose?—No.

50. It is of New Zealand flax, I suppose, not mixed?—No, not mixed.

51. A good deal of the rope is mixed?—Yes, I believe a good deal of that sold is. I have seen them at the rope-factory nearly always mixing New Zealand flax with manila.

52. Where?—In the North and South of New Zealand.

53. Mixed rope does not bear the strain so well?—I do not think it is so strong as the pure manila. I think that arises from the dressing. Ours is crushed, and the other is scraped off.

54. How do you account for such a tremendous falling-off in the value of the export in flax? What do you attribute that to?—To the increased output of sisal. There was a great effort made to cultivate the sisal. The Governor of the Bahamas took a personal interest in the cultivation of the sisal. There are three principal white fibres in the world—the manila, the sisal, and the New Zealand flax. The sisal increased in production to a very much greater extent. The increased quantity coming into the market brought down the price, and that we think was the cause of the reduction of the manila and New Zealand hemp. The Bahamas have gone back into maize-growing, and from what we see by the papers we are more hopeful that the price will continue at a more payable rate. It is almost impossible to tell with certainty what the cause always is for the lowering of prices of any produce.

55. *Mr. Wason.*] I do not understand what you mean by this royalty, 1s. 6d. a ton on green flax?—The royalty is this: if we cut flax from anybody else's property we pay them so much a ton, and term that a royalty.

56. How does that 1s. 6d. a ton agree with your former remark that you paid from 1s. to 3s. a ton for green flax?—We pay a royalty of 1s. per ton on the green flax that we cut, or 1s. 6d. or 2s., or 3s., whatever the market-price may be.

57. You told us you paid 2s. to 3s.—that is, by way of royalty—and your labour was additional?—Yes.

58. We had it in evidence the other day that the best flax was grown upon comparatively speaking poor land, worth about £6 an acre. I understand from your remarks you hardly agree with that?—No, I do not agree with that.

59. You think the best flax would grow on the best land?—Yes; I suppose our average of blade is 10 ft. long. The soil is wonderfully good, and there is nothing to beat it in the Manawatu.

60. You think that that land could be more profitably employed growing flax than it would be in any other way?—Yes, I certainly do. In our own case we have a flood over our flax-land about twice a year, and it is well drained.

61. It requires no soil-cultivation?—No.

62. Do you think there is much of that land in New Zealand?—A great deal of it. There is, for instance, the Makerua, or the Manawatu Railway Company's swamp. I think that would make excellent land for flax-growing. The idea was to turn it into grass, which I think would be folly.

63. You think, under certain conditions, the raw material might be profitably cultivated here?—Yes.

64. *Mr. Hogg.*] Do I understand you to say, Mr. Gardner, there are a good many qualities of rope and twine that cannot be profitably produced from New Zealand flax?—I think, from what we know of our present dressed flax, it does not stand water as well as the manila. It is a very good substitute for the higher class, as flannelette is a substitute for flannel. It puts it within the reach of people who cannot afford a better article.

65. Do you think if the tariff was altered it would lead to the increased manufacture of the New Zealand product in the colony?—No.

66. Do you think it would diminish the importation of manila?—No, I do not think so.

67. *The Chairman.*] Are you satisfied with the information you get about the Home markets in connection with the price of flax?—We are getting too little. We want more information.

68. Have you any suggestions to give the Committee in the way of facilitating your being acquainted with the Home markets? Would it assist the trade if the price of flax were more frequently supplied?—I have been trying to get the Agent-General to send us cables through once a fortnight. We get them so irregularly that it is oftentimes a month or six weeks before we know anything about the Home market.

69. That would be good for the trade. You mentioned Canada as a probable field?—It is a large grain-growing country, and the binder-twine there used is very considerable. It is mostly manila or sisal that is used. I am not aware New Zealand has any hold in the market.

70. How do Donaghy and Co. get their flax? Do they buy it in the market?—Yes.

71. Can you tell me for how long Donaghy and Co. have had almost a monopoly—for how many years?—I could not say.

72. Will it be three or four years?—I think they have had almost a monopoly for the last six years. They bought out the Auckland Company, then the Southland Company.

73. During the last three or four years do you know if there has been any great increase in the production of binder-twine, or any great increase in the production of anything in New Zealand from flax?—No, I cannot say.

74. You do not know whether the reduction in the amount of flax exported is due to a reduction in the amount of the raw material manufactured, or an increase in the manufacture of twine and rope from raw material?—No.

75. One witness stated to the Committee that there was a prospect for New Zealand flax. Do you think there is anything higher for the New Zealand article?—I think we can improve the quality of the flax. Flax is injured very much by the present way of dressing it. If we could meet that. I think the injury takes place, first, in the way of dressing, and then, again, in the paddocks; there it is exposed to the weather so long that it is injured both in strength and colour. There is a Mr. Ross, in Invercargill, treating it with chemicals without exposure to the air.

76. What are the new lines Mr. Ross is going on?—He uses chloride of lime. We do not think it will affect the strength.

77. *Mr. Buchanan.*] That would not injure the strength?—It is a common method used by other mills.

78. *Mr. Hogg.*] A great deal can be done through the chemical treatment of various fibres?—Take China grass, chemicals being introduced have made a fibre as fine and as glossy as silk. It was a most difficult thing to treat the China grass before. I do not think we will ever much improve the mechanical dressing of flax. Those are the lines we are on now.

Mr. R. MEREDITH, M.H.R., examined.

79. *The Chairman.*] You desire to make a statement to the Committee, Mr. Meredith?—I have been engaged in practical farming for about fourteen years, and I have used various descriptions of twine, imported and locally made, for binder-machine purposes. When I first commenced farming with the McCormack machine, I used American imported twine, and paid from 1s. to 1s. 4d. a pound for it. This was hemp-twine. Since then, I have used various twines.

80. *Mr. McLean.*] What do you mean by hemp?—Russian hemp. Since then, I have used locally made twine. When first manufactured, the locally made twine was not equal to the imported article in quality, and was much dearer; but, I considered it my duty to encourage the local industry. During the past five years I have not used any of the imported twine. I have used the Auckland-made twine, the Dunedin-made twine, and during the last season I have used locally made twine. When I say locally made twine, I mean made in Canterbury. The Auckland twine is made largely of flax with a little admixture of manila. I find that the twine made from New Zealand flax, without any admixture of foreign fibre, with the application of a little linseed-oil in the manufacture of the twine, to work well, and has given me great satisfaction. I have been able to purchase this twine made from New Zealand flax, pure and simple, at 4¼d. per pound. I find it to be much cheaper than the imported article, and works well in the McCormack binder. My neighbours have also been using in various harvesters the same description of twine, and, so far as I have been informed, it appears to give general satisfaction. I have used during the past few years tons of this twine made from New Zealand flax, and I consider that, with the improved machinery now imported, locally made twine from New Zealand flax will absolutely shut out the imported article and become an established industry in the colony.

81. *Mr. Symes.*] I would like to ask Mr. Meredith whether a "corner" which is made in New Zealand twine would be the means of shutting it out to a great extent? Some merchants, I understand, had bought up the right pretty well of all the New Zealand flax-twine, and people could buy it in Australia and bring it back here cheaper than buying it at first in the colony?—That was so, I believe, a few years ago; but that monopoly is now broken down. I might be permitted to point out that, with a view of assisting to break up that monopoly, the Farmers' Co-operative Association in Canterbury—a very powerful organization—has imported machinery of the latest invention, and established works for binder-twine manufacture at Waikuku, about twenty miles north from Christchurch.

82. I have had a great deal of experience in the working of binder-twine. I was cropping about fifteen years, and had various kinds of reapers-and-binders. Did you ever find in your experience, Mr. Meredith, that the difficulty originally with the New Zealand twine was with the knotter-and-cutter: it was too hard for the knotter-and-cutter, and often, instead of tying a sheaf, only partly cut the string at the knot?—I experienced a little of that in the early stages of the manufacture of the New Zealand twine. I found it uneven, and it was in the habit of unfolding; but during the last two or three years the twine has been made much more even, and with the application of a little linseed-oil, that has given it a sort of glazed surface, it works remarkably well.

83. Another thing, we found it was heavier, and, of course, much shorter than the balls of Russian hemp. I have used Howard's Simplex, the Deering, and the McCormack binders, and with the different machines the difficulty is to use these twines. With a Howard's Simplex we never use New Zealand twine at all; the McCormack was better, and the Deering still better. I have also used a Massey-Harris, and have seen a great deal of this machine from working it; so I am perfectly satisfied if the New Zealand hemp or New Zealand twine is made as Mr. Meredith says, it must, from its very cheapness, break down the importation of the other, because the cheapest I ever got any of the other was at 10½d. per pound.—it is far cheaper than that now. For a number of years it was 10d. I have bought in the latter years Russian hemp as low as 7d., and the other 4d. to 5d.

84. *Mr. Wason.*] With regard to the cultivation of flax in Waikuku, do you think there is enough to keep mills going for any time?—To supply the flax to the Waikuku Mill they have sometimes to go a distance of between eighty and one hundred miles. I understand flax at the present time is being cut and conveyed by rail from Springfield to Kaiapoi, thence to Waikuku by wagon.

85. *Mr. McLean.*] What did they put the mill there for?—To use up the flax in the immediate neighbourhood.

86. *Mr. Wason.*] It has been said in evidence here that you could cut the flax every third year?—I believe that can be done only on first-class land.

87. You do not know of it in your own district?—No; we cut only every fourth year on our own land.

88. From what you know of flax, do you imagine it would be a profitable thing to cultivate? Is it an industry that is going to be here for all time; or is it only a temporary crop that is simply to be cut down, and then farming will take its place; or is it a crop you would always be able to cultivate?—In consequence of the low prices now obtained, for several years farmers have destroyed a great deal of flax and grown other crops.

89. Do you think it is possible to grow flax at the same time that you are stocking your land? Do you not think you would have to shut your land up?—You could grow flax without any injury to the flax with sheep, but not with cattle. You can graze sheep without any detriment to flax on

low-lying land. Growing flax and grazing sheep may be as profitable as if you were to destroy the flax and bring the land to higher cultivation. Flax-land is often very patchy, consisting of light land and heavy land in gullies.

90. As far as you know at the present time, you do not think it would be a profitable industry to embark in?—I do not think any farmer, with the 5s. a ton that is paid for a right to cut, would go in for growing flax as against cultivating his land. I have grown European or Irish flax for about six years for the seed for commercial purposes.

91. *Mr. Symes.*] Not for the fibre?—The fibre at the present time is of no commercial value. I would willingly hand over the fibre to any one who would come and take it away for nothing. So far, no person has established an industry with a view to working up the fibre. I have grown the flax for seed, and have grown as much as twenty bushels to the acre, and have sold it at 4s. a bushel—fifty-six pounds in a bushel. If I could get £10 per ton for the seed I would continue to cultivate, say, from ten to twenty acres a year. I approached Messrs. Kempthorne, Prosser, and Co. three years ago, when I had a quantity of seed on hand for disposal, but they would only give me £8 per ton, delivered in Dunedin. That was not sufficient to induce me to continue the cultivation of flax for commercial purposes. I can grow flax with very little expense. I put in the seed about the end of September on land that I am putting in grass-seed at the same time. I cut it with the ordinary binder, put it into stooks, and have it threshed with the ordinary machine, and in that state send it into the market. Some people are of opinion that the cultivation of Irish flax exhausts the land. That is not my experience. I found, with a portion of my paddock laid down under the cultivation of flax and English grasses, grass more luxuriant on that portion than on any other portion of the paddock. That, to my mind, is proof that the cultivation of European or Irish flax is not so exhausting to the land as some people think.

92. *Mr. McLean.*] You said for commercial purposes. What is the seed converted into?—It is converted into linseed-oil, linseed-cake, &c.

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