

SESS. II.—1887.
NEW ZEALAND.

SILK - CULTURE IN NEW ZEALAND

(REPORT ON), BY MR. G. A. SCHOCH.

Presented to both Houses of the General Assembly by Command of His Excellency.

Mr. G. A. SCHOCH to the Hon. the MINISTER of Lands.

SIR,—

Auckland, 30th April, 1887.

I have the honour to forward general report on my operations and endeavours to introduce silk-culture in New Zealand during the past twelve months.

I started operations in May last year by having several circulars printed and forwarded to the school-teachers, County Councils, Road Boards, prominent settlers, and the Press of this provincial district. This was done in order to ascertain if there would be a sufficient number of people willing to take the matter up by giving the industry a trial. Copies of circulars will be found annexed. (Appendices I., II., III.) A circular was also sent to all the nurserymen, so as to ascertain the number of white-mulberry trees available.

In answer to my circulars I had a large number of replies, showing that great interest is taken in the matter.

The number of white-mulberry trees suitable for silkworm-food is between 19,000 and 20,000, chiefly *Morus alba rosea* and *Morus multicaulis*. The former is one of the very best varieties. This number, although sufficient to make a start, will have to be increased manifold in order to establish the industry on a permanent footing. I ordered some white-mulberry seed from Italy, which, upon arrival, was distributed gratis. At least 100,000 mulberry trees should be raised from this seed. It was applied for and distributed in such a short time that I ordered a larger supply, which I expect in a month or two, and which I shall also distribute gratis. Several nurserymen have offered to raise any number of trees if a demand is created for them.

The Domain Board of Auckland had planted last autumn about 1,100 mulberry trees (*rosea*) in the local domain, and kindly granted me permission to use the leaves for the experiments to raise silkworms, which I made since January last. I am informed that these trees will be distributed to silk-raisers before next season.

In July last I felt justified, from the number of applications for silkworm-eggs which had reached me, to send an order to Italy for 10oz. graine, equal to 400,000 silkworm-eggs. I specially recommended to my friends to select graine of the very best quality, which I am glad to say has been the case, judging from the results obtained.

In September you authorised me to buy and distribute 1,000 mulberry trees. These were procured from three local nurserymen. In the same month, finding the quantity of graine ordered from Italy would not be sufficient to supply all applicants, I ordered ten more ounces of graine from Japan.

In October I forwarded to you the manuscript of a manual of instructions for raising silkworms and mulberry trees. It was printed at the Government Printing Office, and about one thousand copies have been distributed. "The New Zealand Farmer, Bee, &c., Journal," has the following remarks in its January, 1887, number: "We congratulate Mr. Schoch on having succeeded in making his instructions so clear and concise that any one of average intelligence can understand them, while none but the most indolent would shrink from reading them through."

In November I received advice from my friends in Italy that the graine had been forwarded to London to be shipped by the steamer "Aorangi." In consequence I forwarded a circular to intending silk-raisers. Another circular was also sent to those Native schools to which a former Government had distributed mulberry trees a few years ago.

The silkworm-eggs from Italy arrived in Auckland on the 9th December. Although they had been confined for seven weeks in ice-chambers, they were in excellent condition. I proceeded at once with their distribution. Altogether I distributed about 600,000 silkworm-eggs; they were distributed gratis. I may here state that, while persons residing in the country did evidently their best to give the industry a fair trial, most of the young people in town did not devote the necessary time and trouble to the matter. Next season I shall act upon the suggestion of Mr. McKerrow, Surveyor-General, that is, to make a nominal charge for the graine.

The silkworm-eggs from Japan arrived towards the end of January only, rather late. I distributed about two-thirds of this breed. I had applications coming in as late as March, but did

not forward any graine because, considering the lateness of the season, and that the mulberry leaves were becoming unfit for food, I did not wish to court failure and create disappointment. A considerable number of the Japanese eggs hatched coming out, the steamer not being provided with a cool chamber.

When all the parcels of graine were despatched, I started to make experiments myself. Both varieties, the Italian and the Japanese, hatched splendidly. Eggs placed in a covered and perforated box, exposed during the day to the sun and during the night put in a kitchen, hatched after fourteen days, without using artificial heat. Eggs left simply in a room with a temperature of 70° to 80° during the day, and 65° to 70° during the night, hatched after thirty days. Of course mature eggs would hatch after four to six days, but these imported ones were only five months old, instead of eight or nine months. The worms were fed on *Morus alba rosea*, and for two or three days on *M. multicaulis*. They went through the different stages with great regularity. No diseases manifested themselves excepting a few cases of jaundice, which was caused by bad food.

Temperature: Lowest, 62° Fahr.; highest, 88°; mean, 6 a.m. 69·12°, noon 76·82°, 10 p.m. 72·06°; general mean, 73·34°.

Feeding: First meal, 6 to 7 a.m.; last, 10 to 11 p.m. First period, three times daily, chopped leaves; second period, four times daily, chopped leaves; third to fifth period, six times daily, entire leaves.

Cleaning: After first moult; after second moult; after third moult; between fourth moult and spinning time, twice.

	Italian.					Japanese.	
	First Lot.	Second Lot.	Third Lot.	Fourth Lot.	Fifth Lot.		
Hatched	Jan. 12	Jan. 20	Jan. 21	Jan. 23	Jan. 24	Jan. 31	} First period.
First moult	" 17, 18	" 24, 26	" 25, 27	" 27, 29	" 28, 29	Feb. 6, 8	
Second moult	" 22, 23	" 28, 29	" 30, 31	Feb. 1, 2	Feb. 2, 3	" 13, 15	} Second period.
Third moult	" 27, 28	Feb. 2, 4	Feb. 5, 7	" 7, 10	" 8, 10	" 20, 21	
Fourth moult	" 31	" 9, 12	" 12, 14	" 15, 17	" 15, 17	" 25, 26	} Third period.
Spinning	Feb. 2	" 8	" 22	" 26	" 26	Mar. 4	
Cocoons gathered and steamed	" 14	" 23	" 27	Mar. 3	Mar. 3	Mar. 8	} Fourth period.
Moths appeared	" ..	Mar. 11	" ..	" 15	" ..	" ..	

	Italian.					
	First Moult.	Second Moult.	Third Moult.	Fourth Moult.	Spinning.	Gathered.
First lot	5 days old	10 days old	15 days old	19 days old	27 days old	32 days old
Second lot	4 "	8 "	13 "	20 "	29 "	34 "
Third lot	4 "	9 "	15 "	22 "	32 "	37 "
Fourth lot	4 "	9 "	15 "	23 "	34 "	39 "
Fifth lot	4 "	9 "	15 "	22 "	33 "	38 "
Average	4 days old	9 days old	15 days old	21 days old	31 days old	36 days old
Average in Italy	5 "	10 "	16 "	23 "	33 "	42 "

I wish particularly to point out the first lot, which could be gathered after thirty-two days, while in Italy it takes forty-two days. And this favourable result was obtained in spite of the circumstance of the worms being hatched about the middle of January, instead of six to eight weeks earlier.

On the 1st March I forwarded a sample of cocoons of the Italian variety, raised by me in Auckland. I consider the cocoons very satisfactory in every respect. The percentage of inferior cocoons was insignificant. My crop was far superior to an average Italian one. The cocoons are of good and uniform size, fine texture, and the greater part very firm. As to weight, I found that 280 fresh cocoons go to the pound, 300 to 400 are the rule. Of the best selected, 250 will make one pound. I undertake to produce still better cocoons than those raised this year if the hatching takes place at the proper time, and when the trees are a few years older.

I have raised since another crop of Japanese worms, which hatched on the 8th March. They are only just now spinning, but the cocoons are very small. The food by this time has become wretchedly bad, and the nights are very cold. No artificial heat was used. I made this experiment to show that we can easily raise two crops of cocoons in one season, provided we start at the proper time, that is, if the first crop is raised in November–December, and the second in January–February; but the number of trees would have to be increased considerably.

On the 16th March I forwarded to you a box containing Japanese and Italian silkworm-eggs, specimens of the silkworm in its five stages, specimens of chrysalids, specimens of moths, specimen of eggs laid in March, 1887, sample of Italian cocoons raised in Auckland, sample of Japanese cocoons raised in Auckland, skein of Japanese raw silk, and skein of Italian raw silk, reeled in Italy, from the same varieties of cocoons as raised by me last season. These specimens and samples were intended to be shown at the Manchester Jubilee Exhibition, and were forwarded to the Old-country at the beginning of this month.

On the 26th March I forwarded a sample of pierced cocoons, which I asked you to be good enough to forward to Mr. Richards, a silk-spinner in Yorkshire, in order to ascertain the market value of this kind of produce.

By the last direct mail steamer I sent a box to my friends in Italy, containing a large sample of dry cocoons produced by me in Auckland, as also about eighty thousand silkworm-eggs. I instructed my friends to have the cocoons and eggs thoroughly tested by practical people in the trade, and to furnish me with a report. The rest of the eggs produced were deposited on the 8th instant in a cool chamber of the local freezing company, which kindly granted me permission to leave them there till next season.

I flatter myself that my experiments put the practicability of establishing silk-culture as a permanent industry beyond all question of doubt. Two things remain to be done: increase the number of mulberry trees; induce a sufficient number of people to take the matter up to enable me to establish an export trade. For the latter purpose I intend shortly to visit most of the schools in this provincial district, as also those settlers who have been raising cocoons last season. I have lately sent a circular to all persons who raised cocoons this year, but the papers are returned so slowly that I am not yet in a position to give the result of the season.

Mr. W. H. Bishop, R.M. at Mangonui, writes: "I regard the experiment, so far as I was concerned, as eminently satisfactory; and I am quite assured of the thorough success of the industry if once properly established."

In the United States very great importance is attached to the establishment of the silk-industry. In 1885 and 1886 Congress appropriated £3,000 each year for the encouragement of the industry, and large amounts of money have been devoted to experiments in silk-reeling, with very satisfactory results.

I beg to submit two estimates as to the profitability of the industry.

Raising Cocoons.

One ounce of graine, equal to 40,000 worms. Average yield of 1oz. graine, 100lb. fresh cocoons. Two adults can manage 3oz., = 300lb. fresh cocoons. 3lb. fresh cocoons = to 1lb. dry. 300lb. fresh cocoons = to 100lb. dry.

Average price of dry cocoons in Marseilles, 19fr. per kilo; 19fr. per kilo equal to 7s. per lb. At present, prices of silk are very low at Home. In 1876, for instance, dry cocoons were 32fr., equal to 12s. per lb. As few persons might have facilities to choke large quantities of cocoons, the cocoons had better be sent in their fresh state to a central establishment, say, in Auckland, and therefore, the growers would mostly have to be paid at the rate for fresh cocoons; 7s., dry, equal to about 2s. 4d. fresh.

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Leaving for six weeks' work for two persons ... £22 0 0

Graine would not have to be bought after the first year, because people can raise their own graine. Trays will last for several years if handled carefully. Freight should not be more than 1d. a lb.

This estimate presupposes raisers to have the necessary number of mulberry trees handy. In France mulberry leaves are sold at 5fr. to 6fr. per 100 kilo., equal to about 2s. 6d. per cwt. It requires 15cwt. for the issue of 1oz. graine, and 45cwt. for the issue of 3oz. graine. Mulberry trees three years old should yield 5lb. of leaves each; nine years old, 75lb.; and twenty-one years, 150lb. To raise 3oz. it would require about 900 trees three years old, about 70 trees nine years old, about 35 trees 21 years old.

Mr. R. C. Haldane, in his book on "Subtropical Cultivations and Climates," published last year, gives the following figures bearing on the subject. "In the south of France full standard trees, the crop being picked yearly, give three years old, 7lb. leaves; four years, 25lb.; five years, 38lb.; six years, 57lb.; nine years, 106lb.; twelve years, 147lb.; twenty-one years, 218lb. of leaves. If picked every second year, on good soil, nine-year old trees give 220lb., and double this quantity at twenty years. Half-standards yield about three-fifths as much as the standards. Dwarf trees, seven years old, bear about 45lb. to 50lb. of leaf each tree."

Raising Graine.

My object in sending silkworm-eggs produced in Auckland to Italy is to ascertain if a regular export trade to that country and France could be established. I feel confident that could be done, and if the experiment turns out successfully the silk-industry will prove a very profitable one indeed.

Japan has for many years past sent annually about one million ounces of silkworm-eggs to Europe. French and Italian cultivators have commenced again to raise their own graine, but a good article will always find a ready sale.

In order to raise graine of first-class quality, more care and attention have to be paid to the worms than if only cocoons for reeling purposes are raised. Therefore, let us say, two adults take charge of 2oz. instead of 3oz., as in the first estimate: 2oz. graine, 80,000 worms equal to at least 60,000 cocoons or moths. About half of these are females. Each lays from 300 to 600 eggs—say 400. 30,000 by 400 equal to 12,000,000 eggs: by 40,000, equal to 300oz. silkworm-eggs.

The Italian eggs which I imported cost 18s. an ounce, free here ; the Japanese, 6s. 6d. an ounce. Let us say our graine fetches 6s. net.

300oz., at 6s. each	...	...	...	...	...	£	s.	d.
60,000 pierced cocoons, equal to about 300lb., at 3s. 6d. per lb.	...	...	...	...	...	90	0	0
						52	10	0
Less—						£142	10	0
2oz. of graine, at 10s.	...	...	...	...	£1	0	0	
Trays, bags, paper	...	...	...	...	24	0	0	
Commission	...	...	...	...	14	0	0	
Extra labour	...	...	...	...	10	0	0	
Freight and packing	...	...	...	...	2	10	0	
Rent and extras	...	...	...	...	20	0	0	
						71	10	0

Seventy-one pounds for two persons' and ten weeks' work. As, however, it would probably not be practicable for all raisers to produce and export graine, arrangements might be made to buy their cocoons with the chrysalids alive, if of really good quality, and pay them a higher price, say from 4s. to 5s. a lb. of fresh cocoons; in which case the first estimate should read £40 to £50 for six weeks' work.

I may state that silk-stuffs, thread, &c., worth over £30,000 are imported yearly into New Zealand; also that the woollen companies use a considerable quantity of silk to mix it with wool.

In conclusion, I beg to say that the introduction of the silk-industry will in time result in a very important yearly revenue and increase in the public wealth. This, however, may be a less advantage than the fact that, by supplying a new home industry, it would do much towards conserving home ties and interests, and help to strengthen and perpetuate home-living among the people.

The Auckland *Evening Bell*, in a recent issue, makes the following remarks: Silk-culture has the merit of turning the attention of townspeople in a rural direction; for though, when pursued in an amateur style, it can be prosecuted in the city, any extension of the industry necessitates rural life; and we hold that any man that assists in leading people away from the crowded haunts of men and brings them face to face with nature, with all her healthful moral and physical influences, is a benefactor of his race. We heartily wish success to sericulture."

"Agricola," the agricultural authority of the *Auckland Weekly News*, says: "Judging by the way in which sericulture is being fostered by the Government of New Zealand, combined with the energy and enthusiasm of Mr. Schoch, there is little doubt that in time we shall have the industry satisfactorily established in this North Island."

The Hon. the Minister of Lands, Wellington.

I have, &c.,

G. A. SCHOCH.

APPENDICES.

APPENDIX I.

SIR,—

Auckland, 20th May, 1886.

I beg to draw your attention to the enclosed printed letter. Having received instructions from the Hon. the Minister of Lands to introduce silk-culture in this provincial district if a sufficient number of people will take the matter up, will you be kind enough to use your influence to induce those persons in your neighbourhood who have mulberry trees, or who are willing to give the industry a trial (if they are assisted with the necessary materials and instructions), to put themselves in communication with me by letter. I wish particularly to point out that even children can easily raise small quantities of cocoons, and so materially add to the family income.

I have, &c.,

G. A. SCHOCH.

APPENDIX II.—SILK-CULTURE AS A HOME INDUSTRY.

THE prevailing depression makes the scarcity of industries which provide light and remunerative employment to thousands in other countries keenly felt. The present time seems propitious to draw public attention once more to an industry which, although not an exceptionally profitable one, yet adds vast wealth to the nations which carry it on, for the simple reason that the humblest and poorest even can pursue it, and very little outlay is required. I refer to silk-culture. Several attempts have been made to introduce this industry here. The results, however, have not been satisfactory. The reasons of these failures appear to me to be the following: There was no market for the produce; the promoters appealed to the male portion of the population, which in this country find more profitable avenues of employment; fabulous profits were held out, which could not possibly be realised. It was repeatedly proposed to float a company to promote silk-culture. This implies a large staff, expensive buildings, &c.; in fact, great expense. Nowhere is silk-culture carried on in this way, and where it was so tried it proved a failure. It is also a mistake to think that whole acres are to be planted with nothing but mulberry trees, and that our whole time is to be devoted to the industry.

We cannot reasonably expect to make a whole year's living out of six weeks' not very heavy work every year. Silk-culture is a home industry. It is by every household raising a few pounds.

of cocoons or ounces of graine (silkworm-eggs) that the industry must be carried on. This does not materially interfere with the household and other duties, and means an addition to the family income every year. As an adjunct to other occupations it will prove valuable. The chief objection I meet with is this: labour is too expensive. But I mean to start with the young, the more aged, the women of the family, with those who very often have no other means of profitably employing their time. Even in this new country this class is numerous enough; besides, I think that inmates of orphanages, industrial schools, refuges, &c., will find it to their advantage to take the matter up. No doubt there are thousands of people, old and young, who would welcome an industry which will annually bring in a few pounds and give light and profitable employment. Numbers of boys have been raising cocoons, but desisted because there was no market for the produce. I venture to say that, if the price paid for the first year would only be enough to pay for the outlay, the matter will be taken up again by thousands. The price will naturally depend upon the quality we are able to produce. A great advantage we have is, that the people of New Zealand are better educated, more industrious, careful, and chiefly cleaner than the majority of the Italians and French, and our barns and dwellings more roomy and airy. Therefore we ought to be able to produce a first-class quality, while in Italy and France regularly 25 per cent. of the crop, and often more, is of very inferior quality and only paid for at the rate of one pound for three. This naturally reduces the general average of the price very considerably in those countries.

It is a settled question that, as far as soil and climate are concerned, the greater part of the North Island and some parts of the South Island are well adapted for the prosecution of silkworm-culture. Cocoons of very fair quality have been raised. Mulberry trees grow luxuriantly, an abundant supply of the leaves of which is one of the chief items for the success of silk-culture. But what we do not know as yet is, Will it pay or not? No silk-products of any kind have yet been exported, so we are absolutely without reliable proof if the industry can be carried on profitably or not. After two years' study of all the circumstances which will tend to make the matter a success here, I am certain that anyhow the classes above referred to will find it to their advantage to engage in the industry. For various reasons I think that we could not for some time to come go in for reeling, throwing, and weaving silk, but there is every prospect that raising cocoons and silkworm-eggs would be remunerative. As it seems to me highly desirable that an end be made to the present uncertainty, I intend to make a trial during the coming season to ascertain what quality we can produce. To get a really representative sample it would be well if as many people as possible would take part in the experiment. When all the parcels of cocoons or graine are collected, and arrangements have been made about payment, I should send the lot to Europe, and then we should know by account sales, before the second season begins, if it will pay to extend operations or not. The only expense which people who are willing to make a trial and who have mulberry trees will be put to is a trifle for graine, which will cost a few shillings, and trays, which will last for years. No special buildings are required; an empty room or shed will do. I have lately been in correspondence with the Government about the matter, and I am induced to hope that they will lend me assistance. If sufficient inducement is offered, I am willing to procure graine of first-class quality from abroad, to instruct the growers verbally where possible, and to provide a market for the produce. Before I can proceed further in the matter, I shall require to know the names of people who have mulberry trees, also the number of trees, even if they have only one or two, but they must be white-mulberry trees (*Morus alba*). They might also let me know the age of the trees, or, if possible, what quantity of leaves (lbs. or cwt.) they might be expected to yield, so as to be able to ascertain the quantity of graine required. I shall also be glad to receive the names and addresses of people who at present have no trees, but who would eventually give the matter a trial if they are supplied with the necessary materials. In conclusion, I beg to say I do not promise anybody a fortune. The sister may not earn so much as her brother in the field, but she may earn something, and that something means an increase of income, because it is earned by people who have no other means, or not sufficient, to profitably employ their time.

By kindly publishing this letter you will confer a favour on your obedient servant,

G. A. SCHOCH,

F. Mumford's Cricket Repository, High Street, Auckland.

APPENDIX III.—SILK CULTURE.

[Extract from the *Auckland Weekly News*, Saturday, 3rd July, 1886.]

MR. G. A. SCHOCH, Auckland, writes as follows:—

I beg to express my sincere thanks to "Agricola" for his articles on silk-culture in the issues of your valuable paper of the 12th and 19th June. I quite agree with "Agricola" that the present time is not a favourable one to start silk-culture or any other new venture. During a time of depression people naturally are very loth to embark in fresh enterprises, unless they are sure of a speedy and large return for their outlay. Yet "Agricola" justly says: "It is by the establishment of small industries of various kinds that settlements in this colony will be kept in a prosperous condition and population retained in the country districts. If no fresh enterprises are established, the young people will naturally gravitate towards the towns." This is an undeniable fact. Looking at the New Zealand Government statistics of imports and exports, I find that imports have for many years been considerably larger than the exports. This becomes a matter for serious consideration in a young, thinly-populated country, with scarcely any manufactures, and burdened with a huge debt. We must absolutely add to the list of our exports and cease to import articles which could be easily produced in the colony. Amongst the imports during the year 1884 I find the following articles, for instance:—

	Value.	Duty.
Fresh fruit	£68,189	Free
Fruit, dried and preserved	8,996	£3,907
Currants, raisins	50,651	30,600
Beans and peas	1,794	97
Limejuice	4,257	Free
Pickles	6,181	706
Tobacco, cigars	96,880	231,120
Jams	10,552	2,852
Salad, colza, &c., oils	37,521	6,026
Silks, silk threads... ..	32,624	1,182
Wines, in wood and bottle	68,152	36,353
Fish, dried and potted	50,186	6,432
	£435,983	£319,275

There are numerous other items, but let these suffice. These figures mean that in one year £435,983 went out of the country, and that we paid £319,275 duty on articles which we are not only able to produce ourselves, but which we could and ought to export instead of importing them. It seems incredible. Do not the above figures clearly demonstrate the advisability, nay the necessity, of establishing and fostering these so-called small industries?

There is also still prevalent an incredible amount of prejudice and want of knowledge about these small industries. Why, only a few years ago fruit-culture was ridiculed. Now we grow as splendid fruit as can be found anywhere. The first bee-keepers were treated as visionaries, as people who threw their time and money away. Now we are already able to export honey, and of excellent quality too. The same remarks apply to tobacco-culture, to hop-culture, &c. The cultivation of the grape-vine in the open air is, to the present day, by authorities, declared an impossibility; and yet I know of a man in Wanganui, and two in the north of Auckland (all of them foreigners), who for years have made a comfortable living out of open-air vineyards. Of course it takes time, and these men had to wait, but surely it was worth waiting for. A suitable spot must be selected, and the proper variety of vine has to be planted.

Concerning the industry which I am advocating, viz., silk-culture, I am glad to be able to inform "Agricola" that the available number of white-mulberry trees is more numerous than he thinks. From letters received, I am in a position to state that there are many thousands available, and one nurseryman alone has offered to supply me with 100,000 *Morus alba rosea* during the next few years if orders were placed with him. As to the question, Will it pay? I wish to point out that for the carrying out of my project three things are required: 1. Trees. These cost a trifle. I am offered seedlings of *M. alba rosea* at £1 5s. per hundred, and shall gladly give applicants the name of the nurseryman. Another man offers trees three years old, 5ft. high, at 1s. free in Auckland. 2. Silkworm-eggs, which cost at Home from 10s. to 15s. an ounce, according to the yield of the yearly crop, an ounce being equal to 40,000 silkworm-eggs. 3. Labour. As at present, until we have more reliable data to rely upon, I am only addressing people who have no other ways, or not sufficient, to profitably employ their time, this item falls entirely away. This also disposes of the objection as to high wages, quoted by "Agricola" from the *Australasian*.

I can quite understand that nurserymen complain about the poor demand for mulberry trees. Although silk-culture was repeatedly advocated, there never was a market offered for the produce. As soon as people know that there is a market for what they produce, the demand for trees will be steady and increasing. It was Mr. Federli, who, after raising cocoons of fair quality in Christchurch, came to the conclusion that the *Morus alba rosea* is the best variety for silk-culture in this country. I am not prepared to pass final judgment on the matter until I have seen cocoons from different varieties of trees and different districts; but no settler need destroy the mulberry trees he may have and procure a different kind. With first-class eggs, and the same amount of care bestowed on the worms, the difference between one kind of tree and another (always provided they are white-mulberry trees) will be trifling. I am not aware of anything practical having come of the committee appointed two years ago in Auckland. The Government were asked for a grant of land of a thousand acres, and £5,000, which, it is needless to say, have not yet put in an appearance. I believe the matter was dropped long ago.

It is certainly remarkable that in the Australasian Colonies silk-culture has not yet acquired a safe footing. Let us, then, turn to a country where surrounding conditions most approximately approach our own. In the United States, after many failures and trials, the silk-industry is safely established. I find the following statistics in the United States census about the silk-industry:—

	1860.	1880.
Number of establishments	139	382
Persons employed	5,435	34,521
Capital employed	\$3,926,900	\$19,125,300
Wages paid	\$1,050,224	\$9,146,705
Materials used	\$3,901,777	\$22,467,701
Value of product	\$6,607,771	\$41,038,045

Besides these \$41,000,000, value of silk goods of all kinds produced in the country, the United States imported from abroad in 1880 raw silk to the value of \$12,024,699, and silk manufactures, valued \$33,308,112. The census figures also state that American silk-operatives are paid twice as much as English, three times those of France and Germany, and four times those of Italy. I should not omit to mention, however, that silk manufactures are charged in the United States with an import duty of 60 per cent.

Is there any reasonable cause to assume that in time we should not be able to do as much in New Zealand as they do in America? You will admit that I am rather too careful in not promising too much. The fact is, I promise so little for the beginning that probably a good many people will not think it worth their while to take the matter up. But I find that great harm has been done to the cause by promoters who promised fabulous profits. It is my opinion that if we start on a modest and economical scale we are more likely to succeed. It will take longer, but it will be safer. So little expense and risk are connected with the project, as I bring it before the public, that I fully expect thousands will give the silk-industry a trial, and I may confidently say that they will not be disappointed.

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