

1892.
NEW ZEALAND.

FLAX OR HEMP INDUSTRY

(CORRESPONDENCE WITH THE AGENT-GENERAL).

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

No. 1.

The Hon. the PREMIER to the AGENT-GENERAL.

SIR,—

Premier's Office, Wellington, 13th January, 1892.

The Government have had under consideration for some time the question of the flax industry in this colony, which is now in a depressed state owing to low prices and the quantity of manila and sisal fibres which are placed on the market.

With a view to being in possession of as much information as possible on the subject, I have the honour to request you will be good enough to ascertain what is the possible annual output of manila and sisal, what is the cost of production in each case, and by what process are the fibres prepared, together with any other information on the subject that you may think of value to the settlers of this colony.

I have, &c.,

The Agent-General to New Zealand, London.

J. BALLANCE.

No. 2.

The AGENT-GENERAL to the Hon. the PREMIER.

SIR,—

Westminster Chambers, 13, Victoria Street, London S.W., 11th June, 1892.

Referring to your letter of the 13th January last, in which you instruct me to obtain information on the subject of the New Zealand flax or hemp, as it is known in this country, I beg leave to state that since the receipt thereof I have been in communication with those engaged in the trade here, and have also had the Circular Reports at the Foreign Office, the United States Consular Reports, the Kew Bulletin, and other publications relating to this industry carefully searched, with the view of ascertaining, so far as possible, what are the future prospects as regards the New Zealand hemp; and I will now proceed first to give certain particulars in reference to the questions which are specifically mentioned by you, and then add such further remarks as I think may be of service to those settlers of the colony who are interested in this industry. The points to which you direct my attention are: 1. The possible annual output of manila and sisal. 2. The cost of production of each. 3. The processes of preparing the fibres. 4. Any other information of probable value.

In the first place, I find that those engaged in the trade do not appear to be able to estimate with any great precision the future output of manila and sisal. But there is a consensus of opinion as regards both fibres, that the supply is capable of great extension provided the price and demand offer prospects of profitable results. During the past ten years there has been a gradual increase in the production of manila owing to the increased demand and high prices, the annual production for three years ending 1882 averaging 390,000 bales, while for this year (1892) it is expected to amount to 750,000 bales, or from 90,000 to 100,000 tons; and in the opinion of authorities on the subject, a further gradual increase may be looked for for some years to come, always assuming that no very material reduction in price takes place. With regard to sisal, the production has doubled within the last few years, and it is expected that this year (1892) it will amount to 360,000 bales, or 60,000 tons.

I think, therefore, from what I can gather, that the New Zealand settlers may definitely understand, as regards this aspect of the case, that they cannot in any way expect that the supply of these two principal fibres will be exhausted or even diminished, but that, given a demand at good prices for larger supplies, such a demand will be met—within any quantity that any one at the present time can anticipate will be required for the uses to which such fibres are applied—and that therefore it may be taken as certain that if New Zealand hemp producers are to maintain a profitable position in the markets to which their produce is consigned, their main endeavour should be to improve the quality of the fibre, and thus place it in a position to compete with the manila and sisal hems.* For convenience of reference I give here the exports of hemp from New Zealand for the last ten years, and also the total imports into the United Kingdom for the year 1890 of all fibre products.

* "Manila is much superior in strength to either New Zealand or sisal."—C.P. & Co.

QUANTITY and VALUE of PHORMIUM TENAX (NEW ZEALAND HEMP) EXPORTED from NEW ZEALAND 1881 to 1891.

Year.	Quantity. Tons.	Value. £
1881	1,383	27,097
1882	2,040	41,955
1883	2,013	36,761
1884	1,525	23,475
1885	1,063	16,316
1886	1,112	15,922
1887	1,578	25,094
1888	4,042	75,269
1889	17,084	361,182
1890	21,158	381,789
1891	15,809	281,514

FIBRE IMPORTS INTO UNITED KINGDOM IN 1890.

	Quantity.	Value. £
Hemp	1,767,551 cwt.	2,834,154
Hemp tow (or codilla of)	122,816 cwt.	111,491
Flax	1,581,849 cwt.	2,655,500
Flax tow (or codilla of)	218,620 cwt.	200,774
Unenumerated vegetable substances applicable to same uses as hemp or flax	86,528 cwt.	89,456
	3,777,364 cwt.	5,891,375
Jute	369,958 tons	4,921,991
Jute yarn	4,222,858 lb.	97,243
Esparto and other vegetable fibres for making paper	217,028 tons	1,045,722
		£11,956,331

And this leads me to the important question as to the cost of production, and how such question, even if satisfactorily answered, will affect New Zealand. I find that this also is a question to which it is difficult to procure a very exact answer. But the best authority I have states that if manila hemp could be delivered f.o.b. at a cost of £19 per ton,* it would still bring in a small profit, but that if prices fell to that point there would also be a falling-off in production. Sisal can, I am told, be produced under similar circumstances for about £14 per ton.†

These prices are equal to about £25‡ and £17 respectively in this market, and, as the present prices obtainable are £25 and £22, it would appear that the present extent of production is sufficient to meet the present demand, and any material fall in existing prices would result in diminishing the quantity produced.

The conclusion is therefore arrived at that the supplies of manila and sisal will be increased or diminished in proportion as the prices obtainable for it rise or fall. The special use which somewhat suddenly arose for hemp, for the manufacture of harvest binding-twine, evidently created a demand which could not be supplied all at once, and prices, therefore, rose to an extent which encouraged the increase of production, which now, however, appears to have overtaken the increased demand, and prices have accordingly returned to their normal state. Under these circumstances it is again evident, as I have already remarked, that New Zealand producers must rely for their profits in the future on improving the quality of their hemp, and in decreasing the cost of production and sea-carriage, rather than upon the expectation that the supplies of manila and sisal will be insufficient to meet the demands for this class of fibre.

I will now touch upon the subject of the processes by which manila and sisal fibres are prepared, and I give in the Appendix to this letter extracts from Consular reports which describe them. I also give in the Appendix other extracts referring to the preparation of other fibres. It would appear, according to these reports, that the manila hemp is prepared by hand, and that sisal is cleaned by machinery. But I would venture, in reference to this part of the subject, to remark that processes that are used advantageously as regards fibres such as manila, sisal, and others, would not, in all probability, be profitably available as regards the New Zealand product.§ First and foremost is the difference in the plant itself; then there would be the difference in the price of labour; and the question of climate would, I apprehend, be an important element as regards the preparation of the raw material. From the time when, in 1871-74, so much capital and labour was unprofitably expended in this industry, the question as to what is the best process for the profitable preparation of the New Zealand hemp plant has always been, and I apprehend still is, one that if solved would go far to place the industry on a permanent and satisfactory footing. This office has received from time to time communications respecting machines which the makers represent as likely to satisfactorily clean what they call New Zealand flax, because they are successful in their treatment of the linseed-flax plant; and I would therefore point out that it is expedient, in my opinion, that in speaking of the New Zealand fibre it should be described as "hemp," and not as "flax," as the latter term creates misunderstanding as to its nature.

* "This quotation is at port of loading, and is equivalent to about \$1½ less on plantation."—C. P. & Co.

† "Anything under \$8 would decrease supplies from the outlying districts. Present first cost \$8½ per picul of 140lb. English."—C. P. & Co.

‡ "£22 10s., not £25."—C. P. & Co.

§ "Manila produced by coloured labour."—C. P. & Co.

In this country, I believe, there are a number of skilled persons who, if they had sufficient inducement and full and proper opportunity for ascertaining the nature of the *Phormium tenax*, would direct their attention to the discovery of a means whereby the plant could be effectually and economically cleaned, so as to enable it to compete with manila and sisal. At present the better qualities of New Zealand hemp sell at about the same price as sisal, but medium and lower qualities fetch under that price.* But with improved machinery it ought not only to sell as well as sisal, but also prove a strong competitor in the market with manilla. Assuming that a sufficient inducement is provided in the shape of reward or bonus, there is still one obstacle which the inventor in this country would have to overcome, namely, that of not having the raw material at hand to experimentalise on, and this, so far, private enterprise has not been prepared to meet. If, as I assume, experiments on raw material sent from the colony would not be a satisfactory test, it appears to me that what is wanted is the cultivation of the plant itself in this country, to such an extent as would provide sufficient material for the purpose of supplying those whose skill and attention would be directed, on sufficient inducement being offered, to the discovery of proper machinery for preparing the fibre for market.

Whether the inducement to be offered by means of a reward or bonus, and the providing of the raw material for experiments, should be supplied by the Government or private enterprise, I do not take upon myself to express an opinion, but believing, as I do, that the discovery of an economical and efficient machine is of the first and foremost importance, I have ventured to make the above suggestive remarks for your consideration.

In the course of the inquiries which I have caused to be made, I have endeavoured to ascertain whether there are any other markets besides those of England and America, which might be opened up for the New Zealand hemp, and I insert in the Appendix some extracts relating to that part of the subject. But, so far as I can judge, the English and American markets are the only ones at present available; at the same time, it is a point which I think should not be lost sight of by those whose interest it is to develop and sustain the industry. The following is a table of prices of New Zealand hemp from the month of July last to date:—

RETURN OF NEW ZEALAND HEMP PRICES for TWELVE MONTHS, from July, 1891, to June, 1892, inclusive:

	AUCKLAND.				LYTTELTON.				WELLINGTON.				Hemp Toppets.	Hemp Tow
	Prime.	Good.	Fair.	Common.	Prime.	Good.	Fair.	Common.	Prime.	Good.	Fair.	Common.		
1891.														
July 10	25/	24/	22/6	19/	24/	23/	22/	18/ to 19/	24/	23/	21/6	18/ to 19/	16/ to 19/	6/6 to 7/6
Aug. 7	25/	24/	23/	20/	24/6	23/6	22/6	18/ " 19/	24/	23/	21/6	18/ " 19/	17/ " 19/	6/6 " 7/6
Sept. 4	24/	23/	22/	18/ to 19/	23/	22/	21/	17/ " 18/	23/	22/	21/	17/ " 18/	17/ " 19/	6/6 " 7/6
Oct. 2	24/	22/6	21/6	18/ " 19/	23/	21/6	20/6	17/ " 18/	23/	21/6	20/	17/ " 18/	17/ " 19/	7/6 " 9/
Oct. 30	24/	22/6	21/6	18/ " 19/	23/	21/6	20/6	17/ " 18/	23/	21/6	20/	17/ " 18/	17/ " 19/	9/ " 10/
Nov. 27	23/	22/6	21/6	18/ " 19/	22/	20/6	20/	17/ " 18/	22/	20/	19/	17/ " 18/	15/ " 18/	9/ " 10/
Dec. 24	24/	23/	22/	19/	23/	21/6	20/6	18/	22/6	21/	20/	18/	15/ " 18/	9/ " 10/
1892.														
Jan. 21	24/6	23/6	22/6	19/	23/6	22/	21/	18/	23/	22/	21/	18/	15/ " 18/	9/ " 10/
Feb. 18	24/	23/	22/6	20/	23/6	22/6	21/6	19/	23/6	22/	21/6	19/	18/ " 20/	9/ " 10/
Mch. 18	23/6	23/	22/	20/	23/6	22/6	21/6	18/ to 19/	23/	22/	21/	18/ to 19/	18/ " 19/	9/ " 10/
April 14	23/	22/6	21/6	19/ to 20/	23/	22/	21/6	18/ " 19/	22/6	22/	21/	18/ " 19/	18/ " 19/	8/ " 10/
May 13	22/	21/6	21/	19/	22/	21/	20/	18/ " 19/	21/6	20/6	19/6	18/ " 19/	..	..
June 9	22/	21/6	20/	19/	22/	20/6	19/6	18/	21/	20/	19/	18/	18/	8/ " 10/

I also send in the form of an Appendix a collection of the latest trade circulars, which contain some valuable information.

The Hon. the Premier, Wellington.

I have, &c.,

W. B. PERCEVAL.

P.S.—After concluding this report it seemed to me advisable to submit it to some reliable merchant in the trade who could, from his practical commercial knowledge, give useful information. I selected the well-known firm of Messrs. Cox, Patterson and Company, who are large fibre brokers, and who were highly recommended to me, and Mr. Cox has devoted much time to the consideration of the report. As his services are gratuitous, I am pleased to bear testimony to his courtesy. I have attached the letter of Messrs. Cox, Patterson and Company to my report as an Appendix. I have written to Yucatan for information regarding sisal, which, if I obtain, I will forward you in due course.—W. B. P.

Enclosure.

APPENDIX A.—COST OF PRODUCTION.

Manila.

(Extract from Special Report by Mr. Alex. Gollan, H.M. Consul at Manila, 14th February, 1891.)

THE cost of preparing and planting about seven acres and keeping it clean up to the first crop is estimated at from \$200 to \$300, not including the first cost of the land; and afterwards an annual

* "The lower grades of manila come into competition with New Zealand. Previous quotation for the former is based on fair current quality. The lower grades may be taken to fetch as follows: seconds, £3 under fair current; good brown, £4 under; and fair brown, £5 under fair current."—C. P. & Co.

outlay of about \$60 would be required to keep the soil free from weeds. The extent of land mentioned, after the plantation is three years' old, would produce from sixteen to twenty bales of hemp per annum, according to the quality of the soil. It is most difficult to give an accurate estimate of the first cost of land suitable for hemp production, prices being enhanced by proximity to a shipping port. The cost of native labour is about 20c. to 25c. a day, but the principle upon which hemp plantations are worked is that the labourer gets one-half of the result of his work, the other half going to the proprietor. A labourer, under pressure, can clean about 20lb. of hemp per diem, but as a rule the quantity cleaned by one man working steadily day by day averages about 12lb.

Sisal.

(Extract from Report by H.M. Consul at New Orleans, Mr. A. de G. de Fonblanque,
3rd February, 1891.)

Cultivating, not over \$10; manufacturing, eighteen days, one boy at 50c. a day, \$9; interest on machinery and other expenses, about \$5: total, \$24, making net profit per acre \$226.

The profit to the planter at four or five years after planting is 18 tons per acre, producing not less than 2,500lbs. of fibre per ton, worth at 10c. a lb. \$250.

APPENDIX B.—PROCESS OF PREPARATION.

Manila.

(Extract from Special Report on the Manila Hemp Plant in the Philippine Islands, 14th February, 1891, by H.M. Consul at Manila, Mr. Alex. Gollan.)

THE plant thrives best in soil composed of decayed vegetable matter, the principle districts in which it is cultivated being reclaimed forest lands. The volcanic nature of the soil seems to be particularly adapted to the growth of the plant. The plant can be grown from seed, but the custom in the Philippines, after cleaning the land thoroughly, is to plant small plants of about 3ft. high, leaving a space of from 2 yards to 3 yards between each, the young shoots which spring up later on around the parent stem filling up the intervening spaces. The ground should be carefully cleaned and weeded at least twice a year. The cost of stems suitable for planting is about 1s. 6d. per hundred at their native plantation, carriage to their new destination being at the expense of the purchaser. As a rule it takes about three years to produce a full crop, but in a favourable soil a crop of about one-third the full production would be available in about two years after planting; the second crop the following year would yield about two-thirds, and by the fourth year a full crop would be obtained. The trees are ready for cutting when the first shoots begin to be thrown out. The plants must on no account be allowed to produce fruit, or they become useless for fibre. When once properly planted the trees propagate themselves, and send up shoot after shoot from the old roots. A plantation will continue to yield a good production for some fifteen or twenty years, after which the soil becomes exhausted. There is little or no disease among the trees, which are of a very hardy nature. Various unsuccessful attempts have been made to improve upon the primitive knife and board, which are, up to the present, the means used for cleaning the fibre. The great fault of the new invention has been the weight of the machine, and the additional liability to break the fibre. A necessary requirement for any machine is that it should be light enough to be easily carried about by the workmen from place to place on the plantation. When the trees have matured and are ready for cutting, they are cut down about a foot from the ground, and the labourer proceeds to strip off the layers from the trunk; these layers are cut into strips of about 3in. wide, or, say, three strips to each layer. The strips are then drawn between a blunt knife and a board to remove the vegetable matter from the fibre, which latter is placed in the sun to dry. As soon as it is thoroughly dried it is ready for the market. The appearance and consequent value of the fibre mainly depends on the care bestowed in drying it, as, should it be exposed to rain and not completely dried, it becomes discoloured, assumes a brownish tinge, and loses its strength to a considerable extent. The outside layers produce a reddish-coloured fibre, which is quite sound and easily distinguished from spoiled hemp, but fetches a lower price in the market.

Sisal.

(Extract from the Report of H.M. Consul at New Orleans, Mr. A. de G. de Fonblanque,
3rd February, 1891.)

According to the Report of the Commissioner of Agriculture, sisal hemp is attracting some attention in Florida. It has been known for many years as a valuable fibre-plant, or henequen, as it is called. It was thought at one period that the plant might to some extent take the place of cotton, as it withstands drought as well as wet. Experience proved that it would not stand frost. It is believed that, as regards the intrinsic value of the two fibres, this is far superior to cotton for many purposes, but the cost heretofore of extracting the fibre has given cotton the supremacy. The fibre, it is said, is well adapted for the manufacture of twine, cordage, seines, and binding-twine for grain, and it may be used for sail-cloth; also that the finer varieties will compare favourably with linen and other goods for domestic purposes. It has, it is said, "a fine gloss similar to that seen on linen." The former drawback to the use of the plant for commercial purposes was owing to their being no machine to successfully work out, in good condition, the fibre from the plant; but that the Van Buren machine, now being used satisfactorily in the Bahamas, is both practical and successful. It is called the "Tropical-fibre Machine," and is also used in St. Domingo. It does not cut the fibre, but takes out of the leaf all there is in it. This has been proved. When the fibre leaves the machine it is ready for market, except drying, and in all other machines the fibre has to be washed, which injures the colour, and therefore the sale. (See *Florida Times' Union Trade Report* for 1890.)

Aloe Fibre.

(Extract from Report of H.M. Consul, through Sir E. Baring, Cairo, 17th February, 1892.)

The Aloe-fibre Industry of Somali Land.—In November, 1891, a bale of the fibre was sent to the Government at Bombay, and thence to England. The fibre was prepared in the roughest and rudest manner by ignorant Somalis, and compares favourably with the many new types from various countries, and is all very nice colour, and good strength, and clean. It was sold at the rate of £16 10s. per ton. The people will do nothing towards making a trade in the fibre; indeed, they have not the means to work it profitably, though they use it extensively themselves for ropes and other articles.

Manner in which the Fibre is prepared.—The plant is not cut, it is pulled out of the ground; the sharp points are cut off; the plant is then divided in two down the centre; the pieces are then beaten with a stick until they become soft. The fibre is then extracted by placing the divided plant between two pieces of wood, which are fastened tightly together, and the plant is pulled through them, leaving the fibre. This is then placed in the sun to dry for about half-an-hour. No water is used: the Somalis say that that blackens the fibre. The plant should be treated as soon as possible after being pulled up to prevent drying of the sap. If the aloe is left lying in the sun for a day or two it is ruined; it should be treated at once, under sheds.

(Extract from Reports of H.M. Consuls, Mr. Alex. Hosie, Wenchow, 24th January, 1890; Mr. P. Warren, Tainan, in Formosa, 6th March, 1891; and Mr. Charles Gardner, Hankow, 3rd March, 1891.

China.—In the Wenchow Province hemp was imported in 1889 to the value of £1,077. It is grown in Western China, and more especially in the province of Ssu-Ch'uan. There the stems, when ripe, are cut down, made into bundles, and carried from the fields to the house of the grower, where they are steeped in water, and the bark with the fibre removed by hand. Elsewhere a different method is practised. When the stems are ripe the peasant removes the bark in the field in a very simple, ingenious, and profitable manner: taking each stem about 6in. above ground between the thumb and fingers of both hands a few inches apart, he gives a smart push downwards and forwards, causing a compound fracture of the stem between his two hands; he then inserts the forefinger of his left hand in the fracture, and draws the bark downwards to the root, where it readily detaches itself. In the same way the remaining bark and upper part of the stem, which he holds in his right hand, are removed, and by a simple brush of the hand from the root-end of the bark upwards the leaves and stems are dislodged and the bark is ready for future manipulation. Another advantage of this system is, that the discarded leaves and stems remain on the field and help to manure the other two crops. An English acre produces 80,000 serviceable stems per crop. One man can decorticate 4,000 stems in the field in ten hours, and two men can extract 16lb. of clean dry fibre from the ribbons of these 4,000 stems in the same time—that is to say, three men will reap and extract the fibre on an acre in twenty days, producing 320lb. of fibre per crop ready for market. In Formosa the impossibility of preparing hemp on the spot without the aid of machinery, and the expense of conveyance to the port in a bulky and semi-prepared state, prevent them finding a market in foreign countries. In 1890 Tainan imported hemp bags to the value of £2,115 5s. In the Hankow District the hemp trade is expanding, also the rhea fibre.

APPENDIX C.—MISCELLANEOUS.

(Extract from Report of H.M. Consul at Manila, Mr. Alex. Gollan, 31st January and 14th February, 1891).

HEMP still holds its own as the most important article exported from the Philippines. The shipments in 1890 have been as follows:—

							Bales.
To Great Britain	...	...	...	...	...	...	341,993
To United States	...	...	...	...	...	...	131,226
To Australia	...	...	...	...	...	...	18,413
To other countries	...	...	...	...	...	...	14,523
							506,155
As against in 1889	...	...	...	...	...	...	568,571
Decrease in 1890	...	...	...	...	...	...	62,416

It takes eight bales to a ton, and the average price for the year may be stated at £34 10s. per ton f.o.b. The total value thus reached was about £2,150,000, or a little more than £1,000,000 under estimated values of the shipments for 1889, owing partly to diminished quantity shipped in 1890 and partly to lower prices which ruled in the latter year. The present estimated stock of hemp on hand amounts to 10,000 tons. The average price of hemp for the year 1890 was about £34 10s. per ton f.o.b., so that the total value of the 506,155 bales was about £2,150,000. These bales equal 63,270 tons. Of this quantity 18,413 were exported to Australia.

(Extract from Report by H.M. Consuls at St. Petersburg and Riga, Mr. John Mitchell and Mr. W. G. Wagstaff, dated 24th August, 1891; 9th March, 1891; and 5th March, 1892.)

The decay of the hemp trade in Russia is attributed to the growing competition it meets with from Italy, Manila, and other hems.

The Riga District.—A further falling-off in hemp seed is recorded. The hemp-seed crop of 1891 was about 40 per cent. under that of 1890. 373,490 quarters were sown in the sixty provinces of Russia, and yielded 720,977 quarters, or, after deducting seed, 6,953 tons. The quality of the crop

of 1891 did not come up to expectation. There was also a decrease of the hemp crop in 1891, especially in the province of Orel, the principal district where this fibre is cultivated. The crop in 1890 was 12,306 tons; in 1891, 7,338 tons. There is every appearance of decline in the Russian hemp trade. The marked decrease in the hemp crop has also caused local prices to stiffen. The Riga merchants pay strict attention to hemp which has been properly treated.

(Extract from Report by H.M. Consul at Bogota, Mr. H. T. Wheeler, 30th September, 1891.)
Into Columbia were imported in 1890 hemp and linen goods to the amount of 3,129,093lb.

(Extract from Report by H.M. Vice-Consul at Nisch, Mr. R. D. G. Macdonald, 18th March, 1889.)
Servia imports hemp from Great Britain, Austro-Hungary, Bulgaria, Turkey, Germany, and Italy. Hemp fetches 6½d. per kilo. Hemp seed and cordage are also imported.

(Extract from Report of H.M. Consul-General at Vienna, Mr. G. Nathan, 17th April, 1891.)
In 1890 Austro-Hungary imported hemp to the value of £54,617, an increase of £8,750 over 1889.

(Extract from Report of Sir G. F. Bonham, at the Hague, 23rd July, 1891.)

In the Netherlands, in 1889, there was an increase in imported hemp to the amount of £27,169, and a decrease of £55,583 in exported hemp, although it is not subject to duty.

(Extracts from Reports of H.M. Consuls at various places in Italy, through the Marquis of Dufferin and Ava, Rome, 20th February, 1891, and 28th February, 1892; also Sir D. E. Colnaghi, Florence, 14th December, 1891.)

In Italy the export of hemp is about equal to half produced in the country. The figures for 1890 were 726,544cwt. Carded hemp is also exported to a moderate extent. Great Britain and Germany are the chief consumers. Cordage is also exported. In 1890 into Venice were imported 9,230 tons of hemp, value £265,835—an excess over 1889. In 1891 Italy imported flax, hemp, and jute to the value of £966,222.

(Extract from Report of H.M. Consul at Bucharest, Mr. A. G. Vansittart, 5th February, 1892.)

The amount of hemp grown in Roumania is not sufficient for its requirements. The tariff provided for an import duty on the fibre, but this was suspended, and the suspension has been renewed from time to time in the interest of the rope factories. The extent of land under hemp cultivation in 1889–90 was 26,676 acres, yielding 250,099 bushels, or nine bushels to the acre.

(Extract from Reports of H.M. Consuls at Algiers, Mr. R. L. Playfair, 7th March, 1891; and Mr. E. W. Bonham, Calais, 17th March, 1891.)

In 1889 into Algiers rope to the value of over £7,000 was imported. The Alfa fibre is exported in large quantities from Algiers. In 1890, 71,854,944 kilos, an increase of 4,886,063 on 1889, almost entirely to the United Kingdom.

Manila hemp is exempt from duty in France: 427 tons were imported into France in 1890, an increase over 1889.

(Extract from Report of H.M. Consul at Caracas, Mr. H. L. Boulton, 2nd May, 1891.)

In 1890 New York imported 372,398 bales of hemp, value £1,511,926—a great decrease on the previous year.

(Extract from Report of H.M. Consuls at Stockholm, Mr. F. Hay-Newton, 4th July, 1890; and Mr. A. S. McGregor, Christiania, 2nd May, 1891.)

Sweden and Norway.—In 1889 hemp to the value of £14,070, as compared with £10,940 in 1888, was imported into Stockholm. Twenty tons of cordage was imported in 1889–90.

(Extract from Report of H.M. Acting Consul-General, Mr. I. H. Sadler, at Guatemala, 15th July, 1889.)

Ramié was three years ago introduced into Guatemala, and more than 600,000 shoots distributed for cultivation, but exportation of the fibre has not met with satisfactory results.

(Extract from Report of H.M. Consul, through Mr. F. Pakenham, Buenos Ayres, 14th February, 1892.)

In Paraguay there is a fibre called Ibira, a species of *Caraguata Bromelia*, which as yet has been unsuccessful, owing to cost and difficulty of separating the fibre from the leaves. The flowers have been sent to Kew, with a view to determine their exact species. The plant abounds and grows naturally in every part of the republic.

(Extract from Report of H.M. Consul, through Mr. Victor Drummond, Munich, 25th November, 1891.)

In Bavaria hemp is cultivated and rope-making carried on, but trade is decreasing owing to powerful English Competition.

(Extract from Report of H.M. Consul, Mr. G. H. Portal, Zanzibar, 18th November, 1891.)

From 16th October, 1890, to 17th August, 1891, 3,245 bales of coir were imported into Zanzibar, also thirty-two bundles of hemp rope, and fifteen bundles of twine.

(Extract from Report of H.M. Consul at Bahia, Brazil, Mr. G. A. Stevens, 28th August, 1890.)

Into Bahia in 1889 hemp goods were imported to the value of £7,084.

(Extract from Report of H.M. Consul, Mr. Lionel Carden, Mexico, 23rd September, 1891.)

In Mazatlan a large number of aloes are being planted in the sterile lands of the State for the sake of the fibre, which finds a ready sale in the United States, and which is also made into rope and twine for home consumption.

APPENDIX D.

DEAR SIR,—

4, Fenchurch Avenue, London, E.C., 8th June, 1892.

Your report seems to us exhaustive and accurate.

1. *As to the possible Output of Manila and Sisal.*—In both cases it seems largely a question of demand, and it appears from past experience that an increased demand and high prices will always react on supplies. It is likely that the output of sisal will be considerably increased in the near future by the cultivation of the plant in the Bahamas. The only outside influences on the sisal production, other than price and demand, is corn and supply of labour. There is a point at which corn can be more profitably grown, but until this is reached, or until the supply of labour is deficient, production of sisal will continue and can be increased.

2. *Cost of Production.*—Manila: Present price is \$8½ per picul of 140lb., English, at port of lading, or \$7 at plantation. We calculate that anything under \$8 would decrease supply, and that \$6.50=£19 f.o.b., or \$5 at plantation, would only yield the workman 25c. a day wage, which is barely enough to keep him; £19 f.o.b. is equal to £22 10s. c.i.f., not £25, as you have it. Sisal at £14 f.o.b. probably leaves a profit, but sisal at £14 f.o.b. is only equal to £15 10s. c.i.f. to New York, although probably £17 c.i.f. to United Kingdom, as you have it in report; and this brings us to an important point in connection with New Zealand as compared with sisal, with which it is supposed to compete more particularly.

The question of Freight.—Freight on New Zealand hemp to United States is £4 10s., while freight on sisal is near £1. We do not see how this is to be overcome, except by cheapening the cost of production in New Zealand, and possibly by improving the system of baling. The freight on manila by sailer to the United States is at present equal to £1 12s. 3d. per ton English, and the measurement of a ton (eight bales) of manila is 96ft. to 100ft.; whereas New Zealand measures about 160ft. to the ton, although this varies considerably, according as the bales are loosely or tightly pressed, and there is great irregularity in this respect.

With regard to points 3 and 4 in your letter of 16th May, we cannot add anything to the information already embodied in your report. There is, however, one thing that is worth attention. When the demand in the States for binder-twine runs on manila, then New Zealand is in such demand for mixing that it may go above sisal in price. It mixes well with manila. When, on the other hand, the demand is on sisal twine, New Zealand is comparatively neglected, as at present sisal is £22, while New Zealand is only £20 in the States. There is no accounting for the "fashion" in twine in the States. Of course New Zealand can never directly compete with manila, which is altogether a better and stronger fibre, although at present the lower qualities of manila are very unduly depreciated, and fair brown, which is worth £5 less than current manila, is very near the price of good New Zealand.

Mr. Cox will be able to call on the Agent-General any day after to-day (Wednesday), and will be glad to supply information on any other points.

We are, &c.,

The Agent-General for New Zealand.

COX, PATTERSON, AND CO.

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