

- (3.) Mr. P. Carmichael (of Baxter Brothers) of Dens Works, Dundee, dated 13th June, 1871, and enclosing small specimens of yarn and cloth made from New Zealand flax in 1850.
- (4.) Messrs. G. & J. A. Noble, of George Yard, dated 28th June, 1871, and enclosing two small samples of paper made from the New Zealand flax five years ago.

All of the above-named are interested in the New Zealand flax, but they are unaware of its being used in the manufacture of cloth fabrics.

Immediately I am informed of the results of the experiments referred to by Mr. C. Thorne and Messrs. G. & J. A. Noble, the same will be communicated to you.

DEAR SIR,—

16 Mark Lane, London, E.C., 7th June, 1871.

In reply to your letter of the 5th June, I do not know of any articles having been made from the *Phormium tenax* of late years, with the exception of rope. Some long time back Messrs. Baxter Brothers, of Dundee, manufactured some of the Native dressed New Zealand flax into cloth, and my friend, Mr. Robert Marshall, learned a few weeks back in conversation with Mr. Carmichael (one of the principals of the firm), that the cloth so made did not wear satisfactorily. I have had some dry leaves carefully worked, from which fibre similar to the accompanying sample has been prepared, and in December last, I sent about 6 cwt. to a friend of mine in Dundee, who is acquainted with some of the leading spinners. He showed the sample to them, and in his letter to me of 9th December, 1870, he states, "all the parties I have shown the samples to, admire the way the fibre has been treated; but declare they could not use it for their fine Nos. of yarns. I have already been refused by two of our best spinners on this ground." After this he succeeded in getting a firm at Arbroath to try it, and on 9th February sent me spinners report as under:—

"I have just got in report on the New Zealand flax as follows: 'Sample of New Zealand flax, coarse long fibre; oiled and softened 17 lbs., then hackled it hard over first and fine tools. It appeared worse after softening, and the tow is very nappie. Gave 165 lbs. drest into the mill, and got through preparing process to roving without difficulty. When the roves were put in the spinning frame it would not spin at all, being too long for the largest reach of frames we have, and too hard to draw. The frames were altered every conceivable way, but could not get it to spin; it might be got to spin if machinery were made purposely for it, all preparing and spinning frames very strong and long in the reach. It seems of that nature of material, that the fibres will not draw out of each other as flax does, it breaks rather; so that it is doubtful whether it could be spun at all, even with strong machinery and long reach. It appears more suitable for hard spinning or being used at rope works.'

I have lately heard that my friend is still urging forward further experiments, that he hopes before long to be able to send me further particulars. I am now preparing another quantity of 2 cwt., which some London friends have promised to forward to their correspondents in Dundee, who think (from the sample) they will be able to manufacture some kind of fine duck or canvass from it for me; this lot will be sent to Dundee early next week.

The rope I have had made, from fibre dressed by the process in which I am interested, appears to have proved a great success. It has been tested in various ways, the most severe trial was on board Messrs. J. Willis & Sons ship "White Adder," for Bombay, where the rope was used as "Burton falls" in lowering over 700 tons iron rails besides other cargo. At the termination of the vessels lading the rope was but little chafed, and remained strong and useful for other purposes. Many other vessels have my rope in use. Messrs. Shaw, Savill & Co.'s overlooker, Captain Scott, and Messrs. Liston, Young, & Co.'s overlooker, Captain Manning, speak highly of the manner in which it wears. I handed to one of the gentlemen in your office, yesterday, a copy of some reports which may prove interesting to you, more especially the one of Mr. Nickel's the analytical chemist, as it shows the difficulty heretofore existing in getting rid of the gummy matter has been overcome. The samples to which he refers were taken from some *Phormium tenax* prepared by Messrs. Miles & Co., in Canterbury, New Zealand.

If I am successful in my endeavours to obtain a fabric from my fibre, I shall be pleased to communicate the particulars to you, and also to forward you samples, in the meantime.

John Morrison, Esq.

I have, &c.,

C. THORNE.

DEAR SIR,—

16, Mark Lane, E.C., London, 13th June, 1871.

As you are aware that one of the great objections raised against the use of the New Zealand flax fibre, for sea-going rope, was its supposed tendency to rot when subjected to the action of salt water, it may be gratifying to you to learn that when the fibre has been properly prepared this objection no longer exists. The letter, of which I annex a copy, was received by me from Messrs. E. Shelton and Co., this afternoon, and I think it may prove interesting to your friends who are collecting information regarding *Phormium tenax* and its uses.

John Morrison, Esq., New Zealand Government Agent.

I have, &c.,

C. THORNE.

P.S.—The rope referred to is that named to you in my letter of 21st February, 1871.—C.T.

DEAR SIR,—

34, Lime Street, London, 13th June, 1871.

By the mail which has just arrived from Belize we have a letter from Captain Shaw, the master of our vessel the "Sheffield," and in it he alludes to the rope which we purchased from you in the following terms:—

"The white rope sent on board of the "Sheffield," in London, has been well tested, as we have had it in use for taking in 350 logs of mahogany, some of them three and four tons weight, besides using it for winch ropes in the hold. I consider it superior rope to any we have had on former voyages that we have used for the same work."

The test which rope undergoes in loading a cargo of mahogany at Belize is really very severe indeed. The rafting lies constantly submerged in salt water during the night, and in the day exposed