Manilla hemp was similarly affected, as in the case of *Phormium* fibre, 15·4 per cent. of organic matter being removed from it by water, at 150° C.

Under the same circumstances, Irish flax lost 10·4 per cent. of organic matter, and Russian hemp 10 per cent.

§ 6.—Nitrogenous Matters, or "Albuminoids" in the Prepared Fibre of Phormium Tenax.

It was found by a careful analysis of No. 11 specimen of New Zealand flax that it contained ·267 per cent. of nitrogen. This corresponds to a per centage of albuminoids, amounting to 1·69 per cent.

In the perfectly dry flax (No. 11), the amount of nitrogen is ·301 per cent., and the amount of albuminoids is 1·91 per cent.

This proportion is greater than that found in many other prepared fibres. Careful analyses of cotton (carded) and linen (Sweedish filter paper) gave the following results, which are here put down by the side of those just recorded:—

———	*Phormium.*	Cotton.	Linen.
Per centage of Nitrogen	·267	·079	·087
Per centage of Albuminoids	1·69	·50	·55

§ 7.—Oil or Fat in the Prepared Fibre of Phormium Tenax.

The presence of an oily matter of some sort in the cleansed and prepared fibres employed in the manufacture of textile fabrics is not generally recognised. This oily matter, as it occurs in the dressed fibre of *Phormium tenax* and in Manilla hemp, is, in great part, volatile at the temperature of boiling water.

With the sample of *Phormium* fibre, No. 10, the following results were obtained:—

Per centage of oil, dried at 100° C. (212° Fahr.)	·25
" " " " " "in vacuo" ...	1·08
In Manilla hemp—	
Per centage of oil, dried at 100° C. (212° Fahr.)	·11
" " " " " "in vacuo" ...	·48
In carded cotton—	
Per centage of oil fixed at 100° C.	·51

Vegetable fibres of all kinds, from which the natural oil has been removed by heat, alkalies, or solvents, are harsh and dry to the touch, and easily and rapidly wetted by water.

§ 8.—Absorption of Sea Water by Phormium Fibre.

In the experiments made on this subject, it seemed that the *Phormium* fibres were more quickly and thoroughly wetted by sea water than were those of Manilla. More action on the fibres also occurred in the case of the *Phormium*. The extent of the absorption was measured by immersing the soaked fibres in a solution of nitrate of silver, and then exposing them to sunlight.

It may be mentioned, in this connection, that *Phormium* fibres, which had been carefully dressed with Stockholm tar, were still capable of taking up a small quantity of sea water.

§ 9.—Absorption of Wood-tar by Phormium Fibre.

No difficulty whatever was found in causing prepared fibres of *Phormium* to take up as much tar as those of Manilla. When a small quantity of paraffine, machinery, or lubricating oil was mixed with the tar, several advantages seemed to accrue. This oil, which is the last product of the distillation of petroleum, &c., imparts flexibility to the fibre, gives it greater tenacity, and, by its remarkable diffusive power, serves to keep out sea-water and other aqueous liquids. Being itself unalterable and unoxidizable, this oil has no tendency to promote chemical changes in the fibre which has been dressed with it. As, however, it does not dry, it cannot be used alone.

§ 10.—The foregoing analyses enable me to present a tolerably complete idea of the constituents which go to make up 100 parts of one of the samples (No. 13) of dressed New Zealand flax fibre.

Analysis.

Water	11·61
Ash	·63
Cellulose, A.	16·55
Cellulose, B.	45·75
Cellulose, C.	·70
Oil, partly volatile	1·08
Albuminoids	1·69
Gum and matters, soluble in water at 150° C.	21·99
	100·00