Description of Fibre.	Moisture.	Ash.	Percentages of Volatile Oil.	Fixed Oil.	Total Oil.
A. Native—good	13·74	·74	·29	·20	·49
B. Machine dressed—good ...	13·32	·63	·14	·29	·43
C. Machine dressed—ordinary	12·79	·51	·38	·26	·64
D. Nichol's process ...	14·17	·70	·56	·36	·92

In the following series of experiments, the samples called A, B, and C in the above table were employed.

Oiling Experiments, Series I.

Oil used, paraffine lubricating or machinery oil, having the specific gravity ·9243. The fibres used were in their ordinary condition as to hygroscopic moisture. They were thoroughly saturated with the oil, and then submitted to pressure and hammering to remove all excess of oil. The following numbers represent the final percentages of oil absorbed and retained by the several samples of *Phormium* fibre, two experiments being made in each case, and numerous weighings :—

Absorption of Mineral Oil (Paraffine Oil) by Fibres.

	A. Native—good.	B. Machine—good.	C. Machine—ordinary.
Percentage of oil retained	12·11	19·41	22·25
	13·30	20·66	24·97
Mean ...	12·70	20·03	23·61

In order to see how far these numbers really represented the percentages of oil retained by the several samples, it was necessary to ascertain whether the absorption of oil had been accompanied by any loss of hygroscopic moisture. The samples used in this series were therefore reweighed and dried till constant in weight *in vacuo* over oil of vitriol. The loss of water they then suffered sufficiently proved that the absorption of the oil had driven out but little if any of the natural moisture of the fibres.

	A. Native—good.	B. Machine—good.	C. Machine—ordinary.
Percentage of water lost by oiled fibres *in vacuo*.	10·79	9·52	8·91
	11·63	10·34	9·64
Mean ...	11·21	9·93	9·3

It thus appears that the fine Native-dressed fibre absorbs least oil and retains during such absorption the highest percentage of hygroscopic moisture.

In order further to test the accuracy of the determinations of oil retained by the fibres, direct determinations by means of the "ether process" were made. The prepared and oiled samples which had been dried *in vacuo* contained the following amounts of oil in 100 parts :—

	A. Native—good.	B. Machine—good.	C. Machine—ordinary.
Percentage of oil retained by the fibre, but removed by ether	11·00	17·14	20·88
	11·54	18·91	20·26
Mean	11·27	18·03	20·57

These numbers accord as closely as could be expected with those given in the first table, and show that the fine Native-dressed fibre retains the least oil amongst the samples tried.

Oiling Experiments, Series II.

The oil used was the same as that of Series I., but the fibres were dried at 100° centigrade (212° Fahrenheit) previous to their being soaked in the oil. It was thought that the removal of the hygroscopic moisture from the fibres would increase the quantity of oil absorbed, and render its penetration into the fibres more thorough. This anticipation was not realized, for less oil was absorbed under the single altered condition (of previous drying) of these experiments. The percentages of oil retained by dry fibre, after pressing and hammering, as in Series I., were as follows :—

	A. Native—good.	B. Machine—good.	C. Machine—ordinary.
Per centage of oil retained by fibres which had been previously dried	8·31	12·34	15·67
	8·19	14·65	15·36
Mean	8·25	13·50	15·52

Thus we learn that dry fibres absorb less oil than those which are naturally moist; and that the fine Native fibre retains the same position as to the percentage of oil which it held in the first series of experiments. From other trials I conclude that drying the fibres previous to oiling or tarring them will prevent the sufficient absorption of the liquid used, while submitting the fibres to a moisture-laden atmosphere may prove beneficial, especially if they be subsequently dried,—that is, after the treatment with oil, &c.

Oiling Experiments, Series III.

The oil now used was a colza oil, of sp. gr. ·910. The fibres used were from the same samples as before: the operations of pressing and hammering were conducted in the same manner. The experiments, however, were not very successful or uniform in their results; and the inferiority of a vegetable oil for such purposes was shown by the appearance of the samples after treatment. The following