Many processes, both mechanical and chemical, have been tried by the colonists, and by projectors in England, Belgium, and France, for adequately preparing this fibre; but hitherto complete success has not been attained in separating the fibre from some particles of a gummy nature, which render it brittle and harsh of texture when dried and packed, so that it is as yet considered inferior to the European flax. As now prepared for the London market, small quantities have obtained prices varying from £20 to £28 per ton, which hardly pays the present expense of preparation in the Colony, packing, and freight.

The finer varieties from the fibre of which the Natives were in the habit of manufacturing garments of a beautiful silky texture, were extensively and carefully cultivated by them, until the general adoption of blankets and other articles of European clothing almost put an end to the Native manufacture. The carelessness with which the early trade in this article was carried on has been the cause of its depreciation in the European market; but there is no doubt that if a proper degree of attention were paid to the distinction between the different varieties,—to the soil, climate, and cultivation best adapted for each,—to the proper season of cutting the leaf,—to the best mode of preparing the fibre, as well as the careful drying, packing, and screwing of it when prepared and assorted, this plant would furnish New Zealand with one of the most valuable exports ever possessed by any country.

The fibre as yet imperfectly prepared from the *Phormium Tenax* is extensively used in New Zealand and in the adjoining Australian Colonies, both by Natives and Colonists, for every species of cordage, from sewing-thread to whaling-lines, and a small quantity is still used for cordage in this country; but the finer varieties would furnish a staple resembling silk and linen combined, from which the most beautiful fabrics might be made. Even in its roughest state this plant is most useful to the colonist or the traveller. It abounds everywhere except in the thick forests; and a leaf cut green, either whole or split into the required breadth, serves every purpose for which string might be necessary,—for the repair of a saddle-girth or stirrup-leather, or the bandaging of a wounded limb, to the replacing of a worn-out brace, knapsack-strap, whip lash, or boot lace.

No. IV.

On the Obstacles to the Utilization of New Zealand Flax.

By Lauder Lindsay, M.D., F.R.S.E., F.L.S.

The author's propositions are based on—

1. The results of observations made during a tour in New Zealand in 1861–2.
2. A study of the voluminous literature of New Zealand flax; and
3. A previous study (ten years ago) of the general subject of foreign fibres as substitutes for those currently used in this country in the textile arts.

He assumes—

1. That the value of New Zealand flax as a fibre suitable for the manufacture of cordage, textile fabrics, and paper, has been established.
2. That in Europe alone there is practically an unlimited demand for this class of fibre.
3. That in order to such fibre as New Zealand flax becoming marketable—
   a. The supply must be both regular and large.
   b. The quality must equal that of the fibres which at present command the market.
   c. The cost of production must be such as to leave a considerable margin of profit on its market price.
4. That hence any candidate for preference in the fibre market must submit to be tested rigorously by the following standards:—
   a. Amount and regularity of supply.
   b. Quality.
   c. Market price.

The utilization of New Zealand flax has been stimulated in every conceivable way—by the self-interest of Colonists and Colonial Governments; by the attraction of substantial Government rewards; by the high prices offered in the British market for good samples of dressed fibre; by industrial exhibitions throughout the world, including New Zealand itself; by the perennial encouragements of the local press. So long ago as 1856 the General Government of New Zealand offered premiums to the extent of £4,000 for the production of a marketable fibre; the Provincial Government of Canterbury subsequently offered a bonus of £1,000 with the same object; and still more recently, that of Otago has promised an honorarium of £500 for the production of a marketable paper from New Zealand Flax, or other indigenous fibre; while at least one special book, printed moreover appropriately on New Zealand flax-made paper, has been devoted to the subject. Nevertheless, no progress has been made beyond the products of the crude art and hand-labour of the Maori, with his simple mussel or cockle shell; if, indeed, his results have been rivalled by the best specimens of Colonial art. The endeavour to give New Zealand flax a permanent and satisfactory place in European commerce has hitherto been a signal failure.

The author's object is to discuss the causes of this failure—to indicate the combination of circumstances that has hitherto operated in preventing the practical application in the textile arts of a fibre acknowledged by all authorities to possess a high value. His main propositions are as follows:—

I. Amount and regularity of supply.
   a. There cannot be a sufficiently large or regular supply to meet the requirements, either of the local or European market, till
      1. The plant is systematically cultivated.
      2. Labour is more abundant and cheaper.
   b. It remains to be determined by experiment on a large scale—
      1. What are the most suitable forms and circumstances of cultivation, in reference especially to such practical and important points as (*a*) the kind of soil, and (*b*) the artificial aids to growth?