

hot chemical solution. Then, the scutching and drying, which, to procure a pure colour, must be done in sheds, drying in the sun being absolutely hurtful to the fibre in every case. The only object of drying in the sun is to produce the straw colour of the manila. That brownish colour is produced entirely at the expense of the strength and keeping qualities of the fibre. They could not sell it unless they browned it; they could not sell it to people who were going to pass it off as manila. We are playing into the hands at the present time of those who desire to sell it as manila. Then, it is evident that, after selecting the leaves, you must have a great deal of rough leaf left. These damaged leaves could be put through the same process, and the same solution could be used again, and by the addition of caustic potash or soda you could produce a material for paper-making, which is stated to be a saleable article. Except in exceptional conditions it would not pay to attempt to apply this process to all the flax gathered off the hills and in the swamps, when all varieties and lengths are used indiscriminately, as the cost of collecting it, sorting it, and treating it in a thoroughly productive way would be too great, and would kill the thing; but that is what will be the ultimate use of the phormium plant in New Zealand when the wild flax is exterminated, and we have to depend on systematic cultivation.

783. *Major Steward.*] The utilization of the phormium to the highest possible purpose depends first upon its cultivation?—Yes. Clearly the cultivation of the best kinds, and under the most favourable conditions for collecting it. At page 13 of the preface I give a sketch of such a cultivation, taking as an example the Manawatu Swamp, and suggesting how it could be converted into a paying flax-farm: A limited area properly laid out, and arranged in the manner I suggest, with narrow canals cut all over it to act as drains, and to serve instead of roads for collecting the produce by barges, so as to prevent any trampling by stock; the soil from the drains would raise the level, and a slow motion of the water would be kept up towards the outflow, where the mill would be situated; all the best varieties carefully put in, and the worst thinned out. Gradually a property of that kind could be developed into one of the most magnificent-paying estates in the world.

784. With regard to the sample which has been prepared by the process you have described, all the flax turned out would not be exactly like this specimen; there would be several possible intermediary stages?—Certainly; this sample contains a great many grades.

785. With regard to these intermediary stages, the product might be made available for different purposes?—Yes.

786. Then the only reason why you think the flax cannot be used in these various intermediary stages and for these different purposes now, is because there is no care taken with regard to the selection of the kinds of fibre?—Yes, that is the primary cause.

787. The proper course is to grow the plant for the purpose?—Yes, and under conditions that afford facility of selection.

788. Would you mind stating as to whether you have had any experience of the utilisation of flax when properly prepared for the valuable kinds of textile fabrics?—We have a large series of samples in the Museum of all the grades, from wool-packs up to the finest linen—all made by different admixtures of the phormium fibre with other fibres.

789. Do I understand that the phormium fibre alone could not be used?—No; I think not for finest fabrics, unless by this new process I have alluded to, the process of Professor Barlow.

790. But, by admixture with other fibres of a suitable kind, by this particular process of manufacture *Phormium tenax* could be applied to all classes of fabrics, from the finest to the coarsest?—Yes; it has been applied for the last sixty or seventy years.

791. Could you say in what proportion the fibre is mixed with other fibres?—All the proportions are given on the cards in the Museum. They vary. The proportion would be about 25 per cent., more or less. I could not say from memory; they are all described in the Appendices to the Journals of the House.

792. I do not find anything in your book referring to a competing fibre called ramee. Do you know anything of the ramee fibre?—It is a kind of nettle, or hemp. I think it is used for finer purposes than rope, very much finer; it is used for making imitation-silk materials, and grass cloth for making special dress material.

793. How does it compare with Italian flax?—It could not be applied to the same purposes. It is applied to purposes similar, but finer than jute.

794. If ramee were subjected to the same process of manufacture, would it be a rival to *Phormium tenax* in any of these ways?—No, I think not. Ramee derives its value from the great length and silky fineness of its ultimate fibre.

795. Do you know whether the French Government has offered a bonus for improved machinery for the preparation of ramee?—Yes, there are voluminous papers on the subject.

796. It has also been taken up in the United States. I have recently seen that samples have been sent out to one of the Australian colonies, with a view to its cultivation there?—Yes, the Government have received various documents on the subject. I do not know in what state of development the business is.

797. Are you aware whether a bonus has been offered in connection with ramee; if so, we should have a precedent for doing the best we can with our own fibre?—Ramee is not a competing fibre. At the same time it might be a very valuable auxiliary fibre in the manufacture of certain classes of fabrics.

798. *Mr. Walker.*] Those samples in the Museum are all experimental?—Most of them certainly are experimental trials. For many years it has been impossible to get manufacturers to use phormium. The whole of the phormium fibre sent to Europe has been sent in a state to imitate manila. It has been dried and reduced to such a condition that it is impossible to redevelop its more valuable properties. But in the early years there must have been a great deal of phormium fibre used for textile purposes, because the price was very high indeed—from £90 to £100 a ton. Of the considerable quantity sent Home, it is not at all likely that it was used entirely for the making of ropes. There is one peculiarity of the clean phormium fibre—that it takes dyes with