On the Growth of the New Zealand Flax Plant (Phormium tenax) in the Orkney Islands

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of that noble band of distinguished men, few of whom, alas ! are now amongst us. As year after year is thus thinning our ranks, it is a comfort to know that so many yet remain to seize the standards from the dying hands of such noble champions of our science, and to bear them aloft with the resolute purpose of handing them down unsullied to the future generation. But, as in all societies, true success is attained, not so much by the brilliant achievements of a few, as by the steady and persevering efforts of the whole, I do trust that we may all be stirred up, each in his special sphere, faithfully, conscientiously, energetically, and with the highest end ever in view, to prosecute botanical science, ever bearing in mind the lesson which the sad obituary list is designed to teach us, that the night is coming to each of us wherein no man can work.

On the Growth of the New Zealand Flax Plant (Phormium tenax) in the Orkney Islands. By Dr W. TRAILL.

(Read 11th December 1879).

The acclimatisation of foreign plants in this country is a subject of so much general interest, whether as regards their economic value or as ornamental additions to our gardens, that I have put together the following notes on the result of a late attempt to introduce the *Phormium tenax*, or New Zealand flax lily, into the Orkney Islands, which islands, from their high latitude—59° north—enjoy comparatively little heat in summer, though their winters are remarkably mild, there being little snow and frost, which is perhaps partly attributable to their insular position, but is chiefly caused by the action of the Gulf Stream, which makes its presence felt, not only by raising the temperature of the sea 7° above that of the air in the months of December and January, but by frequently casting up seeds of tropical plants on the shores of the different islands. During the severe gales of wind that often occur, there is usually a good deal of salt in the atmosphere, hence the extreme difficulty of growing trees or even

shrubs, although there are a few exceptional plants that do not seem to be much affected by this, such as different kinds of evergreen shrubby veronicas, and a few other plants, such as the New Zealand manuka or Captain Cook's tea-plant (*Leptospermum scoparium*), the *Pernettya mucronata*, and the Japan *Euonymus*, &c., which, favoured by the mildness of the winters, thrive remarkably well, and to all appearance the New Zealand flax lily is likely to prove as well adapted to the climate of Orkney as any of them.

About eight years ago, or rather more, I got some of the seeds from a friend in New Zealand, which I raised in a hot bed in St Andrews, and during the same season I planted out several of them in the open air in my garden at North Ronaldshay, Orkney, where they have remained ever since, with no protection beyond the proximity of a low wall, some having a southern exposure and others an eastern aspect. These plants seem in no way affected by the winter except that the tips of their leaves become somewhat frayed and ragged, but in the course of the following summer they soon recover their beauty, and they have gradually increased in size until the leaves on some plants now measure from 5 to 6 feet, and in others from 6 to 7 feet long.

I had also distributed duplicate plants among friends in the neighbourhood, in whose gardens they appear quite healthy. It was not until the first week of June this year that my plants showed any signs of flowering, but I then observed that (of the three largest plants) two were throwing out each two flower-shoots; the third and largest plant, however, produced no fewer than five flower-stalks, enveloped by long sheathing leaves that closely embraced the stems, which were at this time from 4 to 5 feet high; the upper part, which evidently contained the future flower, being inflated, and tapering to a point at the apex, not unlike the head of a spear. They increased in length at the rate of about an inch a day; the swollen mass of spathes separating, and successively unfolding, revealing numerous bunches of flower-buds, until, when the stem reached the length of from 8 to 9 feet, there were twelve or fourteen distinct clusters of flower-buds of a purplish-brown colour, disposed alternately on each side of the stem.

The spathes at this stage added much to the effect, their interior being of a deep orange colour. Our weather had been rather dry for some time, which seemed to retard the opening of the buds; but after a heavy shower of rain on August 1, the buds rapidly increased in size, and in three or four days the first flowers opened; they were tubular in shape, $1\frac{1}{2}$ or 2 inches in length, of a deep red colour, with projecting orange stamens. The odour of the flowers was powerful, like that of Russia leather. It seemed to be very attractive to bees, moths, and other insects. Each main stem bore at least 300 flowers. Altogether it is a most magnificent example of the lily family, and the general appearance of the plant is highly suggestive of tropical vegetation. It is well known that the fibre of the leaves possesses extraordinary tenacity, though, from its containing a large quantity of silica in its composition, the economic value of the plant has hitherto fallen short of what was at first expected. For the manufacture of ropes and cordage, however, I should think it most valuable. The leaf, even in its natural state, is so strong and pliable, that I have seen strips of it torn off and used as boot-laces; and it is evident that the flower-stalks partake of the same tough character as the leaves, as they were not at all damaged by the equinoctial gales of last September, though they were not tied to sticks or otherwise secured from injury. I may add that the flowers, after lasting for some two months, were succeeded by numerous seed capsules containing apparently well-ripened seeds. I understand that two other plants from the same batch of seeds have also flowered this season; one at Strathkinness, here, and another at Professor Swan's residence on the west coast. It is curious that they should all flower in the eighth year of their age, but whether the phenomenon is attributable to that cause entirely, or to any peculiarity in the past season, time alone can determine.