

large and strong as the continuation of the parent stem, and those branches blossomed freely and bore berries. The difference between them as plants continued, therefore, as marked as at first. Of course the seedling had more than twice as many leaves, and were, therefore, in a state to assimilate twice as much nutriment; but it may be said that this was no advantage, for it is found that the heaviest and largest tops do not bring most tubers. This is true with setlings, for the stem is comparatively weak, and the roots few, and Dr. Lindley at p. 196 of the same work, says:—"He supposed that the rankness of the vegetation from the whole tubers to be the cause of the diminished crop, for the stems were unable to support themselves, and were blown about, laid, and broken by the wind."

As the disease appeared in 1846, when the plants came into blossom, I thought it might be of use to examine and compare the setlings with seedlings in this stage of their growth. I therefore selected the best setling and had it taken up, and also a seedling which was about as far advanced in bloom. As it happened, it was not either the best or most promising plant.—This was on the 9th of August. I had now an opportunity of comparing the roots, as I had hitherto the leaves and stems, and the contrast was still more striking. I have the roots here carefully preserved, and it will be perceived that the seedling has more numerous roots and that they extended much farther, thus proving that it requires a deeper and better tilled soil for its development, and that it is not so dependent on manure for a vigorous growth. It is said that over-manuring had injured the potatoes in this country—the seedling is certainly independent of this foreign aid, though it is more dependent on good tillage.*

I believe that the difference between setling and seedling is still more strongly marked. The seedling is an original plant, perfect in all its parts. The setling is only the prolongation and continuation of the parent plant, as the graft is of the original apple tree, which only lasts for a limited term of years. The fact as to apples is well known and admitted, and I believe that every one who has lived fifty years will agree with me in saying that the different varieties of the potato which were common in his youth, are now rare, and almost unknown. He must remember when the apple potato yielded to the cup for general use, when the red nose, kidneys, and long flat whites were in their mealy prime, when they were produced in abundance and were in every market; but the case is now altered, and those potatoes are seldom seen in our markets; the obvious reason is, either that they are not now worth cultivating for general use, or else that they cannot be made to grow well and abundantly as they did formerly.†

A specimen of a seedling which produced suckers will elucidate what I have said as to the setling being a continuation of the original plant. The fibre which produces the tuber is not the true root, but rather an underground branch, hence the advantage of earthing up the setlings, and planting seedlings deeper in the ground than they grew in the holed, in order to increase the number of underground branches; when freshly taken up, the difference is obvious, the tuber-bearing fibre is thicker than the root, and white, though it soon dries and shrivels up; if it happens to come to the surface it produces leaves and a stem, but in general no branches. Occasionally when the tuber has obtained some size, it bursts an eye, which in the ordinary and usual course would not shoot until the following year; the tuber then has the appearance as though the fibre

which bore it ran through it, entering at one end and going out at the other. The shoot thus formed soon finds its way to the surface, and becomes a stem, as in the instance now produced; the underground portion throws out roots and bears potatoes, and the stem bears leaves but no branches, and becomes, in short, a perfect setling, though, perhaps, not so strong or prolific as if the eye had not burst until the following year. I broke off the setlings from this specimen, that I might show them more distinctly; but they still retain the end of the fibre of the parent branch on which they grew. I also cut away half the root from the parent plant; we have thus a seedling and setling in juxtaposition and contrast—one is a branching plant with numerous and spreading roots, the other a stem with few roots. As far as my observation extends, the same distinction is general, though occasionally a setling may be found with a few small branches. I never saw one which bore branches at all like a seedling.

One seedling in the row which I measured was three feet high; it had 12 branches, each at least two feet; all bore blossoms, and there were several smaller branches and suckers; the stem was triangular; each side near the earth measured 3/8th of an inch. Many other plants in the row were as good or better.

The overground stems will sometimes produce tubers, of which I have an instance; such tubers make excellent seed. Sir W. Betham sent a much finer and more interesting specimen to the agricultural museum. In support of what I have said respecting roots, I would again quote Dr. Lindley's book. He says, p. 205—"It is no doubt true that we constantly propagate plants from pieces of what are called roots, as in the potato; but such roots are in reality the kind of stem called a tuber, and in like manner other cases of similar propagation are also successful, because that part called a root is in reality an underground stem."

I have now, I think, proved that, as a plant, the seedling is superior to, and has many advantages over, the setling, as to roots, stem, branches, leaves, and flowers, and may, therefore, be reasonably expected to be stronger and healthier.

The late exhibition has fully proved, that seedling potatoes are not inferior to an ordinary crop in size or form; so far, therefore, the experiment has been eminently successful, and a new mode of raising full-grown potatoes from seed—of restoring lost varieties, and introducing new ones, has been successfully introduced into the country by the Royal Dublin Society; and I hope that next year the committee of agriculture will be able to acquire sorted varieties of seedling potatoes in all cases, and that one duty of the judges will be to select such as ought to be brought into use for general cultivation, in order to replace those varieties which have been lost or worn out, as well as to furnish new sorts for farming purposes. I would, from the exhibition of this year, refer to one exhibitor, Mr. H. Barton, who sent nine lots of sorted seedlings, and Mr. Moore has sent, from the society's gardens, some very fine specimens—one long, flat, white potato seems peculiarly promising; also, to one specimen produced by Sir Robert Shaw, which obtained a medal as well adapted for feeding cattle: the produce was at the rate of upwards of thirty tons an acre.

THE EARL AND THE FARMER.—A farmer called on Earl Fitzwilliam and complained that in his hunting excursions with his hounds, he had trodden down a field of wheat so as to do it damage. The earl said that if he would procure an estimate of the loss he would pay it. The man informed him that he had done so already, and it was believed that the damage would be £50. The earl paid it. But as spring came on, the wheat which had been trodden down grew up, and became the best in the field. The farmer honestly returned the fifty pounds. "Ah," said the earl, "this is what I like. This is as it ought to be between man and man." After making some inquiries about his family, the earl went into another room, and returning, gave the man a check for one hundred pounds, saying, "Take care of this, and when your eldest son is of age present it to him, and tell him of the occasion that produced it."

*Mr. Cooper, of Mairkee Castle, in the county Sligo, had the kindness to send me the following report from his gardener:—"I put the plants one foot apart in the drill, and the drills two feet apart; they soon made rapid growth—about the middle of July they far surpassed those planted from tubers. On one root I got 150 tubers, some as large as a hen's egg. I consider that the soil I used was too rich. All vegetables raised from seed grow more luxuriantly than from cuttings, consequently require poorer soil. I have observed this year that the poorer the soil, the less susceptible was the potato in taking the disease; a great deal depends on soil—soil I think that the disease was in the air."

†Dr. Daly, of Ramelton, informed me that many varieties, in certain localities, had entirely disappeared; for instance, in his neighbourhood the cup is almost the only existing variety, and the seedling will be the means of renewing the extinct species; and in a subsequent letter he says, I think this is the only way of procuring new varieties. I have 6 or 7 species which had disappeared from this locality for upwards of 15 or 20 years.