

The Potato.

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[Written for the Agriculturist.]
Continued.

In the wild state the tubers are small and the tops largely developed in proportion to the roots. Some varieties have tops from seven to ten feet long. The leaves of different varieties vary in the subdivision the size and color of the blossoms, and in the size of the ball containing the seed.

The true nature of the tuber is a deposit of starch in the free end of underground leafless branches, somewhat different from the root proper, causing an enlargement at the point of deposit. In the uncultivated state these deposits vary in size from that of a pea to that of a walnut. By cultivation the number and size of these deposits are increased at the expense of the tops which become reduced in length and vigor and some varieties do not flower or produce seed. The tuber differs from the true root by having eyes or leaf buds which under proper conditions lengthen into stems thereby securing propagation independent of seed. These young sprouts are nourished by the parent potato until roots have formed and are sufficiently grown to make them independent. Under the microscope a thin slice of potato is seen to consist of thin cells within which are deposited about a dozen concentric grains of starch. The amount of starch present depends upon the age of the potato and upon the variety. Potatoes contain only about two-thirds as much starch when immature as when fully developed. It also decreases when the sprouts begin to grow. The average quantity of starch found in 100 parts of potato is about 18 per cent. The other constituents being water 75 parts and a small amount of cellulose, albuminoids and other principles.

Previous to 1845 no serious obstacle or complication had arisen to embarrass or jeopardise the success of potato culture, but in that year the crop of the United States and of the British Provinces was attacked by a serious disease which

made it a failure not only in the countries before mentioned but also in many parts of Europe especially in Ireland where the sudden destruction of this important article of food brought much distress and suffering. The potato rot was no new disease. It had prevailed before 1845 but had been previously limited to comparatively local areas, as it has been since that time. So complete and universal was the destruction of the crop in that year, that to many the cultivation of the potato appeared to be doomed to failure and disappointment.

The potato rot or murrain as it is called in England is caused by the presence of a whitish or colourless microscopic fungus which presses and breaks up the cellular tissue thereby setting up putrescence. When the leaves have become destroyed the fungus or its spores descend to the tubers by the stems or else are carried to them by the rain. The growth and spread of this parasite is greatly favored by hot weather interspersed with showers. The suddenness and rapidity of the invasion is wonderful under favorable conditions. In a few hours a field of vigorous plants may become a mass of decay and rottenness. Cool and dry weather is unfavorable to the development and life of the fungus and therefore in such seasons potatoes do not generally decay.

It is highly probable that in the United States, we owe more to the efforts of Rev. E. C. Goodrich of Utica, N. Y. for the present excellence of the potato than to any one else. Mr. Goodrich was a Presbyterian clergyman in poor health and with very limited means. For sixteen years his investigations and experiments to save this valuable esculent to the world were conducted with a purely scientific and philanthropic zeal. A peculiar constitutional idiosyncrasy prevented his eating potatoes. His tests of them were chemical analysis, taste, and observation of cooking qualities. He died May 11, 1864, an examination of his accounts showed a balance in his favor of about \$50 from sales of potatoes and from premiums at Agricultural Exhibitions, as his pecuniary reward. How

insignificant is this paltry sum in comparison to his labors. He originated about 15000 seedlings from 74 families. That is the balls producing the seeds were derived from potatoes obtained from 74 different places, principally in South America. Each seedling of promise was cultivated 4 or 5 years if not before shown to be worthless. Some varieties grew to the close of the season without the formation of a tuber and were consequently lost the first year. He began with importations from Bogota South America in 1840 and his second importation occurred in 1850, but it was not till 1851 that any of his imported kinds produced seedlings of much promise. In 1851 he received eight varieties from Panama which had been brought from Chili in the regular coast trade. One of these was cultivated by him as the Rough Purple Chili. From this he produced a seedling which he called the Garnet Chili. This became the parent of the Early Rose which has been widely cultivated and highly esteemed. From the Garnet Chili there have been over one hundred different varieties produced, another group numbering between 60 and 70 kinds has been developed from imported seed or from imported potatoes and is known as the Excelsior group. In direct line by seed from imported stock can be mentioned Wild Peruvian, Curco, Early Goodrich and Excelsior which have served as a basis for the development of the others. The Peachblow group numbers about as many varieties as the preceding and began with the Merino or Long Red also known as the Long John. The Western Red was a seedling from it. The Jersey Peachblow a seedling of the Western Red and the White Peachblow a sprout of the Jersey Peachblow. These have served as a basis of the Peachblow group. Another large group has been developed from promiscuous parentage. Thus other hands have taken up and carried on the work inaugurated by Mr. Goodrich until these almost innumerable varieties have been produced. The new kinds have superseded those in former cultivation. Not only have new varieties been rapidly multiplied but also the general excellence has been