Some of the "Whys" of Apple Mutation

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Most apple mutations apparently "just happen" without rhyme or reason. However I have a giant sport of the 'Winter Redflesh' crab in which the various steps and apparent reasons for sporting are somewhat clearer.

In the fall of 1939 I obtained seed of their earliest crab apples from the Indian Head, Saskatchewan Experiment Station, to send to a correspondent in Iceland, hoping to get apple culture, of a sort, started in that northern land in line with their forest replanting. A few of the seeds were shrunken and I planted these here in Heuvelton in flower pots.

Only one of the shrunken seed grew. It was from their pure Siberian crab #625, which was removed soon afterwards. I set the weak seedling out, and four years later it had grown but two feet. The leaves had an apparent spotted mosaic virus from the start. The same spring as it had gotten this size I purchased a tree of the 'Winter Redflesh' crabapple, took a chip bud from the purchased tree, and budded the dwarfed seedling. Two years later the budling was only 22 inches high, but large enough to set out; so I set it out back of the house.

That spring and summer it grew five feet from the top bud, and started bearing when about the usual size. The apples were much larger than those on the original 'Winter Redflesh' tree from which I had taken the bud; being of about the same size and coloring, both inside and out, as the Geneva 'Redford.' The flesh is rather dry with a punky texture and sour taste, but makes acceptable jelly. The sporting portion seems confined to the outside layers, the core portion being of the original greenish-pink color. Seedlings from it are of the same vigor, and seem indistinguishable from the other tree's seedlings. The blooms too, are of similar size and color, but it blooms annually rather than biennially. Unlike the 'Redford' it very seldom plays host to the tent caterpillar.

A sprout arising from the trunk base, above the bud, was chiseled out, moved, and brought into bearing. The apples of this tree are similar to the original sport, indicating that the entire tree, above the bud, is a mutation. Both have the appearance of being a tretraploid. Dr. Hansen reported that the 'Elk River Crab,' one of its parents, was a tretraploid, thus accounting, in part, for the reversion to this condition.

The original sport is now 29 inches in trunk circumference, and the tree I took the bud from is 17 inches. The heights of the two are 29 ft. 6 in. and 19 ft. 8 in., respectively.

From what red mutations that have been tested for virus, it appears that the proportion of infected clones is much larger than with the original types; so it seems probable that the virus infection was responsible for many of these mutations.

I have found this to be true with seedling potatoes. Many, which have male fertile pollen, become sterile after the first serious brush with leafroll. Occasionally the variety becomes improved so that one wonders whether he has the same kind, but the change is usually of a deleterious nature.

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