

grows in abundance about the shores of the Baikal Sea and in many parts of Northern Siberia. Young trees were raised from seed of this crab, and, as soon as the specimens were large enough for transplanting, some were sent to Brandon, Man., and others to Indian Head, Sask., and in both places they were found to be entirely hardy. During a trial of about twenty years the Berried Crab has never been injured by winter and the trees have started from the terminal buds on the branches every season. These trees have fruited abundantly for many years, but the fruit of most of them is small—not much larger than a cherry—and is also astringent and acid and in some cases bitter. The fruit of *Pyrus baccata* makes excellent jelly, however, and hence, in its improved form, has been found useful. It is also highly ornamental in the spring, when in blossom, or when adorned with fruit in the autumn. The trees are rather dwarf in habit, low-branched and strongly built, with the fruit firmly attached to the tree. From its general habit of growth, it is well adapted to resist the high winds to which trees are often exposed on the northwestern provinces.

Commencement of the Work of Cross-Breeding.

After four or five years' experience had thoroughly established the character of the berried crab for extreme hardiness, efforts were made to improve the size and quality of the fruit by cross-fertilizing the flowers of *Pyrus baccata* with pollen from many of the hardiest and best sorts of apples grown in Ontario. This work was begun in 1894, and has since been continued along several different lines. The seeds obtained from the first crosses were sown in the autumn of that year and germinated in the following spring, producing, in all, about 160 young trees. These were planted in the spring of 1896, when many grew rapidly and soon made shapely specimens. These, and other young trees, resulting from similar subsequent experiments, have been planted from year to year in orchards at Ottawa, Brandon, Indian Head and other Northwestern stations. In 1897 thirty-six of the cross-bred apples first produced and grown at Ottawa fruited, and five of them were of such size and quality as to justify their being propagated for more general test. The fact that so many of these fruited on the fourth year from the sowing of the seed indicates a very early fruit-bearing habit. Since then several hundred more of these cross-bred apples have borne fruit, and the number of varieties worthy of extended cultivation has been considerably increased. Root-grafts of some of the more promising sorts were early made and these have been tested for eight or ten years past at each of the northwestern farms and have shown very slight inclination towards tenderness, even when planted in exposed situations. The cross-bred sorts grafted on roots of seedlings of *Pyrus baccata* have produced trees which, so far as they have been tried, seem to be quite as hardy as the wild form of *baccata*. There seems every reason to expect that they will prove generally hardy throughout the northwestern country.

"In all cases of crosses mentioned in this bulletin the first parent named is the female, the second the male.

"Experiments with 'Pyrus prunifolia' and 'Pyrus Malus.'"

"In 1896 a series of crosses was begun on another sort of wild crab, known as *Pyrus prunifolia*. This is regarded by some botanists as a distinct species; others believe it to be a hybrid between *P. Malus*, the wild crab of Europe, and *P. baccata*. Seeds of this form were also obtained from the Royal Botanic Gardens, St. Petersburg, Russia. The fruit of *P. prunifolia* is usually larger than that of *baccata*, and will average nearly twice the size. Its hardiness in the Northwest has also been established by a test covering a number of years on both of the experimental farms at Brandon and Indian Head. The first crosses with this species were made in 1896, and since then many new sorts have thus been originated.

"Another line of work in producing new apples was begun in 1902, in crossing *Pyrus Malus*, the wild apple of Europe, with some of the best Canadian sorts. T