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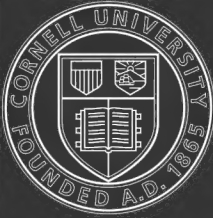
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Orcharding in northern Vermont. An essay.



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ORCHARDING

IN

NORTHERN VERMONT.

AN ESSAY

BY

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Board of Agriculture.

NEWPORT, VT:

PRINTED AT THE "VERMONT FARMER" STEAM JOB PRINTING HOUSE,

BY CUMMINGS & WEBSTER.

ORCHARDING.

AN ESSAY READ BY Z. E. JAMESON, MEMBER OF THE VERMONT STATE BOARD OF AGRICULTURE, AT ITS MEETING AT MIDDLEBURY, FEB. 8, 1872.

THE OLD ORCHARDS.

I do not propose to mourn over the past. Apples were once in abundance, and apples and cider were a part of the winter stores of nearly every provident farmer. Now, there remain in all parts of the State the ruins of old orchards that have been planted on all kinds of soil, in various exposures and inclinations of land, and that have been treated to different methods of cultivation, as well as those that have suffered from total neglect. Seedling trees have died and grafted trees have died, and where once were orchards of five, ten, or fifteen acres, there now remain only a few scattering trees yielding but a meagre harvest at the annual shaking and beating.

Most of the old orchards were seedling trees. We are inclined to think that whoever sowed apple seeds on newly cleared lands soon had an abundance of thrifty trees, and the work of transplanting was the principal cost of the orchards. But many farms changed owners, and the orchards came to those who regarded them as so much real estate—as permanent property—and gave them no more care than they would give forest trees. No new trees were kept on hand or purchased to replace those that decayed, so the orchard grew old and passed away as the human race would pass away if no children grew up to fill vacant places or occupy new ones.

Apple trees have their old age, as one writer states, (*Country Gentleman*, 1872, p. 6.) "It is rare that apple trees live much over sixty years in the best fruit regions of the Eastern and Middle States, and rarely over forty at the West, and when they have thus fulfilled their destiny they may be discharged and new ones brought on." Some die by accident, some starve to death in barren soil, and some die by the inevitable weakness and decay of age.

In 1849 Chauncey Goodrich, of Burlington, wrote: "The most important question in

fruit culture in Northern New England is, What is to be done with old orchards?" and further states that the orchards that were thrifty and vigorous and heavily loaded with fruit forty years before, were at that time scrubby, worthless trees, filled with decaying limbs and sprouts, and gradually dying. He also quoted the method of dealing which was made public in 1791, a method so meritorious that the British government paid the originator \$20,000 for the secret of his process. Now if in generations past old trees demanded care and would die, we must conclude that among such a changing, speculative population as is in Vermont, the trees did not get proper and systematic care, and died more rapidly, until our land is now almost as free from good orchards as the world was free of people when Noah embarked from his first and last voyage.

HOW TO GET NEW ORCHARDS.

During the twenty-three years since Mr. Goodrich wrote, the question has changed so that to-day we are not to consider so much what we shall do with old orchards, as where we shall get new ones.

In solving this question, let me tell you what a man has done who depended upon himself.

MR. DONEGAN'S ORCHARD.

Dec. 12, 1871, I visited the owner of the best orchard in Orleans County, Owen Donegan, Esq., of Troy. Twenty-seven years ago he sowed the seed. The small trees were grafted or budded with hardy varieties. Some of them were transplanted several times before they were set in the orchard, each time giving them more room until they were ten years old, when they were set in the orchard at the distance of 26 by 29 feet apart, at which distance Mr. Donegan expects their branches to meet in twenty years. He prefers to transplant several times, as it causes more small roots near the tree, and a tree properly raised can be transplanted when it is an inch or a little more in diameter as safely as at a smaller size.

In setting out a tree he digs a wide hole with a hoe (using no spade) about eight inches deep. He cuts off the tap-root of the tree every time, and places the side roots out hor-

izontally, fills in among them some fine surface soil, and hoes some earth over them. Then he puts three large stones around the base of the tree. These stones settle the earth around the roots and keep the soil more moist and warm, and keep the tree in place, so that no stake is needed to steady it in the wind. When the ground is hoed the stones are removed, but are replaced again when the hoeing is finished.

There are about five hundred trees in this orchard that bear fruit, and many small ones, and the intention is to set out two hundred each year until the whole number is twelve hundred. Then a few spare trees will be kept to fill the places of those that die.

In pruning, Mr. Donegan cuts down half the year's growth in the center of the top, and those cross branches that will be likely to touch each other in their growth. The side branches are allowed to extend themselves as far as they please. When loaded with fruit they bend down, almost or quite touching the ground. This facilitates the picking, which is done by hand. It is not easy to hire help that will exercise proper care in handling apples, therefore Mrs. Donegan is much depended upon. She told me she worked six weeks in the fall of 1871, picking apples. Early in September they commenced picking the Bon Sweet, a beautiful, luscious apple of large size and so tender that unless they were grasped by the whole hand in picking the prints of the fingers would soon be seen on its delicate surface as a bruise.

All the apples must be as carefully handled as eggs. They are laid in a basket, then picked from the basket and laid into the barrel, which is carefully filled so full that when the head is put in the apples must be pressed down an inch or so. This keeps them from moving and bruising in transportation. Mr. Donegan values his reputation highly, and insists that none but perfect apples be put into the barrels. Early one morning, while in haste to head up his full barrels to take to Newport, he saw two inferior apples on the top of one barrel, and nothing would satisfy him but the removal of all the apples to assure himself that his help had not carelessly

put in imperfect fruit, but he found every one perfect except those two.

This year the Bon Sweet were sold at five dollars a barrel, and his other varieties at six. These varieties are the Brown Sweet, Fameuse, Blue Pearmain, Northern Spy, Jewett's Red, (or Nodhead,) and Yellow Bell. He has also a few of other kinds.

His abundant crop brought him this year \$800, and he experienced no difficulty in disposing of all he could spare, and, indeed, was so importuned that his reserved supply for home consumption is less than he desires. Two years ago the product of his orchard sold for \$650.00, and for several years the crop has been abundant.

Three years ago a part of his orchard was injured by mice. He said, "I would not have had it done for a thousand dollars." I said, "You seem to value your orchard." He answered, "I would not take four thousand dollars for it, if a man offered me the money to-day. It pays me the interest of \$7,000." Mrs. Donegan said, "Some folks think we are getting money very easily, but they don't remember that for the first twelve years it was all care and work with no pay. If I missed Mr. Donegan any time between sunset and nine o'clock at night, I was sure to find him in the orchard."

The bark lice have been an injury to some trees. To destroy them a wash was made of water in which potatoes had been boiled, and lime and soap, making both a whitewash and soap suds. This was applied after scraping the trees, spring and fall.

The method of cultivation practiced here was to manure and cultivate the ground for two or three years, while the trees were small, then seed to grass and mow four years, then plow and till two years, raising potatoes for a first crop and wheat or oats for the second; then re-seed to grass and mow four years again. The result is that he gets the most fruit the first year he plows, and the best growth in the tree the year after it is seeded to grass.

The sap suckers or woodpeckers have been an injury to the Blue Pearmain trees whose tender bark is easily pierced and seems to suit them. More than twenty birds have been shot the past year. The wounds from

fine shot are not so much dreaded as the work of the bird.

The land is on a hill of moderate height; the inclination is in part toward the south and in part to the north-east, but Mr. Donegan would prefer a north-west slant, so that the sun would not start the growth of the trees too early in the spring. The soil I judge formerly supported a hard wood growth of maple, beech and birch. I am told that a ledge underlies the orchard at a depth of about two feet.

I have now given most of the facts that have come to my knowledge in regard to this remarkable orchard of choice fruit. This success has not been by chance, but by intelligent, persevering care. There is no doubt that many other farms are as favorably situated for fruit raising, and that similar care would produce like success.

UNSUCCESSFUL ORCHARDING.

In renovating old orchards in Orleans County several attempts have been made by former citizens of the western part of the State, by bringing scions from near their old homes, of very choice kinds. These grafts have usually grown very well the first season and frozen to death the first winter.

In planting new orchards the inhabitants of Vermont have bought freely of standard trees from nurseries in New York. Many of the trees arrived in poor condition and nearly all died. About eight years ago dwarf apple trees were sold very extensively in several counties, but some kind Providence prevented the agents from dealing in Orleans County. This was probably the most disastrous investment ever made by many farmers. The trees were in many cases set in gardens, or other nice, fertile land. They very generally died, and those that lived were of but very little profit to their owners. They not only lost their money, time and care, but also their faith in orcharding, which, perhaps, was the greatest injury of all. For the credit of dwarf trees, I should say that a few lots did well.

Dr. McClearn, of Northfield, has some dwarf trees in his garden that have been cut back very closely, manured very highly, and in return bear some very fine fruit. The trees, also, of Wm. H. Loomis, of North-

field, are spoken of as bountifully productive. Very generally these trees are denounced in the most emphatic terms.

NEW YORK GRAFTED TREES.

Within a few years several nurseries have been started in different places in Vermont from New York Stock. The seed is sown and the grafting done in those large nurseries, then this stock planted and grown in Vermont, and the trees sold, when two or three years old, as Vermont trees. At Randolph, Waterbury Center, Northfield and other places this is the case. Indeed, some of the dealers in New York trees locate an imaginary nursery in the town they start from. The trees sold by these dealers are the Siberian crab apple, Transcendent, Hyslop, Soular, Fancy Red, and Yellow; varieties of no special merit except hardiness. They also sell, as crab apples, the Russian varieties, Duchess of Oldenburg, Emperor Alexander, Red and White Astrachan, and Tetofski, and also a few hardy English or standard apples. These trees have been sold only a few years, and have not been fairly tested. A few, however, that were expected to bear a desirable apple only produce a small inferior crab.

TREES FROM SEED.

Some farmers have a few trees growing from seed of their own planting. These trees are apt to be neglected. The lower branches are suffered to grow until of such size that a dry, dead knot is left when they are cut off, which sometimes kills the center of the tree, making it "black hearted."

These side branches often take so much of the strength of the tree that it really has more low lateral growth than upright growth. Then I see them growing closely together in a neglected state, surrounded by grass with branches and roots thickly interlaced. I have also seen such trees transplanted to the orchard row, with so many places where the branches have been cut away that it would be a marvel indeed if they ever became thrifty trees.

It is without doubt true that the common native seedling will not be as hardy, on an average, as trees that are all grafted so that the body and top is entirely of a hardy sort. Then the grafted tree if grown by a careful

nurseryman has every advantage over the chance seedling. Its growth has been in good soil so that it has not been stunted, the small branches have been removed while small and tender, so that the wound soon grew over and made a smooth trunk of white, healthy wood. Then many native trees are slow growers, shy bearers, and after patient waiting produce fruit which is nearly worthless. Nurserymen should have varieties that are strong growers, early and prolific bearers, and producers of fruit of excellent quality.

VERMONT NURSERIES.

There are several nurseries in Vermont that have no connection with those in other states, but contain trees of hardy varieties, the result of painstaking and persevering experiments.

Of this kind is that of Bartlett Bryant, of Derby. About nineteen years ago he began to grow trees at Mack's Hollow, in Stanstead, P. Q. He then removed to Stanstead Plain, and, in 1867, to his present location. He began with the Fancy Red (Siberian or crab) apple; next he found the Queen's Choice crab apple, which has been a favorite until the present time. Then the Montreal Beauty and other crab apples were added to the list, making at the present time a collection of crab apples superior to any other in the world, numbering about thirty kinds.

In making up the present collection of English or standard apples he has tried about nine hundred kinds and has about thirty varieties that prove hardy. Full half of them are not in the catalogue of any other nurseryman in the world, having been propagated from rare old native trees that have a high local reputation. His losses were very great while he was testing those nice and tender varieties that were so popular in southern and western nurseries. It has only been near the present time that his business has been fairly remunerative. Alone and single handed he has solved the problem in regard to orcharding in this climate. His trees go to all soils, to all sorts of exposures or inclinations of land; to good care and total neglect. They satisfy the reasonable expectations of all purchasers.

VARIETIES AND CULTIVATION.

I will now briefly speak of the history of each tree he sells. To obtain seed to sow Mr. Bryant buys the Fancy Red and Yellow and some other Siberian (or crab) apples. These apples are raised by those who have bought trees of him years ago. He pays a dollar a bushel. In the fall of 1870 he bought 250 bushels; in 1871 nearly 300 bushels. These apples are ground up for cider and the pomace sown in the fall. The next summer three or four hundred thousand trees make a growth of from one two feet in height. In the fall all these little twigs are taken up, assorted, counted and packed in the cellar to be grafted in the winter. Some of the smallest are too small for grafting, and are grown another year and budded. In grafting, each variety is kept by itself, and in the spring the stock and scion united are carefully planted in straight rows, five or six inches apart, while the rows are four feet apart, in ground that is well prepared.

The first season they are not trimmed, but are hoed carefully and manured with ashes. Three hundred dollars worth of ashes were used in the nursery in 1871. The second year they are trimmed twice, pains being taken to secure a rapid upward growth. The land is also well tilled. The third year they are tended as carefully, trimmed twice, and the leaves rubbed off upon the lower part of the tree. Also many stakes are used to which the crooked trees are tied to straighten them.

The three-year old trees are large enough to sell, and are perhaps the most profitable to buy. The trees from the nursery are delivered fall and spring. The trees that are old enough to sell are labeled, while they stand in the nursery, with the name of the variety and every care is taken to prevent mixing varieties, and mistakes in filling orders.

PACKING.

The trees are packed for customers in a building 25x75 feet. There are eight tables along the middle, and on each side are small stalls, that will hold an armful of trees. Each variety is put into a stall of that name, and the packers very rapidly gather a bundle such as the customer desires. Straw and

damp moss envelope the roots, and large lots of trees are packed in boxes, or in sacking secured tightly around them. They generally reach their destination in good condition. A package of 300 trees went to California last spring, and were three weeks on the road, but thrived well after being set out. I have several certificates showing the satisfaction of purchasers who have from small trees raised splendid fruit. One gentleman told me at the State Fair that he had 500 of Bryant's trees, and gathered from them fifty barrels of apples, and that he was offered five dollars per barrel for them. Those who buy the trees now expect them to live. The losses from a weakness in the constitution of the tree are very slight, so that agents often warrant the trees when sold in large lots, and have to furnish but few new trees. The general sentiment is that Bryant's trees will grow where any trees will grow, therefore if they die, that soil and that man ought not to be trusted with trees.

CRAB STOCKS.

There are a few inquiries that are often made, and which should be considered in this connection. They are these:

1st. Does grafting on the Siberian crab root make the tree hardier?

2d. Does it make a long lived tree?

3d. Does it dwarf the tree?

4th. Does it injure the quality of a nice variety of apples to grow upon it?

1st, then, does it make the tree hardier?

There is no tree hardier than a crab apple tree. It flourishes in Canada, and grows of such size that as many as thirty bushels of apples have been harvested from a tree. In Vermont I have found several crab trees that apparently came by chance, and some of them bear a fruit of considerable value. Recent travellers in Kansas assure me that there are groves of crab apple trees in that State that are very old—some a foot in diameter—all bear a green sour apple from three-fourths of an inch to two inches in diameter. Scores of years have passed since these trees started from seed sown by natural means; no man's labor aided their propagation. We can then call this a native of the American soil. Although belief is expressed by some that in former times that country was inhab-

ited by an intelligent population who had orchards and grafted upon the crab stock, the good fruit has all passed away, leaving the more hardy crab tree with its symmetrical top and profusion of fruit as the only vegetation that has survived until the present time, as the fruit of their labors. I am told that by burying the apple in the ground a few weeks the bitter and extreme acid taste is taken away and they become quite palatable and of a bright yellow or golden color.

Ben Perley Poore, who wrote of the agriculture of the Indians, (*Agricultural Report*, 1866, p. 499,) says mishimin signifies apple, and old accounts of early voyages "reckon apples among the early native fruits." And unless crab stocks were found it does not appear how the large orchards mentioned by early writers could have been made productive so soon. In 1635 a Mr. Wolcott wrote, "I made 500 hhd. of cider from my own orchard. This was not more than five years after settlement.

While all admit the hardness of this tree, they are not so well agreed that by engrafting the English or standard apple upon the crab root the tree growing therefrom will be hardier than upon a stock grown from a common apple seed.

Some say that the root of the tree does not die, even if the top is killed by untimely freezing or other adverse circumstances. "If a tree die there is hope that it will sprout again," and a succession of tops flourish and pass away from the same root, therefore its hardness is proved. Not so: If the tree stands in a poor barren soil, where grass and weeds make but a stunted growth, it may grow a year or a few years, but there is not enough fertility to cause a continuous growth of healthy wood and luscious fruit. Such barrenness of soil brings disease and decay to the tree. It dies; the root again throws up vigorous sprouts that flourish for a while, then pass away to be again succeeded by other sprouts.

Soil and root bear a relation to each other like a small pasture that can support a calf or yearling, but in which the full sized ox instead of developing into splendid beef would die of starvation. The pasture cannot furnish food for a mature animal of that

kind. It is well known that the fir, spruce or pine will make a vigorous growth where some other vegetation would entirely fail. The roots of some trees can and do adapt themselves to their location, and thrive where a grape vine, pear, or even grass will not grow. The brown and black ash, the cedar, tamarac and black alder will thrive where the soil is full of stagnant water, and is often overflowed. The sugar maple, beech, white and red birch, and pine delight in a dryer soil.

2d. Does this process make a longer lived tree?

There are many evidences that the crab apple root, being more fibrous, occupies the ground more completely, and is more likely than any other to give an even, continuous and vigorous growth to the tree.

Mr. Charles Walling, of Montpelier, says: "About twenty years ago, while grafting some seedling trees for my own use, I grafted one crab apple seedling, and while all the trees upon the common stock are now dead, the one on the crab apple stock has been and is now a vigorous and productive tree.

During the last fifteen years I have grafted many crab apple seedlings for myself and others, and my success has been such that I can confidently recommend it to others. I could not be induced to use any other." This testimony was given in October, 1871.

The experience of Mr. Walling coincides exactly with the result reached by Mr. Bryant in nineteen years experimenting; that *the crab stock must be depended upon for reliable orchards in this climate.*

These facts go far toward proving that the tree thus grown is long lived. The fact cannot be disputed that the old trees from which cider apples are gathered and that furnished seed for common stock, are diseased trees, and the great majority of the common seedlings very early become diseased and black hearted, and therefore short lived, and if this diseased stock is used for grafting, the grafted tree does in most cases become black hearted and worthless. Neither can it be disproved that the crab apples from which Mr. Bryant gets his seed are in nearly every instance from healthy, thrifty trees, and that the crab apple trees are clear, white, healthy

wood, and as the scions are of the last year's growth, they are the most healthy part of the tree. The result is that the young trees of the standard varieties are sound and healthy, and are likely to be long lived and productive.

3d. Does it dwarf the tree to engraft the English or standard apple upon the crab stock?

My impressions are that the crab apple tree grows as rapidly as the common apple tree, therefore, the root that will support the one in so uniformly thrifty growth, will support the other. Then the junction between stock and scion will be harmonious and symmetrical, presenting less contrast in size than is often seen in old orchards where the engrafting has been done in the heads of trees. If the arguments are sound that prove the hardness of this stock, they would have a tendency to prove that a root that occupies the ground so well, and supports a tree until old age in a thrifty, productive condition, cannot dwarf the tree at the same time. And further it would be reasonable to believe that the root that can support so productive a tree as the crab apple, loaded year after year, and often breaking down with its burden of fruit, can and does give *more* than the usual or natural growth to the common apple that seldom or never is so productive.

4th. Is the quality of a nice apple rendered inferior by being grown on this stock to what it would be if grown on common apple stock?

It is often said by men dealing in trees that the crab root injures the quality of the good fruit grown upon it, but I have imagined that this statement was made because it is more difficult and costly to get crab seed to sow. But when they discard the crab seed they use the comon cider apples—the most defective and meanest of the apple crop. If these trees were permitted to bear natural fruit, most of it would be small and of poor quality, as is proved by the many natural orchards in the country; therefore if the crab stock is very objectionable, the common stock must be undesirable, and the whimsical or conscientious nurseryman must get seeds from large mild or sweet apples to ensure the best quality of fruit.

But such painstaking is impracticable and unnecessary. A great amount of evidence can be collected to prove that apples of large varieties grown on Bryant's trees are of large size, even to 15½ inches in circumference, and that sweet apples are sweet every time. The Astrachans are still early fall apples, and the Nodhead, Bethel, Hopkins' Porter, and Derby Seek-no-Further are each true to their character in flavor, size, color, and keeping qualities. Indeed, whenever a case of variation is caused by the stock it excites such surprise that it seems to be mentioned as an exception to a general rule.

Even if it was plainly proved that *very*

rarely a good apple becomes somewhat inferior on this stock, it would still be best to buy and cultivate these trees on account of superior hardiness and productiveness, always bearing in mind that we live in a severe climate, where the choicest fruits cannot be raised, and where other fruits, such as pears and grapes, are doubtful experiments. If apples can now be surely raised, of certain varieties, and by a special method, we should not hesitate to accept the sure, safe and reliable way, even if, in very rare instances, a slight change of flavor be found against the crab stock.

