How Misnamed Trees Have Been Eliminated from Nurseries and Orchards in the Northeast

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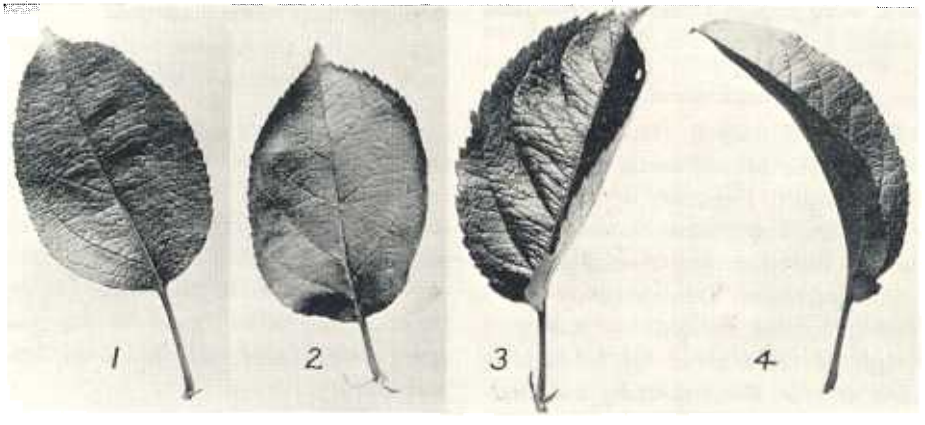
The study of fruit varieties has been an important objective of the American Pomological Society ever since it was founded, particularly in its earlier years. Attention was directed almost entirely to the fruit itself with little thought to vegetative characters other than vigor, form of the tree and other features that might influence the value of the variety for the fruit grower. Characters of the fruit which were of value in identifying varieties were intensively studied but those of the tree were given little or no thought. Now we know that fruit varieties can be recognized by vegetative characters quite as positively as by fruit characters.

The results of this failure to recognize varieties by vegetative characters was seen in the situation which prevailed in nurseries 20 and more years ago. Nurserymen unknowingly introduced trees not true-to-name into their nurseries and, as they commonly cut propagating wood from their two year trees, the mixtures were continued for many years. The fruit grower buying these misnamed trees discovered the error only when the trees began to bear. As the misnamed trees were usually inferior to the desired variety, at least to the particular individual, this caused great loss to the fruit grower.

The story of how this situation has been largely corrected has been often told but a brief summary may be of interest to our readers.

Early Work in Identification

During the years from 1912 to 1920 the writer was carrying on an experiment which involved the propagation of apple trees by budding a known variety on a grafted scion of another known variety. An attempt to keep track of whether the inserted bud grew or if the resulting tree came from a bud on the



Apple leaf characteristics: 1. Cortland, flat; 2. Baldwin, broadly folded; 3. Delicious, slightly folded; 4. York, somewhat folded, reflexed.

scion proved cumbersome and after a year or two was abandoned. It was known that each tree in one nursery row might be either of two varieties and it was soon discovered that it was not very hard to tell which variety it was. Therefore no attention was paid to the question of whether a tree grew from a scion bud or from the inserted bud. In late summer before the trees were to be dug, they were examined and properly labeled. In this way the writer soon came to know some 20 or more apple varieties by the nursery trees.

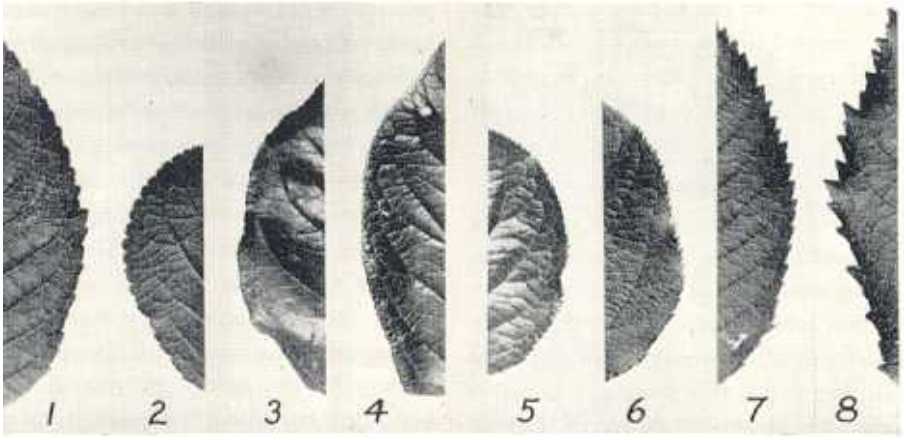
These observations were made during a period when there were many apple orchards being planted in New England and growers were finding that they had planted many trees not true-to-name. They found a lot of Wolf River trees among their McIntosh, an unknown variety among their Gravenstein and another unknown variety among their Baldwin trees. A similar situation prevailed outside of New England among Stayman and Delicious trees when many of them proved to bear Black Twig or Winesap apples. Many other mixed varieties appeared. The proportion was not large but there were enough to disturb both fruit growers and nurserymen.

Tree Certification Started

In 1921, Sydney B. Haskell, then Director of the Massachusetts Experiment Station, called a meeting of representatives of the Experiment Station, Massachusetts Fruit Growers' Association, and the Massachusetts Department of Agriculture. It was decided to establish a system of certification for trueness-to-name of fruit varieties under the direction of the Massachusetts Fruit Growers' Association. This was begun in the fall of 1921 in a Massachusetts Nursery. The trees were examined in the nursery row and a lead seal bearing the name of the variety was attached to the tree by drilling a hole through the tree. Due to the fact that most of the trees planted in Massachusetts came from other states, this practice was extended to a New York nursery in 1922 and during the next few years to other nurseries in the Northeast. There was some complaint that the insertion of the lead seal injured the trees and a paper label was used for a few years.

During this time attention was directed to selecting trees true-to-name for certification and sealing. The misnamed trees were left in the nursery and too often served as a source of bud sticks, thus continuing the mixture. After much urging by the writer the practice of examining all the trees in the nursery during the first year of growth was established. Misnamed trees were destroyed or, when the variety name was known, were properly labeled. Thus the mixtures were gradually eliminated from the nursery row and the present practice of examining for trueness-to-name developed.

At first only apple varieties were given attention. It was soon found that other tree fruits could be identified by nursery trees, and cherry, pear, plum and peach varieties were included. Small fruit varieties can also be identified but, as they are not often found in the nurseries visited, little work has been done with them.



Leaf margins, characteristics used in identifying varieties of fruit trees: 1. Coarse-crenate (rounded toothed), Giant cherry; 2. Crenate, American Mirabelle cherry; 3. Fine, double-crenate, Abundance plum; 4. Very fine double-crenate, Burbank plum; 5. Fine, dull-serrate (saw-toothed), Monarch plum; 6. Fine-serrate, Rhode Island Greening apple; 7. Serrate, Napoleon cherry; 8. Coarsely serrate, irregular, Governor Wood cherry.

Peach Identification Difficult

Peach varieties present a difficult problem. It is quite as difficult to be sure of varieties by study of the nursery trees as it is by the fruit, perhaps more so as we cannot know the season of ripening. Yet we feel that most mixtures and mis-named trees can be detected in the nursery row and we have eliminated many thousand mis-named peach trees from nurseries in the past few years. Still we think it wise to qualify our statement that a nurseryman's peach varieties are true-to-name. We cannot be as sure about it as we can with other tree fruits.

All or nearly all varieties of apple, pear, plum and cherry varieties originating from a seeding can be identified and named by the nursery trees. Varieties originating as "bud sports" cannot be so recognized. The nursery trees of Delicious, Starking, Richared and Shotwell have no distinguishing characters. Gano and Black Ben look just like Ben Davis, and Gallia does not differ from Rome Beauty.

The Van Buren Red Duchess has been thought to be a bud sport of Oldenburg. Van Buren and Oldenburg are not alike. It has recently been found that the original tree on which the Van Buren limb appeared is not Oldenburg but some other variety. Nursery trees grown from buds from the original part of the tree and from the sporting limb look exactly alike but trees known to be Oldenburg are different.

With some exceptions, such as these, all named varieties of apples can be identified in the nursery by any one who has given the time and study necessary to learn and remember what each variety looks like. It takes three years or more for a man to become reasonably competent in recognizing varieties. But there is always something more to learn

no matter how much time a man may have devoted to the study of varieties in the nursery. New ones are constantly appearing and one must learn to know them.

Inspection Service

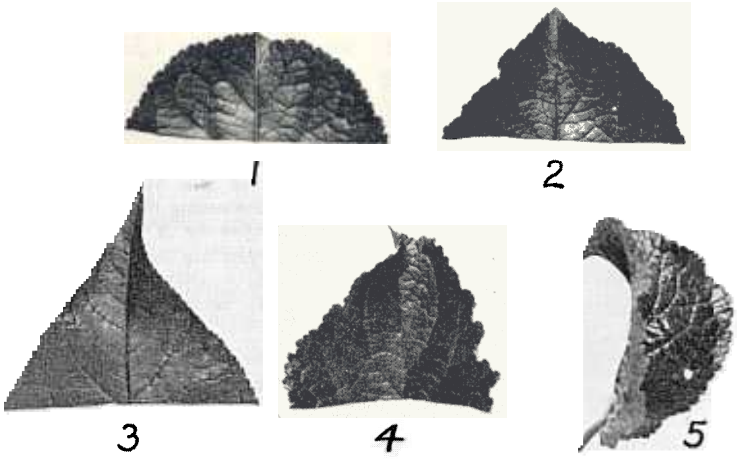
The work of inspecting nurseries for trueness-to-name is now carried on by the Massachusetts Trueness-to-name Inspection Service, sponsored by the Massachusetts Fruit Growers' Association. The men composing this service, besides the writer, are at present Arthur P. French, Oliver C. Roberts, Lawrence Southwick, Walter D. Weeks and Wilbur H. Thies. All except Mr. Southwick are members of the staff of the Massachusetts State College and he is a former member. Any nurseryman growing tree fruit nursery stock may have this service by asking for it. The cost is moderate for we have always considered it more as a public service rather than a means of personal profit. In recent years about 20 nurseries scattered from New England to Michigan and Virginia are visited annually. We have rarely inspected a nursery for the first time without finding several mixtures and often we find varieties under a wrong name. With successive inspections the mixtures are fewer but new ones appear frequently.

It is often urged that nurserymen renew their propagating wood frequently from bearing trees but we have often found this to be the start of a nursery mixture. We believe that it is safer for a nurseryman to cut his propagating wood in his own nursery with which he is familiar, rather than to go into a strange orchard or even to depend on the orchard owner to send him buds true-to-name. Everybody makes mistakes occasionally and no nurseryman can completely avoid mixtures but he can avoid continuing to propagate trees not true-to-name. He does not need to call on the Massachusetts Trueness-to-name Service for most nurserymen have men in their employ who know varieties and could detect the mixtures if they were given the opportunity and time to go over the nursery for this specific purpose. A man will often fail to see a mixture if his atten is directed to pruning or cutting budwood. If he is looking for mixtures he will soon learn to see them.

This work of examining nursery trees for trueness-to-name, carried on for more than 25 years, has resulted in almost complete elimination of misnamed trees in commercial orchards in the Northeastern States. Errors in filling small orders of one or two trees of a variety are still too frequent. It seems that nurserymen exercise less care in filling such orders. Inspection practically eliminates mixtures in the nursery row and they are not continued as they formerly were. But it can do nothing to prevent mixtures after the trees are dug. This still rests on the care and integrity of the nurseryman.

Characters Used in Identification

Any adequate discussion of the characters depended on in identifying varieties in the nursery row would extend this article far beyond the space available. They are fully treated in the bulletins of the Massachusetts Agricultural Experiment Station, a list of which is given at the end of this article.



Plum leaf tips: 1. Monarch, mucronate; 2. Yellow Gage, acute; 3. Monitor, acuminate; 4. Lombard, twisted; 5. Pearl, reflexed. Similar variations in leaf tips are found in other types of fruit trees.

It is frequently said that we identify varieties by the leaves. This is partly true but other characters such as type and vigor of growth, bark color, and the number and appearance of lenticels are of great value.

The leaves of different varieties differ in size, shape, color and type of bending or folding. Each variety has its characteristic surface, some reflect the sunlight and appear shining or glossy, others have a dull surface. The serrations of the leaf edge differ in pattern and sharpness; this is especially valuable. With the stone fruits, plums, cherries and peaches, the glands on the base of the blade or on the petiole are of great value. The glands differ in number, size, shape, position and color.

Susceptibility to diseases such as cedar rust and scab are often helpful. Sometimes a single character serves to identify a variety; a few small, round leaves with coarse dull serrations are peculiar to Winesap. The presence of circular depressions about a half inch in diameter helps a lot in recognizing Oldenburg. The absence of minute hairs on the petiole of the Bing cherry separates it from all other varieties found in eastern nurseries.

It is not difficult to learn to recognize the difference between two varieties when the trees are making good growth. This is particularly true with budded trees where a stray variety is likely to appear in groups corresponding to the buds from a single bud stick. There are certain varieties that resemble each other. A mixture of Black Twig, Stayman and Turley would very likely escape the notice of any but an expert. On the other hand, a group of Jonathan trees among Delicious or Stayman would be obvious to anyone.

Sweet cherry varieties have been terribly confused. Schmidt appears under many different names yet it is one of the more unique varieties. Windsor and Governor Wood have been often mixed, also Lambert and Napoleon. For some unknown reason mixtures in sour cherries are less frequent but Early Richmond is sometimes found among Montmorency. This mixture cannot be well separated until the trees are two years old as the means of identification is largely the appearance of the lenticels near the base of the shoots.

To see a mixture is not usually difficult but to remember what each variety looks like and then give the correct name is something else. More than two hundred varieties of the different tree fruits are met in nurseries and to remember them all is a burden for anyone. Yet our men often make a list of the varieties in a nursery with no stakes or other record, often to the great surprise of the nurseryman.

Bulletins of the Massachusetts Experiment Station Discussing the Identification of Fruit Varieties by Vegetative Characters

Bull. 401. Plant Characters of Cherry Varieties.

Bull. 403. Descriptions of Apple Varieties. (Does not discuss fruit characters.)

Bull. 413. The Identification of Plum Varieties from Nonbearing Trees.

Bull. 418. The Propagation and Identification of Clonal Rootstocks for the Apple.

Bull. 421. The Identification of Pear Varieties from Nonbearing Trees.

Bull. 431. The Identification of Blueberry Varieties by Plant Characters. (In press).

Use Short Names for New Fruits

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In the Code of Nomenclature of the American Pomological Society, Rule 4, on the Form and Spelling of Names, it states as follows:

"4. Names of new varieties shall be of one word preferably, but two words will be accepted. However, names of existing varieties, not in conformity with this rule, but which are well established by usage, shall not be changed in such a way as to lead to confusion or loss of identity."

In view of the emphasis placed upon