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NEWER VARIETIES OF STRAWBERRIES.

O. M. TAYLOR.



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 NEW YORK AGRICULTURAL EXPERIMENT STATION, GENEVA, N. Y.

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*Connected with Grape Culture Investigations. †On leave.

NEWER VARIETIES OF STRAWBERRIES.

O. M. TAYLOR.

INTRODUCTION.

This report on strawberries sets forth the results of the tests of the introductions since the issue of Bulletin No. 401. The sixty-one varieties described do not include all that were grown. The standard commercial kinds have fruited each year and have been used as a basis of comparison. Cultural directions are omitted, as this subject is treated in detail in Circular No. 31. All varieties were grown in matted rows, and the selection of soil and the methods followed were as uniform as possible.

Source of varieties.—To avoid the possibility of reporting on plants not true to name the stock was obtained directly from the originator or introducer, if possible, and statements were secured from them in regard to the history of the variety. Past experience has shown that under such apparently favorable circumstances, errors occur and at times reports are received which are at variance with previous statements from the same persons. Plants of over fifty of the varieties came from originators or introducers. Definite statements were secured giving one or both parents of thirty-three varieties, while twenty-eight kinds are chance seedlings of unknown parentage.

Station seedlings.—During the past few years this Station has carried on extensive experiments in the breeding of fruits. The strawberry has not been neglected. Thousands of plants have been under observation. A few of these, after fruiting for several years, were considered worthy of more extended trial. In the spring of 1917 plants of eight kinds that had been named were distributed in different parts of the State for testing under varying soil and climatic conditions. It is not expected that they will all do as well elsewhere as on the Station grounds. After a thoro and extensive test, some of these seedlings may continue to make good records and if so several growers located thruout the State should have

plants for sale. This Station has no more plants for distribution of these eight kinds. Full descriptions are included of these seedlings, all of which mature in early or late mid-season.

Plant-makers.—Over-crowding of plants is a common cause of unsatisfactory results. Some kinds like Angola, Frances Willard, Myrtle Murrell, Rewastico and Wildwood produce runners in such numbers that more distance should be given between rows and plants. Other varieties are shy plant-makers and if the ordinary distance is used, the ground is but poorly filled with plants and the yield is low altho the yield per plant may be high. The following twelve kinds have a tendency to produce comparatively few plants:

SHY PLANT PRODUCERS.

Addison	Benancie	<i>Minnesota No. 1017</i>
Advance	Friendship	Richmond
Alvin	Hustler	Standpat
Autumn King	J. B.	Todd

Plant-vigor.—Size of plant and sturdiness are relative terms and are influenced by character of soil, food-supply, temperature and rainfall, as well as by the variety itself. Among the strongest-growing kinds may be named Aurora, Edmund Wilson, Ford, *Morgan No. 21* and Wildwood.

Yield.—An unproductive variety is undesirable. Yield is a variable factor influenced by almost every condition of environment. Yet a variety, when all conditions appear ideal, may yield hundreds of quarts of fruit while some other variety under apparently identical conditions will produce thousands of quarts. During the past two years ample rainfall has prevented the usual reduction in yield by drought, but has caused losses at times by keeping foliage and fruit too wet, so it was impossible to remove the heavy yield in good condition. Seven varieties, Benancie, Joe Crampton, Jopp Favorite, Lady Corneille, Myrtle Murrell, Standpat and *Wittlinger No. 1* were uniformly unproductive, while the following nineteen kinds produced fruit in greatest abundance:

VERY PRODUCTIVE VARIETIES.

<i>Allen No. 1</i>	Eureka	Nellis Triumph
Angola	Ford	<i>Minnesota No. 3</i>
Athens	Friendship	<i>Minnesota No. 1017</i>
Chester	Gibson	Oregon
Collins	<i>Knight No. 1</i>	Rewastico
Eldorado	<i>Morgan No. 21</i>	Richmond
		Wildwood

Health.—Resistance to disease, when combined with other desirable qualities, is greatly to be desired. It is difficult to determine whether freedom from disease is an inherent quality or is due to lack of conditions which favor the spread of such troubles. Varieties may be healthy one season and show much disease a year later. Several years must elapse and the plants be grown under unfavorable conditions to determine their susceptibility to disease. During the period of this test the following ten varieties showed much injury from leaf-spot:

VARIETIES SUSCEPTIBLE TO LEAF-SPOT.

Alaska	Joe Crampton	Standpat
Charles I	McAlpine	Todd
Friendship	Myrtle Murrell	Warren
		Wildwood

Color of foliage.—Few varieties are characteristic in leaf-color. Rich soil and applications of stable manure or of nitrogenous fertilizers tend to produce a dark green color while lack of nitrogen, as well as conditions of poor drainage, is liable to result in lighter color. The color of foliage appeared lightest in Friendship, McAlpine, Marshall Improved and Myrtle Murrell, the darkest color being represented in Ford, La Bon, Rewastico and Warren.

Sex of plants.—The present-day tendency is to give preference to perfect-flowering or staminate varieties, not because they are more productive or the fruit of higher quality but because it is thus unnecessary to provide other varieties to be used as pollenizers. Only twelve kinds described in this bulletin are imperfect-flowering, while nearly fifty varieties have both stamens and pistils. The twelve varieties referred to are as follows:

FLOWERS IMPERFECT OR PISTILLATE.

Addison	Angola	Kellogg Prize
Alden	Frances Willard	<i>Knight No. 1</i>
<i>Allen No. 1</i>	Hustler	<i>Morgan No. 21</i>
Alvin	J. B.	Todd

Season of bloom.—Blooming-periods of varieties usually receive little if any attention. It is useless, however, in localities subject to late frosts to attempt to use the varieties that bloom too early. Among the very earliest-blooming sorts are: Alvin, Campbell, Eureka and Wide-awake; sixteen other varieties bloomed early;

four varieties, Autumn King, Hustler, Jopp Favorite and Todd opened their flowers late and the latest of all were Ford and Pearl.

Fruit-stems.— Consideration of fruit-stems might seem at first of no importance, yet their length, thickness and position, have a bearing on the condition of the fruit at harvest time, and the widest variations may be found among the varieties. Conditions of growth, however, may modify the fruit-stems so that these characters are not entirely constant but vary somewhat with the season. Alaska, Alvin, Collins, Ford and *Morgan No. 21* produced very long fruit-stems while those of Charles I, Minnetonka, Premier and Standpat were very short; fruit-stems of Frances Willard, Pearl, Rewastico and Todd were very thick; those of Advance, Autumn King, Collins, Joe Crampton, McAlpine, Myrtle Murrell, Oregon, Standpat, Wide-awake and Wildwood were slender; nineteen varieties produced erect fruit-stems and twenty-three varieties semi-erect to prostrate.

Calyx-characters.— There are usually marked variations in size, position and color of the calyx among varieties, altho some kinds are quite variable in the berries of the same variety. Edmund Wilson, Ford and *Morgan No. 21* developed a calyx of largest size; varieties with a small calyx are represented by Alvin, Argyle, Ashton, Autumn King, Charles I, Eldorado, Standpat and Wide-awake. The position of the calyx is variable; sometimes it is perched on a distinct neck, at other times attached directly to the flat base of the berry, and in some varieties it is sunken deeply in the surface. The calyx of thirty-two varieties was more or less raised, while at least twelve kinds were characterized by the sunken calyx. Attractive appearance of calyx is desirable but here again there are variations, some being uniformly bright, attractive green, others dull, dingy green and at times disease destroys the naturally handsome color. Eleven varieties were noted for the dull, unattractive color of calyx.

Position of seeds.— The position of the seeds in relation to the surface of the berry is usually of but little concern to the strawberry grower, yet it is a character that should not be altogether ignored. They may be characteristically raised above the surface as in the case of Advance and of twenty-four other varieties or the seeds may be deeply sunken in the fleshy surface, as in the case of nineteen kinds. Raised seeds protect the surface from being bruised

and such berries usually ship well, altho in some varieties the numerous, raised seeds give an unattractive appearance, especially with the smaller berries.

Season of ripening.—The time of ripening referred to in this bulletin is the June and early July period and has nothing to do with the "fall-bearing" season, although several varieties are described which characteristically produce their fruit during the fall months. Such varieties were given the same cultural treatment as the other kinds, and this must be borne in mind in interpreting results.

The ripening-season is of great importance. In some localities only the earlier varieties are profitable while in other markets the demand is for late-ripening kinds. In this report the season has been divided into very early, medium early, early mid-season, late mid-season, late and very late. The seasons are overlapping and to make any sort of division, arbitrary dates must be fixed with but scant leeway between the close of one season and the beginning of the next.

VERY EARLY	MEDIUM EARLY	LATE	VERY LATE
Campbell	Advance	Alvin	Abundance
Eureka	Charles I	Autumn King	Ford
Richmond	Eldorado	Hustler	J. B.
	John H. Cook	Kellogg Prize	Joe Crampton
	La Bon	<i>Knight No. 1</i>	Jopp Favorite
	Lady Corneille	McAlpine	Pearl
	Marshall Improved	Rewastico	Todd
	<i>Morgan No. 21</i>		Warren
	Minnesota No. 3		Wildwood
	Oregon		
	Premier		
	Wide-awake		

Size of fruit.—Reasonable size is essential either for home use or for commercial purposes. It is dependent partly on the habit of the variety but is influenced largely by the amount of moisture available at ripening time. Berries may be too large as well as too small. Most varieties are intermediate in size. Addison, Ford, Jopp Favorite, Magic Gem, *Morgan No. 21* and Pearl produced fruit of largest size while at the other extreme were Minnetonka, Myrtle Murrell, Standpat and Wildwood. The following varieties retained good size fairly well thruout the season: Arcade, Argyle, Aurora, Charles I, Collins, Edmund Wilson, Frances Willard, Jopp Favorite, Magic Gem, Nellis Triumph, Oregon, Pearl, Warren. Most kinds dropped rapidly in size after the first two pickings.

Shape of fruit.—Shape of fruit is not usually of much concern in varieties of strawberries. There are a few, however, the fruit of which is often malformed or misshapen. Roundish-conic berries usually look better and pack to better advantage than those long or wedge-shaped. Over thirty of the varieties described were conic or roundish-conic; less than half a dozen were roundish; one, the La Bon, was inclined to be oblate; twenty-five kinds were slightly wedge-shaped; five kinds, *Allen No. 1*, Collins, Eureka, John H. Cook and Jopp Favorite were decidedly wedge-shaped; while the long-conic berries were represented by Alaska, Aurora, Frances Willard, Friendship, Greek, Myrtle Murrell, Premier, Richmond and Woodrow.

Color of fruit.—Undesirable color will disqualify any variety. The appearance must be fairly attractive. The berries may be light red, medium red or dark red yet be bright and glossy, giving a handsome appearance. A dull, dingy or faded color is undesirable whether the prevailing color be light or dark. The fruit of fourteen varieties was light red, about the same number medium red, with over a dozen dark red, the darkest of all being Wide-awake. Twenty varieties were dull.

Color of flesh.—The flesh-color depends on the variety and also to some extent on the stage of ripeness. Many berries with light red flesh, whitish at the center, become darker red thruout when fully mature, making it difficult to distinguish those which are characteristically whitish at the center. This character is noted in the description of varieties. Fifteen varieties produced whitish-centered berries, nearly thirty kinds medium to dark red, and twelve kinds light red.

Juiciness of flesh.—The relative amount of juice in the flesh is quite constant. No amount of external moisture will make up for a natural dryness of texture. A dry berry or one lacking in juiciness will continue to be dry, rain or shine. Ten varieties are characterized as very juicy, over thirty as juicy and more than a dozen are lacking in juiciness or are but medium juicy.

Firmness of berry.—Solidity of texture is of great importance. A soft berry is worthless for shipment to any distance no matter how desirable in size, color or flavor, altho this character is not so important for home use. It, however, is always desirable, for lack of firmness almost always results in a "mussy" condition of the

fruit. Among the varieties under discussion, twenty-seven were rated as firm, fifteen as lacking more or less in firmness and the following ten varieties as very firm:

BERRIES VERY FIRM.

<i>Allen No. 1</i>	Magic Gem	<i>Minnesota No. 1017</i>
Chester	Minnetonka	Pearl
Greek	<i>Morgan No. 21</i>	Wide-awake
		Woodrow

Flavor.—One of the most difficult characters to determine is that of flavor. There is often more or less lack of uniformity in flavor between berries of the same variety, berries ripening in a dry or a wet period, the particular stage of ripeness reached and also a variation in personal likes and dislikes. What is pleasant to one palate may be quite disagreeable to another. There is, however, such a wide variation in flavors among the different varieties that some kind may be found acceptable to almost any palate. Over forty of the varieties may be designated as subacid or slightly sprightly while at the extremes are found seven varieties, Collins, Friendship, Greek, Lady Corneille, *Minnesota No. 1017*, Rewastico and Wide-awake distinctly tart and such varieties as Alaska, Argyle, Chester, Ford, *Knight No. 1*, Myrtle Murrell and *Wittlinger No. 1* among the list of those sweetest. Argyle, Gibson and Magic Gem are among the highest-flavored kinds.

Quality.—The most important rating is that of quality. By quality is meant the sum of all the characters that make the berries desirable to the taste. What varieties may be considered best or poorest in quality? Here again the personal element enters, for standards of judgment differ and what is good in the sight of one person may be moved either forward or backward by some other judge. Three varieties, Argyle, Magic Gem and *Morgan No. 21* were rated very good, over thirty varieties good, eighteen kinds fair and eight varieties distinctly poor.

Promising varieties.—In the determination of what varieties should be recommended for testing, all factors must be considered and each should receive its relative value. It must be remembered that all the varieties fruited on a heavy, cold, clay loam, which is not considered ideal soil for the strawberry. Doubtless on a lighter, warmer soil some of these varieties would have made a better record. All the most promising kinds have their defects as well as their good

points. The following list is therefore only suggestive of those varieties which have made the best showing for one or more years under the local climatic and soil-conditions at this Station. More than half the varieties are in the discard list. The eight seedlings originating at this Station are of course included among those of promise, leaving nine other kinds considered of merit, with eight varieties on the doubtful list, which on account of an unusually fine record along one or more important characters should be further tested despite certain defects.

DESIRABLE VARIETIES.

Addison	Campbell	Joe (Joe Johnson)
Alden	Eldorado	(?) Kellogg Prize
Angola	(?) Eureka	Magic Gem
Arcade	Ford	<i>Morgan No. 21</i>
Argyle	(?) Frances Willard	(?) Minnesota No. 3
Ashton	Gibson	Oregon
Athens	(?) Hustler	Pearl
Aurora	(?) John H. Cook	(?) Warren
		(?) Wide-awake

DESCRIPTION OF VARIETIES.

The following descriptive notes indicate the behavior of the varieties at this Station. The most important characters of plant and fruit have been recorded. The address following the name of each variety gives the source of stock. The history of the variety has been obtained whenever possible from the originator or introducer. Following the description is a paragraph summarizing the comparative value of the variety.

Distribution of varieties.—This Station occasionally distributes seedlings originating here. These are sent only to growers who have opportunity to test them in comparison with other varieties and under such conditions as will make the work profitable to this Station. As a rule, the Station makes its own selection of such growers and there is little need of others to apply. Varieties sent here to be tested are under no circumstances permitted to be sent from the Station grounds.

Abundance.—(H. J. Schild, Ionia, Mich.) A seedling of Indiana originated by H. J. Schild in 1910 and introduced by Flansburgh & Son, Jackson, Mich., and J. T. Lovett, Little Silver, N. J., in 1916.

Plants numerous, of medium vigor, productive, healthy; leaves small, thick, dark green, rugose; flowers perfect, early mid-season, one and one-fourth inches across; petals roundish, six to seven in number; stamens numerous, long; receptacle large,

plump; fruit-stems short, thick, erect, branching; calyx large, much raised, leafy; seeds sunken. Fruit matures very late; intermediate in size, oval to blunt-conic, irregularly furrowed, sometimes wedge-shape, strongly necked, unattractive light red; apex obtuse, indented; flesh light red to the center, medium in juiciness and firmness, sprightly, not high-flavored; quality fair.

Plants somewhat low-growing, with attractive, dark green foliage among which are thickly intermingled the large, showy blooms. A berry not of large size, roughish in general appearance, not attractive in color, characteristically necked, too tart for most palates.

Addison.—(New York Agricultural Experiment Station, Geneva, N. Y.) Flowers of President were fertilized with pollen of Marshall by this Station in 1907; sent out for testing in the spring of 1917.

Plants medium to rather few in number, vigorous, very healthy, productive; leaves large, thick, dark green, rugose; flowers imperfect, open in early mid-season, somewhat small, averaging seven-eighths inch across; petals of medium size, roundish-ovate, six to eight in number; receptacle intermediate in size, roundish to wedge; fruit-stems medium to long, thick, semi-erect to prostrate, branching; calyx rather large, slightly raised, medium green; seeds often variable in position. Fruit matures in mid-season; very large to medium, conic to blunt-wedge, necked, very glossy, attractive medium red; apex obtuse, often indented; flesh red to the center when fully ripe, juicy, medium to firm, mild subacid; good in quality.

Plant-habits unusually good, especially in freedom from leaf-spot; makes more plants than its parent Marshall, yet does not produce runners in abundance; fruit of good size, altho variable, very glossy and usually somewhat necked, very attractive in appearance if not picked too early; greatest defect appears to be the tendency for the surface to bruise unless handled with care; a mild berry of good quality, worthy of trial.

Advance.—(Samuel Cooper, Delevan, N. Y.) A cross between Autumn and Cooper made in 1907 by Mr. Cooper and introduced by him in 1914. An "everbearer."

Plants few, medium in size, vigor and yield, healthy; leaves small, thick, glossy, dark green, smooth; flowers perfect, early, one and one-eighth inches across; petals roundish, five to six in number; stamens variable in number and length; receptacle small; fruit-stems short, slender, semi-erect to prostrate, usually single; calyx of medium size, flat or slightly raised; seeds prominent, much raised. Fruit matures early; medium in size, conic, not furrowed, often slightly necked, glossy, attractive medium red; apex somewhat pointed; flesh medium red thruout, moderately juicy, firm, very mild subacid, not high-flavored; fair in quality.

A poor plant-maker, with fruit characteristic in its glossy, plump surface and raised seeds; one of the best of shippers, attractive in color but disappointing in size and flavor; of the same type as Forward, Onward and Superb.

Alaska.—(T. C. Kevitt, Athenia, N. J.) Resulted from a cross of Climax with Glen Mary by T. C. Kevitt in 1913; not offered to the trade as yet.

Plants numerous, vigorous, medium in yield, injured by leaf-spot; leaves large, thick, dark green, glossy, rugose; flowers perfect, bloom early, one and one-fourth inches across; petals large, roundish, six to eight in number; stamens numerous, long; receptacle large, prominent; fruit-stems very long, medium in thickness, semi-erect to prostrate, branching; calyx large, unattractive in color, somewhat raised; seeds sunken. Fruit matures in mid-season; large to medium, irregular, long-conic to long-wedge, necked, glossy, attractive medium to dark red, often colors unevenly; apex a pointed wedge; flesh rather dark red, variable in color at the center, firm, medium juicy, mild, sweet; fair in quality.

Plants subject to disease, not very productive, producing fruit variable in size, unattractive in shape and color, many berries with a long, whitish or pale-red neck; undesirable.

Alden.—(New York Agricultural Experiment Station, Geneva, N. Y.) A cross between President and Marshall, made by this Station in 1907; introduced for testing in 1917.

Plants medium in number, large, productive, nearly free from leaf-spot; leaves large, thick, dark green, rugose; flowers imperfect, bloom in late mid-season, small, three-fourths inch across; petals small, broadly roundish, usually five in number; receptacle small, conic; fruit-stems long, variable in thickness, prostrate, branching; calyx large, usually flat altho sometimes slightly raised, leafy, with long, broad sepals; seeds variable in position. Fruit matures in mid-season; large, roundish-conic to broad-conic, sometimes slightly necked, variable in color but averaging a bright, glossy, medium red; apex blunt; flesh light red, becoming whitish toward the center, juicy, medium to firm, mild, pleasant flavored; of good quality.

Characters of plant desirable, developing a narrow, matted row, showing a small amount of leaf-spot; fruit of unusually good size, with an attractive calyx, nearly roundish, with a bright, glossy surface which is inclined to bruise easily unless handled with care; flesh somewhat variable in firmness and color, often whitish at the center, pleasant flavored; should be tested further.

Allen No. 1.—(W. F. Allen, Salisbury, Md.) A variety of unknown parentage found by Mr. Earnest Hurley, Salisbury, Md., about 1912, growing and fruiting in the woods near his house. The entire stock was purchased by Mr. Allen; not yet introduced.

Plants numerous, vigorous, healthy, very productive; leaves large, thick, dark green, rugose, glossy; flowers imperfect, bloom in late mid-season, less than one inch across; petals medium in size, often crinkly, roundish-ovate, five to seven in number; receptacle medium in size; fruit-stems long, thick, erect, branching; calyx medium in size, flattened, dull green; seeds sunken. Fruit matures rather late; above medium in size, irregular wedge, furrowed, slightly necked, dull, unattractive dark red; apex blunt, indented; flesh dark red, very firm, juicy, mild, not high-flavored; inferior in quality.

An imperfect-flowering variety with good plant-habits but deficient in color of fruit and lacking in flavor and quality.

Alvin.—(Louis Hubach, Judsonia, Ark.) A seedling, secured by Mr. Hubach by crossing Klondike with Climax in 1908; introduced by him in 1912.

Plants few in number, intermediate in size and vigor, healthy, productive; leaves large, of medium thickness, dark green, smooth; flowers imperfect, bloom very early, one inch across; petals roundish, overlapping, seven to eight in number; receptacle medium in size, conic; fruit-stems very long, of medium thickness, erect, becoming prostrate with the weight of fruit, branching; calyx small, depressed often discolored; seeds sunken. Fruit matures in mid-season; large, dropping in size rapidly as the season advances, wedge to roundish-conic, the largest berries often double, dull, unattractive light red; apex obtuse; flesh variable in color, very juicy, medium in firmness, sprightly, unpleasant flavor; poor in quality.

Characteristic at blooming-time with the long, upright, much-branched blossom-stalks; a light red berry, variable in size, shipping poorly and low in quality.

Angola.—(New York Agricultural Experiment Station, Geneva, N. Y.) In 1907 this Station crossed President with Marshall. One of the resulting seedlings was named Angola and in 1917 plants were sent out for testing.

Plants very numerous, vigorous, healthy, very productive; leaves intermediate in size, thickness and color, somewhat rugose; flowers imperfect, blossom in late mid-season, one inch across; petals of medium size, roundish, five to eight in number; fruit-stems long, thick, prostrate, single; calyx of medium size, flat; seeds somewhat raised. Fruit matures in mid-season; very large to medium, the largest berries with roughish surface, roundish-conic to blunt-wedge, glossy, attractive, medium to light red; apex very obtuse; flesh light red, sometimes whitish toward the center, very juicy, intermediate in firmness, slightly sprightly; good in quality.

An imperfect-flowering variety, producing plants in great numbers; berries among the largest of the Station seedlings, retain size well during the season, unusually attractive in their bright, glossy, red color; must be handled with care to avoid bruising the surface; worthy of test.

Arcade.—(New York Agricultural Experiment Station, Geneva, N. Y.) Flowers of President were fertilized by this Station in 1907 with pollen from Marshall. Among the resulting seedlings, one of promise was named Arcade and was distributed for testing in 1917.

Plants medium in number, vigorous, productive, variable in health; leaves large, thick, medium green, rugose; flowers perfect, open in early mid-season, one and one-fourth inches across; petals large, broadly roundish, six to eight in number; stamens numerous, above medium in length; receptacle intermediate in size, conic; fruit-stems long, thick, semi-erect, branching; calyx medium in size, flat or slightly raised, with long, rather broad sepals; seeds even or slightly raised. Fruit matures in mid-season; large, retains size well during the season, conic to slightly wedge, often necked, attractive, glossy, medium red; apex somewhat pointed; flesh light red, sometimes whitish towards the center, very juicy, rather firm, pleasant flavored, somewhat sprightly; of good quality.

Plants have been under test for several years and have been uniformly healthy except in 1917 when they were injured by leaf-spot; surface firmer and making a better shipper than some of the other seedlings of this Station; worthy of test on account of attractiveness in size, shape, color and desirable flesh-characters.

Argyle.—(New York Agricultural Experiment Station, Geneva, N. Y.) A seedling of President crossed with Marshall, in 1907 by this Station; introduced for testing in 1917.

Plants intermediate in number, vigorous, healthy, productive; leaves of medium size, thick, dark green, glossy, rugose; flowers perfect, bloom in early mid-season, one and one-eighth inches across; petals of medium size, roundish-ovate, five to eight in number; stamens variable in number, short; receptacle medium in size, roundish-conic; fruit-stems medium to long, intermediate in thickness, semi-erect to prostrate, single; calyx small, depressed or flattened; seeds even or slightly raised. Fruit matures in mid-season; above medium to very large, roundish-conic, the largest berries irregularly furrowed, glossy, attractive medium to dark red; apex obtuse; flesh light red, sometimes whitish towards the center, juicy, firm, mild, sweet, high-flavored; very good for a mild berry.

A perfect-flowering, mid-season variety with good plant-habits; berries of largest size, good flavor and quality, ship well, must be picked with care to secure uniform color; worthy of test for a mild berry of high quality.

Ashton.—(New York Agricultural Experiment Station, Geneva, N. Y.) This Station, in 1907 made a cross between President and Marshall. One of the most promising seedlings was named Ashton and was sent out for testing in the spring of 1917.

Plants intermediate in number, vigorous, healthy, productive; leaves large, thick, very glossy, dark green, nearly smooth; flowers perfect, appear in early mid-season, one and three-eighths inches across; petals large, roundish-ovate, five to seven in number; stamens numerous, above medium in length; receptacle of medium size, conic; fruit-stems short to medium, thick, semi-erect to erect, single; calyx small, depressed; seeds prominent, raised. Fruit matures in early mid-season; large, roundish-conic, surface of the largest berries irregularly furrowed, glossy, attractive medium to dark red; apex obtuse; flesh variable in color, juicy, firm, somewhat sprightly; good in quality.

Resembles Argyle closely in size of fruit, color and shape but the calyx is slightly more sunken, the seeds more raised and the flesh more sprightly; on the Station soil, held its own with the best commercial varieties.

Athens.—(New York Agricultural Experiment Station, Geneva, N. Y.) A cross between President and Marshall, made by this Station in 1907; introduced for testing in the spring of 1917.

Plants medium in number, vigorous, usually healthy, very productive; leaves intermediate in size, thick, dark green, rugose; flowers perfect, bloom in early mid-season, one inch across; petals below medium in size, roundish; fruit-stems medium to long, thick, semi-erect, branching; calyx medium in size, variable in position,

with short, broad sepals; seeds usually sunken altho variable. Fruit matures in mid-season; large, dropping in size as the season advances, irregular-wedge to irregular-conic, the largest berries furrowed, usually necked, bright red to darker red depending on stage of maturity, glossy, attractive; apex variable in shape; flesh not uniform in color, very juicy, firm, pleasant flavored, sprightly; good in quality.

Plants very desirable in habit except for an attack during one year of leaf-spot; unusually good in size, somewhat variable in color depending on stage of ripeness; a sprightly berry, pleasant flavored, dropping in size as the season advances; the bright red color is most attractive both in the fresh fruit and in the canned product; should be tested further.

Aurora.—(New York Agricultural Experiment Station, Geneva, N. Y.) A pure seedling of Prolific started in 1907 by this Station and introduced as worthy of test in the spring of 1917.

Plants numerous, very vigorous, somewhat injured by leaf-spot under unfavorable conditions, medium in yield; leaves large, of medium thickness, dark green, nearly smooth; flowers perfect, bloom in late mid-season, one inch across; petals of medium size, broadly ovate, six to eight in number; stamens medium in number, short; receptacle intermediate in size, roundish to wedge; fruit-stems rather short, thick, semi-erect, branching; calyx large, flat, leafy, attractive green; seeds usually sunken. Fruit matures in late mid-season; large, retains size well during the season, symmetrical, long-conic to long-wedge, usually not necked, glossy, attractive medium red, colors evenly; apex pointed; flesh well colored, juicy, firm, agreeably sprightly; good in quality.

Habits of plant desirable except that under unfavorable conditions the foliage may be injured by leaf-spot; the latest blooming of the eight Station seedlings described in this bulletin; a bright red, long-conic berry usually with pointed apex, shipping well; flesh sprightly and of good flavor; should receive a more extended trial.

Autumn King.—(E. W. Townsend, Salisbury, Md.) Secured in 1911 by Mr. Townsend by crossing Autumn with Chesapeake and introduced by him in 1914; an "everbearer."

Plants very few, medium in vigor and yield, healthy; leaves small, thick, dark green, rugose; flowers perfect, small, usually less than one inch across, bloom late; petals roundish, six to seven in number; stamens numerous, short; receptacle of medium size, blunt-conic; fruit-stems short, slender, prostrate, single; calyx small, raised; seeds usually raised, prominent. Fruit matures late; medium in size, conic, sometimes faintly and irregularly furrowed, necked, variable in color, glossy; flesh red thruout, medium juicy, firm, mild subacid, not high flavor; inferior in quality.

Almost no runners developed from the plants. The fruit, as compared with June-fruited varieties was easily surpassed both in size and quality.

Benancie.—(Louis Hubach, Judsonia, Ark.) A cross of H & H with Climax made by Mr. Hubach in 1908; introduced by him in the spring of 1912.

Plants few in number, intermediate in size and vigor, healthy, unproductive; leaves variable in size, thick, medium green, rugose; flowers perfect, bloom early, one and one-eighth inches across; petals roundish, six to eight in number; stamens medium in number; receptacle of average size, roundish; fruit-stems rather short, thick, semi-erect, single; calyx large, flattened, leafy; seeds prominent, raised. Fruit matures in mid-season; medium in size, wedge to blunt-conic, glossy, attractive dark red; apex variable in shape; flesh dark red thruout, juicy, firm, decidedly sprightly; of good quality.

An early-blooming variety producing but few plants which are unproductive; a dark red, tart berry, somewhat seedy in appearance, inferior in size, an unusually good shipper, surpassed in value by other varieties of its season.

Campbell.—(W. B. Kille, Swedesboro, N. J.) A seedling of unknown parentage, originating with James Campbell, Newport, N. J., in 1910; introduced by Mr. Kille in 1916.

Plants medium in number and vigor, healthy, productive; leaves intermediate in size and thickness, dark green, rugose; flowers perfect, open very early, one and

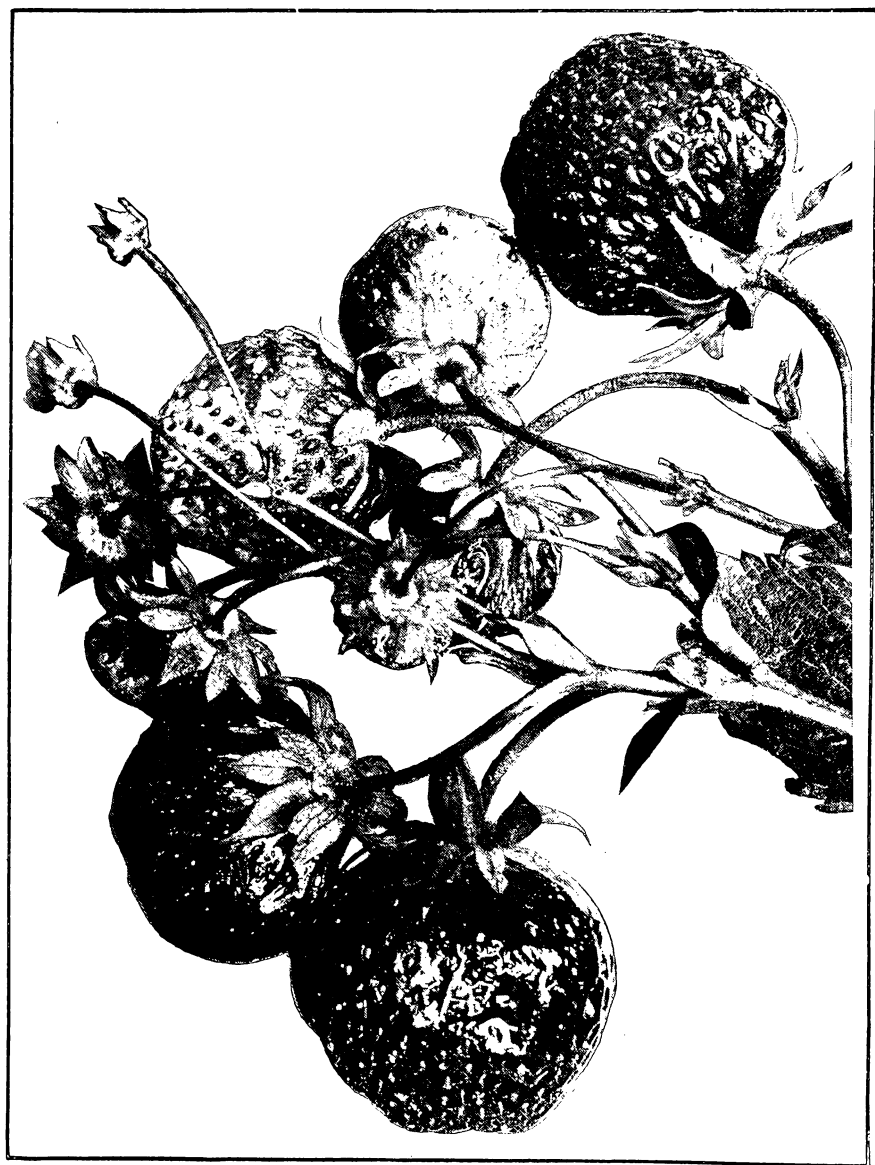


PLATE I.—ADDISON.



PLATE II.—ANGOLA.



PLATE III.—ARCADE.

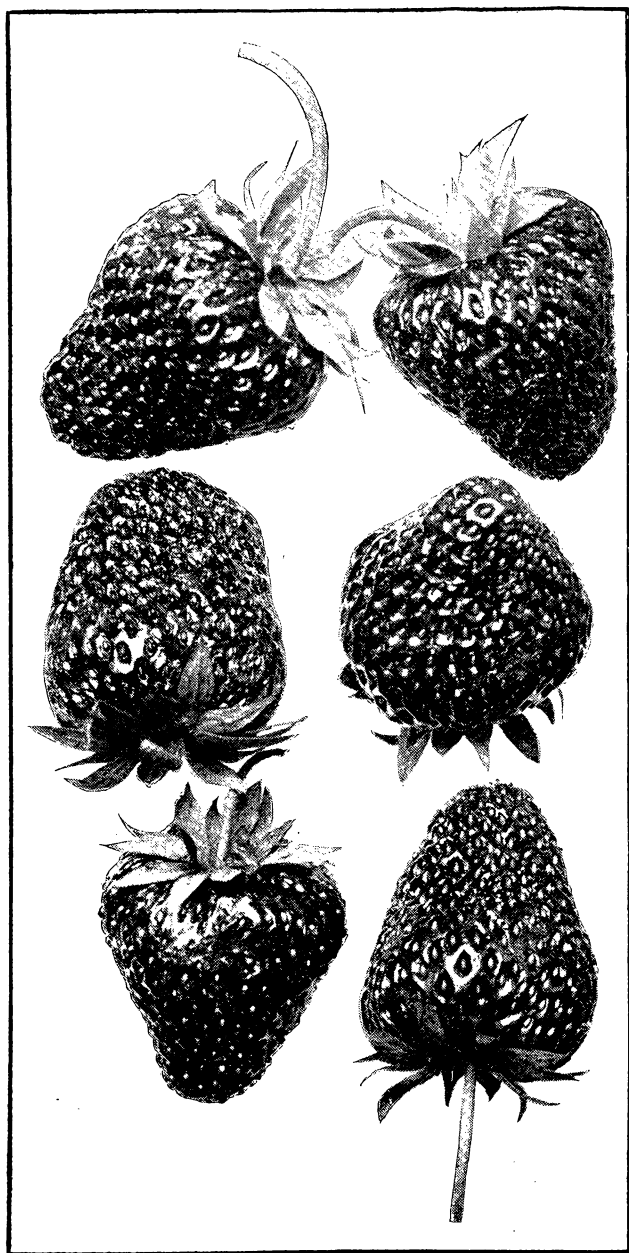


PLATE IV.—AURORA.



PLATE V.—ALDEN.



PLATE VI.—ATHENS.



PLATE VII.—ASHTON.



PLATE VIII.—ARGYLE.



PLATE IX.—FORD.

one-fourth inches across; petals of medium size, six to eight in number; stamens numerous, long; receptacle prominent, roundish; fruit-stems short, thick, prostrate, double; calyx medium in size, flat or slightly raised; seeds sunken. Fruit matures very early; of good size in the first two pickings, later dropping rapidly in size, wedge to conic, the smaller berries slightly necked, variable in color and glossiness; apex a blunt-wedge; flesh light red, variable color at the center, juicy, firm, subacid or pleasantly sprightly; good when fully ripe.

The earliest to ripen in 1917; one of the most productive of the early varieties; plant-habits good; two heavy picks before Dunlap ripens, after which the size is disappointing and color becomes dingy; pleasant flavor and high quality most pronounced in the fully ripe fruit, the lighter berries whitish at the center; flowers open too early in localities subject to frosts, the earliest of the sixty-one varieties described in this bulletin; in spite of its defects, worthy of test on account of earliness and high quality.

Charles I.—(O. A. D. Baldwin, Bridgman, Mich.) A chance seedling found in the woods about 1905 by George Hann, Bridgman, Mich.; introduced by Mr. Baldwin in 1911.

Plants numerous, medium in vigor, severely attacked by leaf-spot, productive; leaves small, thin, medium green, rugose; flowers perfect, early, one inch across; petals medium in size, roundish-oval, five to eight in number; stamens numerous, long; receptacle small; fruit-stems very short, thick, much prostrate; calyx small, flat, dingy green; seeds sunken. Fruit matures medium early; large, retains size well during the season, very blunt-conic, characteristically light red, dull, unattractive; apex much obtuse; flesh whitish toward the center, juicy, lacking in firmness, mild, not high-flavored; inferior in quality.

Plants altho productive are subject to disease; berries of good size and shape but are too soft for a desirable shipper, unattractive in color and lacking in flesh-characters.

Chester.—(W. S. Todd, Greenwood, Del.) A chance seedling of unknown parentage found in a yard in Chester, Pa., in 1912. Plants were sold locally in 1915.

Plants intermediate in number and vigor, healthy, very productive; leaves small, of medium thickness, dark green, rugose, glossy; flowers perfect, bloom in late mid-season, one and one-eighth inches across; petals large, roundish, five to seven in number; stamens numerous, variable in length; receptacle of medium size, roundish-conic to wedge; fruit-stems intermediate in length, thick, erect, branching; calyx large, leafy, flat or depressed, attractive green; seeds raised. Fruit matures in mid-season; large, irregular roundish to almost oblate, much furrowed, medium to dark red, not very attractive; apex indented, green-tipped and seedy; flesh rather dark red, medium juicy, very firm, often hollow at the core, sweet, mild; good in quality.

A very productive, healthy variety, fruit of which is fig-like in type, of desirable size and quality as well as one of the best of shippers but the surface is strongly furrowed and the apex too often mal-formed and seedy to make a pleasing appearance.

Collins.—(C. E. Whitten, Bridgman, Mich.) Thought to be a cross between Beder Wood and Pocomoke, the seed of which was sown in 1910 by C. H. Collins, Bridgman, Mich.; introduced in the spring of 1915 by Mr. Whitten.

Plants numerous, vigorous, nearly free from leaf-spot, very productive; leaves large, thin, dark green, smooth; flowers perfect, appear in late mid-season, one inch or less across; petals small, obovate, five to seven in number; stamens numerous, long; receptacle small; fruit-stems very long, slender, prostrate, single; calyx of medium size, tinged red, strongly raised, with sepals much reflexed; seeds variable in position. Fruit matures in mid-season; large, retains size well during the season, furrowed, wedge-shape, strongly necked, attractive, glossy, medium to light red, coloring somewhat unevenly; apex pointed, often green-tipped; flesh medium red, juicy, firm, almost tart, with an unpleasant flavor; fair in quality.

Plant-habits unusually good, especially in yield; a mid-season variety, a splendid shipper, unusually attractive in size, shape and color but unfortunately on the soil at this Station the flavor is decidedly tart and the quality not of the highest.

Dr. Burrill.—(R. M. Kellogg Co., Three Rivers, Mich.) Blossoms of Crescent were fertilized with pollen from flowers of Dunlap by J. A. Reasoner, Urbana, Ills. One of the resulting seedlings was named Dr. Burrill; introduced by the Kellogg Co. in 1916.

Plants numerous, intermediate in vigor, healthy, productive; leaves of medium size, thickness and color, rugose, glossy; flowers perfect, open in early mid-season, one and one-eighth inches across; petals small, roundish, five to eight in number; stamens medium in number and length; receptacle small, conical; fruit-stems intermediate in length and thickness, semi-erect, branching; calyx of medium size, distinctly raised, with reflexed sepals, attractive green; seeds sunken. Fruit matures in late mid-season; large, regular, conical to slightly wedge, strongly necked, medium to dark red, glossy; apex pointed; flesh medium red thruout, variable in juiciness and flavor, firm, averaging subacid; fair to good in quality.

A perfect-blooming variety of good plant-habits, ripening in late mid-season; berries excellent in size, color and shape, type of Dunlap, but milder and disappointing in both flavor and quality.

Edmund Wilson.—(J. T. Lovett, Little Silver, N. J.) One of Dr. Van Fleet's seedlings of unknown parentage; originated in 1907; introduced by Mr. Lovett in 1913.

Plants numerous, very vigorous, healthy, productive; leaves characteristically large and dark green, medium in thickness, rugose; flowers perfect, bloom early, very large, often nearly two inches across; petals roundish, crinkly, five to eight in number; stamens intermediate in number and length; receptacle large, prominent; fruit-stems rather short, thick, semi-erect to prostrate, single; calyx of largest size, leafy, depressed; seeds usually sunken. Fruit matures in mid-season; large, retains size well to close of season, irregular-conic, broad at the base, variable in glossiness, dark red; apex obtuse; flesh dark red thruout, medium juicy, firm, mild subacid; fair in quality.

Plants characteristic in their large leaves, dark green color and in the pleasing appearance of the unusually large blossoms thickly interspersed among the foliage; altho the fruit is of good size, the color is often dull, the calyx detracts from the appearance and the flesh is inferior in flavor and quality.

Eldorado.—(King Bros. Nursery, Dansville, N. Y.) Plants of this variety were sent to the Station for testing in the spring of 1916 by the King Brothers. Its origin seems to be obscure; said to have been introduced from Kansas.

Plants numerous, vigorous, healthy, very productive; leaves above medium in size and thickness, smooth, very glossy, medium green; flowers semi-perfect to perfect, bloom early, one inch across; petals small, roundish, six to eight in number; stamens medium to numerous, long; receptacle large, prominent; fruit-stems of medium length, variable in thickness, prostrate, branching; calyx small, flat, attractive green; seed variable altho mostly raised. Fruit matures medium early; large, irregular shape varying from roundish to very blunt-conic or wedge, broad at the base, medium to light red, somewhat glossy; apex very obtuse, indented; flesh whitish toward the center, juicy, firm, mild subacid, pleasant flavor; good in quality.

An early-blooming variety of excellent plant-habits, very productive for an early-ripening kind; berries of good size which is retained thruout the season better than the attractiveness of color, milder and sweeter than Dunlap; altho the color is rather dull toward the close of the season, the earlier pickings are much above the average and the variety is therefore considered worthy of further test.

Eureka.—(Louis Hubach, Judsonia, Ark.) Originated in 1910 with Mr. Hubach by crossing one of his unnamed seedlings with Klondike; introduced by him in 1912.

Plants intermediate in number, size and vigor, healthy, very productive; leaves small, thick, medium to dark green, nearly smooth; flowers perfect, bloom very early, one and one-half inches across; petals broad-oval, seven to eight in number; stamens numerous, long; fruit-stems short, thick, erect, branching; receptacle medium in size, blunt; calyx intermediate in size, depressed; seeds sunken. Fruit matures very early;

large to medium, slightly furrowed, wedge-shape, glossy, dark red; apex obtuse; flesh dark red to the center, juicy, firm, often hollow at the core, sprightly; good in quality.

May possibly have value on account of extreme earliness. The berries give indications of considerable value but unfortunately the crop was seriously injured by frost and drought so that the berries showed defects from such causes; requires further testing to determine its value.

Ford.—(E. W. Townsend, Salisbury, Md.) A chance seedling found growing wild by Mr. Granvill Brewington about 1913 in Wicomico County, Md.; introduced by Mr. Townsend in 1916.

Plants numerous, extremely vigorous, healthy, very productive; leaves of largest size, very thick, markedly dark green, rugose; flowers semi-perfect to perfect, bloom very late, one and one-half inches across; petals large, roundish, six to seven in number; stamens variable in number and length; receptacle of medium size; fruit-stems very long, thick, erect, branching into many long pedicels; calyx unusually large, flat, very leafy, attractive green, with long and broad sepals; seeds variable in position. Fruit matures very late; of largest size, regular, blunt-wedge to blunt-conic, attractive, glossy, medium to dark red, coloring somewhat unevenly; apex obtuse; flesh red thruout, unusually juicy, firm, mild, sweet; of good quality.

One of the best of the late varieties. A characteristic variety in its large, dark green leaves, large blossoms, long, erect and branching fruit-stems, size of calyx, as well as in the size and juiciness of the fruit; color somewhat variable yet attractive; surface bruises unless handled with care; retains size well thruout the season; the lateness of bloom is an asset in localities subject to late frosts; worthy of extended trial.

Forward.—(Samuel Cooper, Delevan, N. Y.) A seedling of Autumn crossed with Cooper in 1907 by Mr. Cooper; introduced by him in 1914. An "everbearer." This variety is so similar in both plant- and fruit-habits to Advance that one description will answer for both varieties. See Advance for description.

Frances Willard.—(M. Crawford Company, Cuyahoga Falls, Ohio.) Seeds from an unnamed seedling were sown in 1910 by D. J. Miller, Millersburg, Ohio. One of the resulting plants was named Frances Willard and in 1914 was introduced by the Crawford Company.

Plants very numerous, vigorous, healthy, very productive; leaves unusually large, thick, dark green, rugose; flowers imperfect, open in mid-season, one inch across; petals broad-oval, five to seven in number; receptacle large, conic; fruit-stems rather long, very thick, semi-erect to prostrate, usually single; calyx medium to large, strongly raised; seeds variable in position. Fruit matures in late mid-season; large, retains size well during the season, long-conic to long-wedge, much necked, medium attractive, slightly glossy, rather light red; apex pointed; flesh light red to the center, medium juicy, firm, mild subacid; fair to probably good.

Plant-habits unusually good; fruit characterized by being strongly necked, long shape, excellent size, attractive externally but unfortunately the flesh-characters are disappointing; not very juicy, very mild, not high flavor; would make a good show berry — but would compare unfavorably with high-quality berries such as Marshall.

Friendship.—(J. F. Nickerson, Chatham, Mass.) Said to be a seedling of the Corsican found by Mr. Nickerson; not yet introduced.

Plants rather few, intermediate in vigor, injured by leaf-spot, very productive; leaves large, thin, light green, nearly smooth; flowers perfect, one inch or less across, open in early mid-season; petals very small, often greenish-white, broadly roundish, seven to nine in number; stamens numerous, long; fruit-stems short, thick, prostrate, single; receptacle large, roundish; calyx of medium size, raised, with long and narrow sepals; seeds slightly sunken. Fruit matures in mid-season; variable in size, long-wedge to long-conic, strongly necked, medium to light red, dull; apex pointed, flesh medium red to the center, juicy, moderately firm, tart, not pleasant flavor; poor in quality.

Altho very productive, the plants appear subject to disease and the fruit is disappointing in size and flesh-characters.

Gibson.— (David Knight & Son, Sawyer, Mich.) Thought by some to have come from Berrien County, Mich., but the origin and parentage appears to be obscure; catalogued in 1911 by Knight & Son. This variety is said to be distinct from the Gibson of New York. It is considered by some very similar to Parson Beauty and Pocomoke.

Plants rather numerous, of medium vigor, with but a trace of leaf-spot, very productive; leaves intermediate in size and thickness, dark green, slightly rugose; flowers perfect, large, nearly one and one-half inches across, crinkly, bloom early; petals large, broadly roundish, seven to nine in number; stamens numerous, long; fruit-stems of medium length, thick, semi-erect, single; receptacle large, roundish; calyx rather large, raised, leafy; seeds slightly sunken. Fruit matures in mid-season; above medium in size, blunt-wedge to conic, necked, attractive medium to light red; apex often pointed; flesh light red, juicy, firm, pleasantly sprightly, high-flavored; of good quality.

Plant-habits unusually good; a mid-season variety, with fruit of good color and fairly good size, a fine shipper, pleasing in its sprightliness, altho at the last it loses somewhat both in color and size; worthy of test for a commercial berry.

Greek.— (L. J. Farmer, Pulaski, N. Y.) Said to have originated with Sylvester Marshall, Athens, Ohio, in 1912; introduced in the spring of 1916 by Mr. Farmer.

Plants intermediate in number and vigor, healthy, productive; leaves of medium size, thickness and color, rugose; blossoms perfect, appear in early mid-season, one and one-eighth inches across; petals roundish-ovate, five to eight in number; stamens numerous, intermediate in length; receptacle of average size, roundish; fruit-stems above medium in length, semi-erect, branching into long pedicels; calyx large, distinctly raised and with long, reflexed sepals, tinged red; seeds raised. Fruit matures in mid-season; above medium in size, long-conic, almost oblong, strongly necked, attractive, glossy, medium red; apex pointed; flesh red to the center, juicy, very firm, tart or sprightly; fair in quality.

One of the best shippers of all the varieties and of handsome color; shape objectionable, and flesh too tart for most palates.

Hustler.— (W. F. Allen, Salisbury, Md.) A seedling of unknown parentage found in 1910 by R. P. Lovett, Fallsington, Pa.; introduced in the spring of 1915 by Mr. Allen.

Plants very few in number, of medium vigor, healthy, productive if planted closely; leaves medium to large, thin, intermediate in color; flowers imperfect, bloom late, one inch or more in diameter; petals of medium size, roundish, six to seven in number; pistils tinged red; receptacle large, prominent; fruit-stems short, thick, prostrate, branching; calyx large, raised, leafy; seeds raised. Fruit matures in mid-season; large, dropping in size as the season advances, roundish-conic, necked, attractive, medium red; apex very obtuse; flesh red thruout, medium in juiciness and firmness, pleasantly sprightly; good in quality.

An imperfect-flowering, mid-season variety developing but few runners and must be planted closely to secure a large yield; berries altho dropping in size as the season advances, are attractive in color, a good shipper, the raised seeds on the smaller berries detracting somewhat from appearance; distinctly necked; may have value to those who prefer a sprightly berry.

J. B.— (Louis Hubach, Judsonia, Ark.) A cross between Nettie and Aroma originating with Mr. Hubach in 1909; not introduced.

Plants few in number, medium in vigor, healthy, productive; leaves intermediate in size, thick, dark green, rugose; flowers imperfect, bloom early, small, less than one inch across; petals roundish, seven to nine in number; fruit-stems of medium length and thickness, erect, branching; receptacle very large, long-conic; calyx medium in size, flat to raised; seeds variable in position. Fruit matures very late; above medium in size, irregular-wedge to conic, furrowed, usually necked, attractive medium red; apex pointed; flesh red to the center, juicy, medium firm, pleasantly sprightly; good to very good in quality.

A berry of fairly good size, slightly dull in general appearance especially in the later pickings, but with desirable flesh-characters. Not equal to the best varieties of its season.

John H. Cook.—(J. T. Lovett, Little Silver, N. J.) One of Dr. Van Fleet's seedlings of unknown parentage grown by him in 1908; introduced by Mr. Lovett in 1915.

Not enough plants for a satisfactory test. So far as could be determined, the variety is perfect-flowering, blooming in mid-season, maturing its fruit medium early. The small amount of fruit available for test was of large size, attractive, glossy, dark red, wedge-shape, mild, pleasant subacid, and good quality. The variety may possess considerable value but it requires further testing to determine its standing.

Joe Johnson.—(E. W. Townsend, Salisbury, Md.) As fruited at this Station, there appears to be but minor differences if any from the Big Joe or Joe—fully described in previous bulletins as a perfect-flowering, late or late mid-season variety having many qualities to commend it, especially large size of fruit, attractive color and desirable flavor and quality. Reports from other states also indicate that this is the "Joe."

Joe Crampton.—(Daniel Lock, Union Pier, Mich.) Said to have been found in an old patch of berries in Berrien County, Mich., by a Mr. Henry Gersandi and introduced by Mr. Lock in 1912. Its history is obscure. It is said to be grown quite extensively in Michigan for the Chicago market.

Plants below medium in vigor and number, severely injured by leaf-spot, unproductive; leaves variable in size, thick, light to medium green, rugose; flowers perfect, bloom in mid-season, variable in size, often from one to one and one-fourth inches across; petals roundish-oval, six to seven in number; stamens numerous, long; receptacle small, roundish; fruit-stems of medium length, slender, erect, single; calyx intermediate in size, flat to raised; seeds often sunken. Fruit matures very late; variable in size, very irregular, blunt-conic to wedge, sometimes necked, unattractive, somewhat dull, light red; apex variable in shape; flesh light red, whitish toward the center, very juicy, firm, sprightly; good in quality.

Inferior both in plant- and fruit-characters to other varieties of its season.

Jopp Favorite.—(W. S. Todd, Greenwood, Del.) A seedling of unknown parentage, originating with W. H. Jopp, Denton, Md., in 1911; introduced by Mr. Todd in 1916.

Plants numerous, vigorous, healthy, unproductive; leaves large, thick, dark green, rugose, glossy; flowers perfect, appear late, one and one-fourth inches across; petals large, roundish, six to eight in number; stamens numerous, long; receptacle of medium size, roundish-conic; fruit-stems long, intermediate in thickness, erect, branching; calyx of medium size, slightly raised; seeds raised. Fruit matures very late; unusually large, blunt-wedge, necked, dull, unattractive medium to dark red; apex blunt; flesh red thruout, juicy, firm, subacid; fair in quality.

Plant-habits desirable except in yield; a very late variety, with fruit of largest size which is well-retained thruout the season but which is too dull and unattractive in color and not of highest flavor.

Kellogg Prize.—(R. M. Kellogg Co., Three Rivers, Mich.) Said to be a chance seedling found in 1906 close to a brush heap near a field of berries and propagated by R. M. Sears, La Grange, Ill.; introduced in 1913 by the Kellogg Co.

Plants medium or below in number, intermediate in vigor, healthy, productive; leaves of medium size and color, thick, dull, rugose; flowers imperfect, appear in early mid-season, large, often more than one and one-half inches across; petals large, roundish-oval, six to eight in number; receptacle large, prominent; fruit-stems of medium length, thick, prostrate, branching; calyx large, raised, leafy; seeds often raised. Fruit matures late; above medium to large, blunt-conic to blunt-wedge, necked, medium to light red; apex slightly pointed; flesh light red thruout, juicy, firm, sprightly; fair to good in quality.

Plant-habits good; an imperfect-flowering variety, maturing late and shipping well; the later pickings were improvements in both size and color of fruit, the berries at that time making an unusually fine showing.

Knight No. 1.—(David Knight & Son, Sawyer, Mich.) A seedling of unknown parentage originating with Wm. H. Tracy, Gloucester, Ohio, about 1902; listed and described in the Knight catalog of 1916 as "No-Name-As-Yet;" not yet introduced.

Plants numerous, vigorous, healthy, very productive; leaves of medium size, thin, dark green, rugose; flowers imperfect, bloom in late mid-season, small, less than one inch across; petals small, usually five in number, roundish; receptacle small, roundish-conic; fruit-stems long, of medium thickness, semi-erect, branching; calyx intermediate in size, much raised, leafy, attractive green; seeds raised. Fruit matures late; above medium to large, conic to wedge, strongly necked, dull, very light red; apex pointed; flesh light red to the center, juicy, lacks in firmness, hollow at the core, mild, sweet; good in quality.

Fruit too light colored and too soft; surpassed by other varieties of its season.

La Bon.—(H. J. Schild, Ionia, Mich.) A seedling of unknown parentage grown by Mr. Schild in 1909; introduced in 1916 by leading small-fruit nurserymen of various states.

Plants numerous, vigorous, healthy, productive; leaves medium in size, thick, very dark green, smooth, glossy; flowers perfect, bloom in early mid-season, about one inch across; petals small, roundish, five to eight in number; stamens numerous, short; receptacle large, conical; fruit-stems of medium length and thickness, semi-erect, branching; calyx intermediate in size, flat; seeds raised, prominent. Fruit matures medium early; large, irregularly furrowed, oblate to roundish-oblate, glossy, light red, colors unevenly; apex obtuse, indented; flesh light red, becoming whitish toward the center, not juicy, medium in firmness, with hollow core, mild, not high-flavored; fair in quality.

Plant-habits unusually good; the long, dense root-system accounts for the designation "alfalfa-rooted" given by Mr. Sibert. Fruit is characteristic in the flattened shape, furrowed surface, hollow core, apex often broken apart, and the strongly raised seeds. Berries inclined to green tips, of desirable size but unattractive both in shape and color, and lacking in firmness.

Lady Corneille.—(W. F. Allen, Salisbury, Md.) Said to contain a mixture of the blood of Klondike, Bubach, Red Bird and Mary, originating in 1909 with Mrs. T. C. Corneille, Ponchatoula, La.; introduced in 1912 by Lee Lanier of that place.

Plants numerous, vigorous, usually healthy, unproductive; leaves small, thin, medium to dark green, smooth, glossy; flowers perfect, bloom early, one and one-fourth inches across; petals large, roundish-oval; stamens numerous, long; receptacle of medium size; fruit-stems short, thick, semi-erect, branching; calyx large, raised, leafy; seeds slightly raised. Fruit matures medium early; above medium in size, furrowed, wedge to blunt-conic, necked, often dark red; apex slightly pointed; flesh light red, becoming whitish toward the center, juicy, firm, sprightly, almost tart; fair in quality.

Plants unproductive; fruit strongly furrowed, inclined to green tips; the leafy calyx detracts from appearance; a good shipper but not of high flavor or quality.

McAlpine.—(W. F. Allen, Salisbury, Md.) A cross between Glen Mary and Jubach made by Hausmann Bros., Hilton, N. J., in 1909; developed by Louis Becker & Son of that place and in 1915 introduced by Mr. Allen.

Plants numerous, vigorous, injured by leaf-spot, productive; leaves small, thin, rather light green, smooth; flowers perfect, appear in early mid-season, one and one-eighth inches across; petals of medium size, roundish, five to eight in number; stamens numerous, long; receptacle small, roundish; fruit-stems long, slender, erect, single; calyx of medium size, slightly raised; seeds somewhat sunken. Fruit matures late; of large size, furrowed, blunt-wedge to blunt-conic, necked, dull, light red; apex indented, green-tipped; flesh light red, becoming whitish toward the center, very juicy, not firm, mild subacid; fair in quality.

Plant-habits good except in resistance to disease; a late-maturing variety with fruit of good size but inclined to green tips, rather soft for a good shipper, too light red for a very attractive berry, very light at the center, inferior in flavor and quality.

Magic Gem.—(R. M. Kellogg Co., Three Rivers, Mich.) A seedling of unknown parentage developed by Edw. Vance, Twin Falls, Idaho, in 1912; introduced by the Kellogg Co. in 1916.

Plants medium in number and vigor, healthy, productive; leaves rugose; flowers perfect, bloom in late mid-season; stamens medium in number, short; receptacle broad-conic; fruit-stems of medium length, thick, semi-erect, branching; calyx large, slightly raised, leafy, attractive green; seeds variable in position. Fruit matures in late mid-season; very large, dropping somewhat at the close of the season, broad-conic, with a few cockscombs, slightly necked, attractive medium red; apex somewhat pointed; flesh medium red to the center, juicy, very firm, the larger berries with a hollow core, pleasantly sprightly, high-flavored; very good in quality.

Plant-habits unusually good; a perfect-flowering variety blooming and ripening in late mid-season; altho the surface of the largest berries is furrowed and irregular, the general appearance is very attractive and the flesh-characters much above the average especially in quality; worthy of trial either for home use or commercial purposes.

Marshall Improved.—(E. W. Townsend, Salisbury, Md.) The history of this variety is obscure. It is stated in Mr. Townsend's catalog that he purchased this strain of Marshall from an agent canvassing in his territory. Nothing appears to be known regarding its origin.

Plants healthy, medium in number, vigor and productiveness; leaves of average size and thickness, light green, rugose; flowers perfect, large, often one and one-fourth inches across, bloom early; petals crinkly, broad-oval, five to eight in number; stamens numerous, long; receptacle large, roundish; fruit-stems short, thick, erect, branching; calyx large, flat or depressed, discolored; seeds variable in position. Fruit matures early; large to medium, irregularly furrowed, roundish-conic, light red, dull; apex obtuse; flesh light red, becoming whitish toward the center, medium in juiciness and firmness, mild subacid, not high-flavored; fair in quality.

As fruited at this Station the variety is no improvement on the Marshall, ranking decidedly inferior to that well-known variety nor does the fruit show much resemblance either in color or flavor.

Minnesota No. 3.—(Experiment Station, St. Anthony Park, Minn.) Originated by Chas. Haralson in 1909 at the Minnesota Fruit Breeding Farm, Excelsior, Minn. It is a cross between Dunlap and Pokamoke; introduced by the Experiment Station about 1914.

Plants numerous, vigorous, nearly free from leaf-spot, very productive; leaves of medium size, thickness and color, glossy, rugose; flowers perfect, bloom in early mid-season, one inch across; petals of medium size, roundish-ovate, five to seven in number; stamens numerous, medium in length; receptacle conical, rather small; fruit-stems intermediate in length and thickness, nearly prostrate, branching into long, slender pedicels; calyx large, much raised, attractive green, with long, reflexed sepals; seeds slightly sunken. Fruit matures medium early; large to medium, dropping in size as the season advances, conic, the base irregular, strongly necked, attractive, glossy, medium to dark red; apex distinctly pointed, often green-tipped; flesh red thruout, very juicy, firm, pleasantly sprightly; good in quality.

Resembles Dunlap in type, of good color and pleasing flavor; greatest defect appears to be lack of desirable size.

Minnesota No. 1017.—(Experiment Station, St. Anthony Park, Minn.) Originated at the Minnesota Fruit Breeding Farm, Excelsior, Minn., in 1909 by Chas. Haralson. A cross between Dunlap and Progressive. It is said to be one of the most promising everbearing strawberries produced at the Fruit Breeding Farm; introduced by the Experiment Station about 1914; an "everbearer."

Plants few in number, medium in vigor, nearly free from leaf-spot, very productive considering the number of plants; leaves small, thick, dark green, smooth, glossy; flowers perfect, open in early mid-season, one and one-eighth inches across; petals of medium size, roundish; stamens medium in number and length; receptacle roundish; fruit-stems above medium in length, thick, erect, branching; calyx flat, dingy green;

seeds raised. Fruit matures in mid-season; above medium, dropping to small, irregular-conic to blunt-wedge, broad and flat at the base, not very attractive, somewhat dull, medium red; apex obtuse; flesh red thruout, juicy, very firm, with hollow core, sprightly, almost tart; good in quality.

Altho very productive, the greatest defect appears in lack of size, as grown on the heavy clay of this Station.

Minnetonka.—(E. W. Potter, Leslie, Mich.) A seedling of Splendid crossed with Beder Wood in 1904; introduced in 1909.

Plants of medium number, vigor and productiveness, healthy; leaves small, thick, dark green, rugose, glossy; flowers perfect, bloom in early mid-season, one inch across; petals of medium size, roundish, six to seven in number; stamens intermediate both in number and in length; receptacle roundish-conic; fruit-stems very short, thick, prostrate, branching; calyx medium in size, flat; seeds raised. Fruit matures in early mid-season; inferior in size, blunt-wedge to blunt-conic, dull, unattractive medium red; apex somewhat pointed; flesh light red, juicy, very firm, sprightly; fair in quality.

This variety appears to have but little value as fruited on the Station grounds; easily surpassed by other varieties of its season.

Morgan No. 21.—(J. A. Morgan, Scottsville, N. Y.) A chance seedling found by Mr. Morgan in 1911 growing in a fence corner on his farm; not yet introduced.

Plants of but medium number, unusually vigorous and tall, healthy, very productive; leaves of largest size, thick, dark green, rugose; flowers imperfect, bloom in late mid-season, about one inch across, cup-shape and with a large, leafy, calyx; petals roundish, six to eight in number; receptacle medium in size, roundish-conic; fruit-stems very long, thick, erect, branching; calyx very large, depressed or flat, leafy, attractive green; seeds usually raised but variable. Fruit matures medium early to early mid-season; of largest size, dropping rapidly in size as the season advances, the largest berries irregularly furrowed, roundish-conic to blunt-wedge, some berries inclined to almost oblate, dark red, attractive, glossy, colors evenly; apex very obtuse, indented; flesh variable in color, very firm, juicy, somewhat sprightly; very good in quality.

A seedling with merits considerably above the average; plants unusually tall, vigorous and with very large leaves; must be planted with other varieties as the blossoms are imperfect; flowers peculiarly cup-like, with a large, leafy calyx; fruit-stems of longest size yet erect; calyx attractive in color; fruit almost fig-like in texture, one of the best of shippers, often truncate in shape; altho the later berries are not above medium size, they are uniform in general appearance, the smallest ones slightly seedy; quality much above the average run of seedlings; worthy of extended trial.

Myrtle Murrell.—(J. T. Lovett, Little Silver, N. J.) A seedling of Hoffman crossed with Hefin in 1905 by S. S. Murrell, Marion Station, Md.; introduced by Mr. Murrell in 1913.

Plants very numerous, medium in vigor, unproductive, injured by leaf-spot; leaves very small, thin, light green; flowers perfect, bloom early, over one inch across; petals roundish, six to eight in number; stamens very long, numerous; receptacle of medium size, roundish; fruit-stems short, slender, erect, single; calyx of medium size, raised, discolored; seeds raised. Fruit matures in mid-season; inferior in size, long-conic, slightly necked, unattractive, dull, light red; apex pointed; flesh light red, becoming whitish toward the center, juicy, variable in firmness, mild, sweet; good in quality.

Disappointing both in plant and fruit; a rather long, conical, light red berry inferior both in size and color.

Nellis Triumph.—(J. H. Nellis, Paterson, N. J.) A seedling of unknown parentage discovered by Mr. Nellis in 1912; introduced in 1917 by The W. F. Allen Co., Salisbury, Md. and by W. B. Kille, Swedesboro, N. J. It is thought by some to resemble Clyde.

Plants intermediate in number and vigor, healthy, very productive; leaves of medium size, color and thickness; flowers semi-perfect to perfect, open early, one and one-eighth inches across; petals roundish, six to eight in number; stamens numerous;

receptacle roundish-conic, of medium size; fruit-stems variable in length, thick, prostrate, branching freely into long, slender pedicels; calyx flat to slightly depressed; seeds variable in position. Fruit matures in early mid-season; large, retains size well thruout the season, blunt-conic, broad at the base, light red, dull; apex obtuse; flesh light red, very juicy, lacks in firmness, mild subacid; good in quality.

One of the most productive varieties, holding up well both in yield and size of fruit thruout the season; unfortunately the berries are too light and dull in color and bruise easily; of doubtful value in spite of its desirable flavor and quality.

Onward.—(Samuel Cooper, Delevan, N. Y.) A cross between Autumn and Cooper made in 1907 by Mr. Cooper and introduced by him in 1914; an "everbearer."

As grown on the soil at this Station, Onward cannot be distinguished from Advance and the reader is referred to that variety for description.

Oregon.—(Oregon Nursery Co., Orenco, Oregon.) This variety is said to be a cross between Marshall and Jessie made about 1898 by A. F. Hofstadler, Salem, Oregon, first introduced in 1902 as Admiral Dewey, later was changed to Oregon and was recently re-introduced as New Oregon.

Plants numerous, of medium vigor, healthy, very productive; leaves small, intermediate in thickness and color; flowers perfect, appear early, one and three-eighths inches across; petals roundish, seven to nine in number; stamens numerous, short; receptacle large, very blunt, broad at the base; fruit-stems long, slender, erect, single; calyx of medium size, variable in position; seeds slightly raised. Fruit matures early; of large size which is well-retained thruout the season, very irregular in shape, averaging roundish-conic, attractive, glossy, medium to dark red, colors unevenly; apex blunt; flesh red thruout, juicy, firm, pleasantly sprightly; good in quality.

A very productive variety, maturing early; altho somewhat variable both in color and shape, appears worthy of test on account of high quality and pleasing flavor.

Pearl.—(L. J. Farmer, Pulaski, N. Y.) Said to have been originated by J. W. Loomis, Hobart, Indiana; a seedling of Gandy; introduced in 1912 by the originator. Statements are at variance in regard to the history of this variety.

Plants numerous, large, healthy, productive; leaves large, thick, medium green, rugose; flowers perfect, bloom very late, one and one-fourth inches across; petals roundish-oval, six to eight in number; stamens numerous, long; receptacle large, prominent; fruit-stems of medium length, very thick, erect, single; calyx large, flat or slightly raised; seeds raised. Fruit matures very late; very large, retaining size well as the season advances, irregularly furrowed, blunt-conic to wedge, sometimes slightly necked, medium to light red; apex obtuse, indented, not always well-developed; flesh well-colored to the center, juicy, very firm, sprightly; good in quality.

Plant-habits good; the late-blooming flowers are not subject to frost-injury; fruit matures among the very latest varieties, one of the best of shippers, as well as choice in size of berry, attractive in appearance except for a number of berries undeveloped at the apex; worthy of test for a sprightly, late variety of high quality.

Premier.—(R. M. Kellogg Co., Three Rivers, Mich.) A seedling of unknown parentage sent by E. H. Riehl, Alton, Ill., in 1912 to the Kellogg Company; introduced by that company in 1915.

Plants medium in number and vigor, healthy, productive; leaves small, of medium thickness and color, slightly rugose, dull; flowers perfect, season of bloom early, one and one-eighth inches across; petals roundish-oval, six to eight in number; stamens numerous, long; receptacle of medium size, conic; fruit-stems very short, thick, prostrate, branching; calyx large, raised to flat, attractive green; seeds sunken. Fruit matures medium early; above medium to small, long-conic to long-wedge, with furrow running from base to apex on the largest berries, necked, attractive, glossy, medium red; apex pointed; flesh red to the center, juicy, firm, often with a firm core, somewhat sprightly; good in quality.

A fairly good berry in flesh-characters but the shape is against it and the size is too small.

Rewastico.—(W. F. Allen, Salisbury, Md.) Said to be a seedling of unknown parentage originating with Thomas B. Howard of Wicomico County, Md., about 1908; introduced by Mr. Allen in 1913.

Plants produced in great numbers, vigorous, healthy, very productive; leaves of medium size and thickness, very dark green, nearly smooth; flowers perfect, intermediate in season of bloom, one and one-fourth inches across; petals large, roundish, five to seven in number; stamens numerous, long; receptacle of medium size, roundish; fruit-stems long, very thick, erect, single; calyx large to medium, leafy, usually slightly raised, with very broad sepals; seeds sunken. Fruit matures late; large, blunt-wedge to roundish-conic, slightly necked, attractive medium red, somewhat glossy; apex obtuse; flesh usually red thruout, very juicy, firm, tart, not pleasant-flavored; inferior in quality.

Characteristic in the large number of runners produced, making a wide row, and in the pleasing appearance at blooming time, the large, showy blossoms being scattered thickly among the dark green leaves; general appearance attractive in size, color and shape, but too sour for most palates.

Richmond.—(J. T. Lovett, Little Silver, N. J.) A seedling of Lady Thompson originating in 1901 with Mark T. Thompson, Richmond, Va.; introduced in 1903 by Mr. Thompson.

Plants few in number, of medium vigor, healthy, very productive; leaves thick, medium in size and color, rugose; flowers semi-perfect to perfect, bloom early, nearly one and one-fourth inches across; petals roundish, seven to eight in number; stamens numerous, long; receptacle of medium size, conic; fruit-stems intermediate in length and thickness, semi-erect, branching; calyx large, raised, with long, narrow sepals; seeds sunken. Fruit matures in mid-season; above medium to small, oblong-conic, necked, light red, not very glossy; apex pointed; flesh red thruout, juicy, firm, variable in flavor; fair in quality.

Blossoms showy; a light red berry characteristic in its long-conic shape; a good shipper but disappointing in size, shape and flavor.

Standpat.—(C. N. Flansburgh & Son, Jackson, Mich.) A seedling of Dunlap crossed with Pan American by Harlow Rockhill, Conrad, Iowa, in 1906 and introduced in 1914 by Flansburgh & Son. An "everbearer."

Plants very few, inferior in vigor, health and yield; leaves small, of medium thickness and color; flowers perfect, open early, very small, three-fourths inch across; petals of smallest size, five to seven in number; stamens variable in number and length; receptacle large for the size of the blossom, prominent; fruit-stems very short, slender, prostrate, single; calyx small, depressed, discolored; seeds prominent, raised. Fruit matures very early; medium to small, blunt-conic, dull, unattractive, dark red; apex variable in shape; flesh variable in color, juicy, medium in firmness, sub-acid; inferior in flavor; poor in quality.

For some reason both plants and fruit were practically a failure. Possibly might give different results another year or on another type of soil.

Todd.—(W. S. Todd, Greenwood, Del.) A chance seedling found by Mr. Todd in 1909 on his farm near a bed of Sample and Wm. Belt; introduced by Mr. Todd in 1914 as Todd's Late Champion.

Plants few in number, vigorous, injured by leaf-spot, productive; leaves very large, thick, dark green; rugose; flowers imperfect, variable in size, bloom late; petals broad-oval, five to seven in number; fruit-stems short, very thick, erect, branching; receptacle large, roundish-conic; calyx medium in size, flat to slightly raised; seeds sunken. Fruit matures very late; large to medium, wedge to blunt-conic, the larger berries furrowed and occasionally cockscomb in shape, unattractive light red, colors unevenly; apex obtuse; flesh light red, becoming whitish toward the center, medium juicy, lacking in firmness, somewhat sprightly; fair in quality.

Undesirable both in color of surface and flesh; too soft for a good shipper; surpassed by other varieties of its season.

Warren.—(W. F. Allen, Salisbury, Md.) Said to be a chance seedling found by S. H. Warren, Auburndale, Mass., many years ago; introduced by Mr. Allen in 1914.

Plants numerous, of medium vigor, productive, injured by leaf-spot; leaves small, thick, very dark green, rugose; flowers perfect, bloom in mid-season, very large, often more than one and one-half inches across; petals large, broad-oval, six to seven in number; stamens numerous, long; receptacle of medium size, blunt-conic; fruit-stems short, thick, semi-erect to prostrate; calyx intermediate in size, depressed or flattened, leafy, attractive green; seeds raised. Fruit matures very late; large, unusually good in size thruout the season, blunt-conic, glossy, attractive medium red; apex obtuse; flesh red thruout, juicy, firm, sprightly; good in quality.

Requires further testing to determine its value as it possesses some most excellent qualities as well as some undesirable; plant-habits good except in susceptibility to leaf-spot; a very late-ripening variety with fruit of largest size, a good shipper, somewhat variable in color; some berries seedy in appearance; quality above the average.

Wide-awake.—(Louis Hubach, Judsonia, Ark.) A seedling of Aroma originating in 1910 with Mr. Hubach; introduced by him in 1913.

Plants intermediate in number and vigor, nearly free from leaf-spot, productive; leaves of medium size, thickness and color; flowers perfect, open very early, nearly one and one-fourth inches across; petals roundish, seven to eight in number; stamens numerous, long; receptacle large, conic; fruit-stems variable in length, slender, semi-erect, branching; calyx small, depressed or flat, often discolored; seeds raised. Fruit matures in mid-season; large, the surface of the largest berries furrowed, wedge to blunt-conic, unusually glossy, attractive, very dark red; apex obtuse, often green-tipped; flesh dark red to the center, juicy, very firm and meaty, somewhat tart, not high in flavor; inferior in quality.

Plants unusually attractive at blooming time, as the blossoms are conspicuous; one of the most desirable kinds in size and color of fruit, fig-type in its texture, unsurpassed as a shipper; unfortunately the greatest defects are in flavor and quality; possibly on other soil-types or in other seasons this condition would improve and if so, the variety would possess high merit.

Wildwood.—(W. F. Allen, Salisbury, Md.) Found in a bed of "Queen," in 1904 by E. R. Foss, Salem, Iowa; introduced by W. F. Allen, Salisbury, Md., in 1911.

Plants very numerous and vigorous, foliage subject to mildew, very productive; leaves rather small, thin, dark green, slightly rugose; flowers perfect, bloom in early mid-season, variable in size, averaging one inch across; petals of medium size, oval, five to six in number; stamens numerous, long; receptacle small, roundish; fruit-stems long, slender, erect, single; calyx of medium size, raised; seeds slightly raised. Fruit matures very late; medium to small, blunt-conic, strongly necked, very dull, unattractive medium red; apex obtuse; flesh light red thruout, medium juicy, lacking in firmness, mild, aromatic; of fair quality.

Altho the plants are productive and are extremely vigorous, they mildew badly; fruit is decidedly unattractive, dull in color, of small size, a poor shipper; base of berries strongly necked; general appearance resembles a wild strawberry.

The above description is from stock from the introducer, yet the plants may not be true to name for the true Wildwood is said to be early in season and the berries roundish, varying greatly from the fruit just described.

Wittlinger No. 1.—(G. J. Wittlinger, Jr., Clarence Center, N. Y.) A seedling of unknown parentage grown by Mr. Wittlinger, Jr., in 1913; sent to this Station for testing in 1916.

Plants numerous, vigorous, healthy, unproductive; leaves large, of medium thickness, dark green, slightly rugose; flowers perfect, bloom in early mid-season, one and one-eighth inches across; petals small, roundish, six to eight in number; stamens below medium in number; receptacle of medium size, roundish; fruit-stems intermediate in length and thickness, prostrate, branching; calyx medium in size, flat, unattractive green; seeds slightly raised. Fruit matures in early mid-season; above medium in size, blunt-conic, dull, unattractive light red; apex blunt; flesh light red, becoming whitish toward the center, juicy, medium firm, mild, sweet; good in quality.

Altho of fairly good size, the fruit is too light red in color at both surface and center.

Woodrow.—(Wilkins & Co., Salisbury, Md.) The history of the Woodrow appears to be obscure except that it was introduced by Wilkins & Co., the spring of 1915, as "Early Woodrow."

Plants intermediate in number and size, healthy, productive; leaves of medium size and thickness, dark green, rugose, glossy; flowers perfect, open in late mid-season, one and one-eighth inches across; petals roundish-ovate, six to eight in number; stamens intermediate in number, short; receptacle roundish-conic to wedge; fruit-stems long, prostrate, branching; calyx raised, dull green, tinged with red; seeds variable in position. Fruit matures in mid-season; variable in size, long- and flat-wedge to long-conic, furrowed, necked, medium to dark red, often dull; apex somewhat pointed; flesh red to the center, juicy, very firm, often with a firm core, mild, not high-flavored; fair in quality.

Altho the plant-habits are good, the fruit is inferior in uniformity of size, shape and in flesh-characters.