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New York State Agricultural Experiment Station

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NEW OR NOTEWORTHY FRUITS, XI

G. H. HOWE

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

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KENDALL

BULLETIN No. 620

NEW OR NOTEWORTHY FRUITS, XI

G. H. HOWE

PREVIOUS WORK WITH NEW FRUITS

For 50 years this Station has been breeding fruits. In the beginning the work was carried on by a single individual and was confined largely to breeding grapes. Little was known about parents or the inheritance of characters. Varieties then considered good were crossed with the hope of developing offspring of merit. As the years went by, the force of investigators was increased and the work in breeding was broadened to include all hardy fruits. Additional knowledge of breeding methods became available by practise and by following the principles of breeding formulated by plant breeders the world over. The rediscovery in 1900 of Mendel's law, that hereditary characters are usually independent units which are segregated upon crossing regardless of temporary dominance, gave an added stimulus to the Station's breeding program. Moreover, apples of better quality were appearing on the market from other sections of the country. To compete with these it was necessary to produce new and better varieties if New York was to maintain its leadership in fruit growing. So, the work progressed thru the years until now, 50 years later, the breeding of new fruits has become one of the major projects among the varied activities of the Station's work.

Twenty years ago the present Director of the Station, then the Station's horticulturist, conceived the idea of publishing from time to time a series of bulletins describing new fruits. These bulletins were to include fruits bred at the Station which had been disseminated for trial, as well as noteworthy sorts originated elsewhere. It was in Dr. Hedrick's mind to bring to the attention of fruit growers those new fruits which in his judgment deserved trial in all fruit districts as a means of improving the varieties commonly grown for commercial purposes or for the home. Dr. Hedrick said in the first bulletin in the series, published by the Station in 1913, "Without new varieties, fruit-growing would be at a standstill. Old varieties are seldom improved; they are changed only when nature occasionally, very occasionally, substitutes one character for another, as when russet takes the place of red in the Baldwin or of yellow in the

Bartlett. The varieties now grown are far from perfect, there being few, indeed, not more readily characterized by their faults than by their virtues. There is, all can agree, still much to be done in improving fruits—when nature gives us perfect varieties the Millennium will have come in fruit-growing. New varieties should be looked upon, then, as milestones in the march of progress and he who would keep up in the march must become familiar with the milestones."

What was true when these words were written 20 years ago is equally true today. With keen competition under present conditions in every commodity it is perhaps even more necessary now to grow only superior varieties. Only by continued trial can the real merit of new sorts be discovered and the fruit grower who would keep up in the march of progress must be willing to test these new kinds. If they are found worthy he must grow them and gradually discard the age-old varieties with indifferent characters. The progressive nurseryman, too, must propagate and urge the planting only of superior kinds and discard forever such sorts as the abominable Kieffer, the wretchedly poor Grand Duke, and the mediocre Elberta.

A writer once said that if every article in the world became perfect a million years hence, the improvement of fruits would still go on. The Millennium, then, in the improvement of fruits is worth striving for but likely never to be attained as long as the world lasts. It is safe to predict that 50 years hence not a major sort now grown will then be planted as a major kind. So varieties have changed and so they will change to the end of time, but with the difference that the duration of varieties becomes shorter and shorter as plant breeding progresses. How then can fruit growers meet the circumstance of shifting varieties? Not by cutting down profitable bearing orchards, but by planting improved kinds so as to reap the profit of their greater value in new plantations.

It is here that the Experiment Station seeks to help fruit growers and to improve the caliber of the fruit industry. On the Station grounds are grown every hardy fruit that can be obtained from any part of the world to ascertain whether each variety is distinct; the time of blooming, leafing, and fruit ripening; length of time to come into bearing; susceptibility to insects and fungi; whether self-fruitful and in what degree; for what purposes adapted; method of describing varieties so that they may be identified; and how to determine as far as possible the range in adaptability to climate and soil. Besides

fruits, there are several varieties of walnuts and hazelnuts undergoing test. The numbers of fruits and nuts under test in 1932 were as follows:

Apples	514	Red raspberries	78
Pears	192	Black raspberries	24
Cherries	163	Purple raspberries	7
Peaches	269	Blackberries	56
Nectarines	42	Dewberries	8
Apricots	54	Gooseberries	61
Plums	302	Currants	40
Quinces	13	Strawberries	94
Almonds	2	Elderberry	1
Peachmonds	2	Hazelnuts	120
Medlars	2	Black walnuts	8
Grapes	363		

Of distinct species there were:

Malus	77	Corylus	5
Pyrus	49	Castanea	1
Prunus	85	Sambucus	5
Rubus	50	Fragaria	10
Ribes	85	Vitis	17
Juglans	6		

Not less important than the testing of varieties is the work of breeding new varieties. Breeding new fruits is work for a state or philanthropic institution rather than for individuals in business ventures, as the following figures plainly show. At the close of 1932 there had been grown at the Station during the 50 years of its existence more than 100,000 seedlings of which 70,921 had been planted for fruiting. The numbers of these for the several fruits are as follows:

Apples	8,539	Grapes	18,224
Pears	5,739	Raspberries & blackberries	15,731
Cherries	938	Elderberries	200
Peaches and nectarines	240	Currants	1,098
Apricots	1,740	Gooseberries	150
Plums	474	Ribes crosses	68
Quinces	19	Strawberries	16,561
Prunus tomentosa	1,200		

Of these 70,921 seedlings, more than 75 per cent have fruited from which there have been named 104 varieties, including 31 apples, 8 pears, 2 cherries, 1 nectarine, 4 plums, 21 grapes, 12 red raspberries,

2 black raspberries, 2 purple raspberries, 1 gooseberry, and 20 strawberries. Of these the following, 55 in all, are now on the market:

APPLES
Carlton
Cortland
Early McIntosh
Kendall
Lodi
Macoun
Medina
Milton
Newfane
Ogden
Orleans
Red Sauce
Sweet Delicious
Sweet McIntosh
Tioga

PEARS
Cayuga
Gorham
Ovid
Phelps
Pulteney
Willard

CHERRY
Seneca

PLUMS
Albion
American Mirabelle
Hall
Stanley

GRAPES
Brocton
Dunkirk
Fredonia
Golden Muscat
Hanover
Keuka
Ontario
Pontiac
Portland
Ripley
Seneca
Sheridan
Urbana
Watkins
Wayne

RASPBERRIES
Brant
Dundee
June (Ontario)
Naples
Newburgh
Webster

GOOSEBERRY
Fredonia

STRAWBERRIES
Bliss
Boquet
Camden
Cato
Clermont
Culver

NECTARINE
Hunter

There have been described in the 10 bulletins already published in the series on new or noteworthy fruits a total of 119 fruits, divided as follows: 21 apples, 6 pears, 8 cherries, 12 peaches, 2 nectarines, 16 plums, 20 grapes, 15 raspberries, 4 gooseberries, 3 currants, 11 strawberries, and 1 elderberry. Of this number, 47 were originated at this Station, while 72 originated elsewhere. All have been sent out for trial at one time or another.

It could not be expected that all of these new fruits would succeed. It was not even the expectation of the introducer that every one would have merit, but it was hoped that some would find a place in America's fruit industry. No new variety can ever become popular until it has been tried by many growers in many environments. Only by such trials can the seedling's real value be proved.

Of the number of new sorts described and disseminated, 35 are now accepted by nurserymen and fruit growers as varieties of real commercial importance either for storage and shipping or for local

markets and roadside stands. The names of these kinds are as follows, the varieties starred (*) being those which originated at this Station:

APPLES
*Cortland
Delicious
Golden Delicious
*Milton
Red Gravenstein
Red Spy

PEARS
*Cayuga
*Gorham

CHERRIES
Giant
Lambert
Schmidt
*Seneca

PEACHES
J. H. Hale
Rochester
South Haven
Wilma

NECTARINES
*Hunter
Sure Crop

PLUMS
Beauty
Imperial Epineuse
*Stanley

GRAPES
*Fredonia
*Ontario
*Portland
*Sheridan

RASPBERRIES
*June (Ontario)
Latham
Lloyd George
*Newburgh
Plum Farmer

GOOSEBERRIES
Diploma
Poorman

CURRANT
Perfection

STRAWBERRIES
*Bliss
Boquet

Besides these new kinds whose commercial value is already proved, 31 others described in this series of bulletins including the ones discussed in this bulletin, have exceptional promise of finding a place in the fruit industry, either as commercial kinds or for the more limited use of home and local markets. Listed by name the star (*) again designating those of Station origin, they are:

APPLES
*Early McIntosh
*Lodi
*Kendall
*Macoun
*Medina
*Newfane
*Orleans

PEARS
Ewart
*Ovid
*Phelps
*Pulteney
*Willard

CHERRIES
Early Rivers
Emperor Francis

PEACHES
Oriole
Valiant

PLUMS
*Albion
*Hall
Santa Rosa

GRAPES
*Dunkirk
*Keuka
*Seneca
*Urbana
*Wayne

RASPBERRIES
*Naples
Viking

GOOSEBERRY
*Fredonia

STRAWBERRIES
*Camden
*Cato
*Clermont
*Culver

Only by repeated trials and careful comparison with varieties of accepted commercial value can these promising new kinds find a place in the fruit industry or be eliminated entirely as unworthy.

METHOD OF INTRODUCING NEW FRUITS RECOMMENDED BY THE STATION

In order to prevent futile inquiry it must be said at once that no plant, cion, or cutting can be obtained from the Station. It is not within the province of the Station to undertake the dissemination of the varieties it recommends. All of the fruits which are advocated for trial by the Station are distributed thru the New York State Fruit Testing Cooperative Association, with headquarters at Geneva, N. Y. This Association is a non-dividend paying, cooperative organization, organized and incorporated under the laws of the State of New York in 1918 to test and distribute the Station's new productions. It now has members to the number of 1,700 in every part of the world. It is an organization of which any fruit grower in the world may become a member by paying an annual fee of one dollar, after which the new varieties listed in the annual catalog of the Association may be purchased at the cost of production.

Fruit growers who are interested in testing new and better varieties can find no better means for procuring such kinds than thru the Association. They will be helping themselves and they will enhance the fruit industry by availing themselves of membership in the Association and by giving it their support. There are no restrictions on the sale of any of the varieties bred at this Station; the more rapidly nurserymen and fruit growers multiply and distribute them, the better the purposes of the Station will be served.

DISCUSSION OF NEW VARIETIES

In this bulletin, 12 new fruits are discussed. Eight originated at this Station, while four came from other sources. All are now being distributed by the New York State Fruit Testing Association.

A discussion of new varieties would be incomplete without mention of pollination which is a tremendous factor in successful fruit growing. Most varieties of tree fruits fail to set good crops unless cross pollinated, while most small fruits and grapes are self-fruitful. It is advisable, therefore, to set at least two compatible varieties of apples

and pears in an orchard. Some sorts are better pollinators than others. A few peaches and most Japanese plums require cross pollination, as do many European varieties. All sweet cherries must be cross pollinated. A few kinds are inter-incompatible. Sour cherries in general are self-fruitful. Fruit growers contemplating the planting of fruit should consult bulletins from this Station on pollination or confer with the Station fruit men before commencing the undertaking.

APPLE

KENDALL

McIntosh and Delicious types of apples now find greatest favor, yet none of the varieties of these two types approach perfection or cover apple seasons or purposes. Kendall, recently introduced, is a noteworthy addition to the McIntosh varieties. (See Plate I.)

Kendall originated at this Station in 1912 as a cross between McIntosh and Zusoff, the latter a handsome red apple of indifferent quality. The seedling attracted attention at its first fruiting as being an apple of exceptional promise. After fruiting for two or three years more, the Station pomologists were convinced that this new seedling merited a name and introduction. Its propagation was at once commenced and the first trees of Kendall were offered for sale by the New York State Fruit Testing Association in 1932. Of all the seedlings of McIntosh which have been developed, Kendall is by far the most attractive. It is handsomely colored over the entire surface with almost solid dark red covered with heavy bloom. It draws its beautiful color from both parents and no other seedling of recent introduction has attracted more favorable attention and higher praise. It ripens about with McIntosh but keeps longer. Its season even extends that of Cortland and Macoun, two of its older brethren of the McIntosh tribe. The apples are large, trim in outline, and possess the white, crisp, fine-grained flesh of McIntosh. While the flavor is much like that of McIntosh, it is more sprightly becoming milder as the season advances. The apples hang better than do those of McIntosh but not as well as Cortland. Kendall has greater promise than any other of the McIntosh seedlings yet introduced.

Tree large, vigorous, upright-spreading, round-topped, broad, open, healthy, hardy, productive; trunk stocky, medium smooth; branches thick, stocky, crooked, smooth, with strong crotches. Flowers midseason, large, white, with

light pink veining over much of petal surface, in dense, well distributed clusters. Fruit ripens about with McIntosh but keeps much longer, large, uniform, round-oblate-conic, symmetrical; stem short, thick; cavity medium in depth, broad, acute, smooth, sometimes a little compressed and lipped; calyx small, closed; lobes separate, short, narrow, acute, pubescent; basin narrow, shallow, obtuse, smooth, symmetrical; skin medium thick, tender, smooth, with fine, closely woven striations around the apex, with heavy bloom; color greenish yellow, entirely overspread with a most attractive rich dark solid red, becoming almost carmine on the cheek; dots numerous, small, light colored or pinkish, conspicuous; flesh white, crisp, fine, tender, juicy, briskly subacid, with a pleasant McIntosh-like aroma; quality very good. Core small, closed, with clasping core-lines; calyx-tube long, narrow, funnel-shaped; stamens basal; carpels round-oval; seeds small, short, medium wide, light brown, plump, acute.

PEARS

OVID

In breeding pears at this Station, the work centers about the production of varieties less susceptible to blight than standard sorts now grown. It is also the endeavor of the pomologists to improve the quality of present-day kinds. The two varieties described in this bulletin have been introduced because they seem to possess freedom from blight and many other good characters.

Ovid is a cross between Bartlett and Dorset which originated at this Station in 1912. The New York Fruit Testing Association introduced it in 1931. In appearance the fruit has characters of both parents. It is not unlike Dorset in color. When well ripened it develops a deep yellow with a broad bright red blush and rather large patches of russet and many small russet dots. Well colored and matured it is quite handsome in appearance. Like all pears, however, the fruit must be well grown and well ripened to bring out its best color and flavor. Ovid is a large, pyriform pear like Dorset, with a rather long neck. The flesh is fine-grained, tender, juicy, and melting, with a high and agreeable aroma. It ripens in December and promises to be a splendid late-keeping pear of good quality.

Tree large, vigorous, upright-spreading, tall, dense, vase form, hardy, productive; trunk stocky, medium smooth; branches stocky, thick, smooth. Flowers early, large, well distributed. Fruit ripens late and keeps well, large, oblong-pyriform, with unequal sides; stem long, very thick; cavity lipped, so shallow and obtuse that the flesh usually folds up slightly around the base of the stem; calyx open, large; lobes separate, long, narrow, accuminate; basin very shallow, narrow, obtuse, furrowed; skin thick, medium tender, smooth; color greenish yellow, becoming deeper yellow, with a broad red blush and many russet patches

over the uncolored surface; dots numerous, small, russet, very conspicuous; flesh white, tinged with yellow, firm, fine, granular at the center, tender, melting, buttery, juicy, sweet, with a slightly piquant aroma; quality good. Core small, closed, with clasping core-lines; calyx-tube long, narrow, funnel-shaped; seeds medium in size, long, narrow, accuminate, often flat and abortive.

WILLARD

Willard is a sister of Ovid. It ripens about two weeks later and resembles both parents but follows Bartlett more closely in shape and color. Altho not as attractive in color as Ovid, it develops a clear yellow when fully mature with a few patches of russet. Usually there is a pinkish red blush on the cheek which becomes quite bright in the sun. The surface is somewhat uneven and roughened like Bartlett. It must be well ripened in order to bring out the color and develop the rich, tender, juicy, fine-grained flesh and aromatic flavor, necessary attributes in all good pears. Two characters in particular recommend Willard as a winter pear of merit—good quality and lateness.

Willard originated at this Station in 1912, and was introduced in 1931 by the New York State Fruit Testing Association.

Tree large, vigorous, upright-spreading, tall, dense, vase form, hardy, productive; trunk stocky, shaggy; branches stocky, medium smooth. Flowers early, large, well distributed. Fruit ripens late, large, oblong-pyriform, not unlike Bartlett, uniform; stem long, thick; cavity shallow, narrow, obtuse, furrowed, often lipped; calyx large, open; lobes separate, medium in size, broad, acute; basin small, shallow, narrow, obtuse, furrowed; skin thick, tough, roughened; color dull greenish yellow, becoming clear yellow, with a pinkish red blush and a few patches of russet; dots many, small, russet, inconspicuous; flesh yellow, firm, fine, very granular at the center, tender, melting, very juicy, sweet, aromatic, with a fine piquant flavor; quality good. Core small, closed, with clasping core-lines; calyx-tube long, narrow, funnel-shaped; seeds medium in size and length, narrow, acute, often flat and abortive.

CHERRIES

EARLY RIVERS

With the present trend in cherry growing, the culture of good sweet cherries seems to offer, thru special markets, a more profitable outlet for the crop than is now possible with sour cherries. To this end those interested in growing this fruit should select a few kinds of superior merit. Such sorts as Governor Wood should go at once into the discard and only large-fruited kinds of high quality should be

grown. The two sorts described in this bulletin have been thoroly tested on the Station grounds and are now offered to cherry growers by the New York State Fruit Testing Association as noteworthy varieties of merit.

Early Rivers originated many years ago in England where it is widely planted as an early black cherry. It was introduced to this country more than a quarter of a century ago by Ellwanger and Barry, for many years a nursery firm of high repute in Rochester, N. Y. Why its culture in America never expanded is unknown. Since it has been tested at the Station during recent years, it has been found to possess many valuable characters. The cherries are large, symmetrical, handsome, crimson-black, and have most excellent quality. The flesh is much firmer than that of any other early-ripening sort, yet it is tender and refreshingly juicy with a most delectable flavor. The fruits never crack, a valuable character. Early Rivers ripens from a week to 10 days earlier than the well-known Black Tartarian. In fact it is the second variety of the cherry season, ripening just after Seneca, the earliest of all. These two sorts make a pair of early cherries at present unsurpassed for local and roadside markets.

Tree large, vigorous, upright-spreading, dense, healthy, hardy, productive; trunk and branches stocky, smooth. Flowers early, large, in rather dense clusters. Fruit very early, large, roundish cordate, blunt, compressed and indented along the sutures, smooth; cavity deep, wide, flaring; suture broad and shallowly indented; apex depressed; stem long, slender, glabrous; skin thin, tender, does not crack, free from the pulp; color deep dark red, becoming crimson-black, with many small, dark, obscure dots; flesh dark red, firm, tender, melting, fine-grained, very juicy, with a mild, rich, sweet, aromatic flavor; quality very good. Stone free, small, roundish oval, elongated slightly at both ends, plump, with smooth surfaces.

EMPEROR FRANCIS

Emperor Francis is a cherry of the Napoleon type to precede that variety. Like Early Rivers, it originated a good many years ago. Its probable place of origin is Austria, but it was not introduced to this country until comparatively recently, the Pacific Coast being the region of its first culture. The variety is now highly esteemed in several cherry districts in the Northwest. It was first cultivated in the East at this Station where it has been fruiting for several years. Of all the light-colored, firm-fleshed cherries on the Station grounds, Emperor Francis is perhaps the best, taking higher rank than the

well-known Napoleon. The cherries are larger and much better in quality than those of Napoleon. The color of the two fruits is similar, except that that of Emperor Francis is a little redder and becomes darker. The flesh is firm but tender, sweet, and richly flavored, with a high aroma, and choicely good in quality. An outstanding characteristic is its ability to hold to the tree without cracking. The season is about with Napoleon or sometimes 2 or 3 days earlier. Emperor Francis promises to be one of the best main-crop sweet cherries.

Tree large, vigorous, upright-spreading, healthy, hardy, productive; trunk and branches stocky, smooth. Flowers early, large, in dense, well distributed clusters, incompatible with Bing, Lambert, and Napoleon. Fruit midseason, large, round-cordate, truncate, compressed along the sutures, smooth; cavity shallow, wide, flaring; suture shallow or a mere red line; apex flattened, depressed; stem long, slender, glabrous; skin moderately thick and tough, rarely cracking, adherent to pulp; color glossy bright red over yellow, becoming red over the entire surface, with a darker red cheek, with many small, light-colored dots; flesh whitish, with colorless juice, firm, tender, slightly stringy, sweet, mild, aromatic, richly flavored; quality very good. Stone free, of medium size, roundish oval, plump, slightly pointed, with smooth surfaces.

PEACHES

ORIOLE

When this Station was established the peach was America's most profitable fruit. The peach industry continued to flourish for the next 30 or 40 years, but since then it has been an unprofitable and discouraging undertaking. The main reason for its decline is the lack of good varieties. People do not like the Elberta which for years has been the leading commercial variety. Until growers plant better varieties than Elberta, the peach industry will never come back.

This Station and neighboring experiment stations have set out to breed better peaches and the two varieties discussed in this bulletin, one from New Jersey and one from Canada, have been selected from a considerable number of promising new kinds as sorts of especial merit. Both sorts are now offered for sale by the New York State Fruit Testing Association.

Of all the new peaches from the New Jersey Experiment Station which have been tested at this Station, Oriole is one of the most promising. It furnishes a rare combination of early ripening and good fruit characters. Altho not brightly colored, it is an attractive peach of good size and shape. It is a yellow-fleshed freestone of highest

quality and has the most delectable flavor of any new peach. It ripens a week ahead of Rochester and ranks with the best in quality. The trees are vigorous and very productive.

Oriole originated at the New Jersey Agricultural Experiment Station in 1916, as a cross between Slappey and Dewey and was introduced by that Station in 1924.

Tree large, vigorous, upright-spreading, hardy, very productive; trunk and branches medium stocky, smooth. Flowers midseason, large. Fruit early, large, roundish oval; suture shallow; cavity medium in depth, narrow, abrupt; apex depressed; skin thick, medium tough, free from the pulp; color yellow, blushed with deep dull red, with irregular stripes and splashes of dull red; pubescence medium heavy; flesh yellow with a faint greenish tinge, juicy, coarse, stringy, medium tender, pleasantly and richly flavored; quality very good. Stone free, medium large, obovate, pointed, shallowly grooved.

VALIANT

For several years there have been under test at this Station three Elberta seedlings of Canadian origin, *viz.*, Valiant, Vedette, and Veteran. Of the three, Valiant stands out as a peach of notable merit among commercial varieties. No peach in the Station orchards surpasses Valiant in fruit characters. It is classed by the originators as an improved Elberta. It is more highly colored than Elberta, rounder and more oblate in shape, and ripens two weeks ahead of its parent. In quality it is far superior to Elberta. The trees are very productive and, altho smaller and less vigorous than Elberta, they are entirely satisfactory as orchard plants.

Valiant originated in 1917 at the Horticultural Experiment Station, Vineland, Ontario, as an open-pollinated seedling of Elberta, probably self-fertilized. It was introduced by that station in 1925.

Tree medium in size, vigorous, upright-spreading, hardy, very productive; trunk and branches medium stocky, smooth. Flowers midseason, small. Fruit midseason, large, roundish oblate; suture very shallow; cavity deep, abrupt; apex mucronate, depressed; skin thick, tough, adherent to the pulp; color yellow, blushed with a bright attractive red; pubescence short, fine; flesh deep yellow, juicy, fibrous, firm, tender, with a very pleasant sweet flavor; quality very good. Stone free, medium large, oval, sharply pointed, plump, shallowly grooved.

GRAPE

SENECA

Plant breeders in this country who have undertaken to improve native grapes have chosen as their chief task hybridization with the

European grape to obtain a combination of the fruit characters of the European with the vine characters of American grapes. Nearly 20,000 hybrid grapes have been grown at this Station with a high degree of success as is manifest by the considerable number of hybrids which have been described in the series of bulletins on new or noteworthy fruits and sent out for trial. Among these numerous hybrids between European grapes and American sorts, Seneca, one of the last to be named and introduced, has proved very promising. The seed which gave Seneca was produced in 1917 by crossing Lignan blanc, an early-ripening white European grape, with the Station's well-known early white variety, Ontario. All of the sister seedlings of Seneca which fruited produced fruit of high quality, but unfortunately they lacked hardiness of vine. With the exception of the winter of 1924, no winter injury has been recorded on Seneca and the injury in 1924 was not severe. In all favorable grape regions it is expected that Seneca will thrive without winter protection. The original vine fruited for 4 years before it was named and each year it attracted more attention as a valuable new grape. Seneca was introduced in 1930 by the New York State Fruit Testing Association.

The plant of Seneca is a vigorous but not a rank grower. It yields an average crop of grapes, altho it is not heavily productive. The berries are remarkably sweet, vinous, and pleasantly aromatic, ranking very high in quality. They do not possess that foxy flavor which is so objectionable to many palates. The skin of Seneca is medium in thickness and toughness and, like many European grapes, may be eaten with relish. Altho Seneca ripens very early, it remains in excellent condition when left on the vine until the end of the grape season. In storage it retains its high flavor for nearly 2 months and finally shrivels like a raisin grape. For home use, Seneca can be highly recommended but further tests are necessary before its commercial value can be predicted.

Vine vigorous, upright, hardy, productive; canes long, slightly flattened, brownish; nodes enlarged, slightly flattened; internodes medium; shoots tinged with red, slightly pubescent; tendrils intermittent, trifurcated, smooth; leaves medium in size, 3- to 5-lobed; sinuses medium in depth, lower surface covered with medium heavy tomentum. Flowers fertile, with upright stamens, blooming from 1 to 5 days later than Concord. Fruit ripens early; clusters medium in size, tapering, medium compact, single shouldered; peduncle medium in length and thickness; brush medium in length, greenish, adherent to the pedicel; berries medium in size, oval, slightly tapering at the apex; skin thin, tender,

eatable; color yellowish green with thin bloom; flesh greenish, translucent, tender, melting, juicy, very sweet, aromatic, vinous; quality very good to best. Seeds 1 to 3, averaging 2, small; raphe indistinct; chalaza above center.

RASPBERRY

NAPLES

The breeding of black raspberries at this Station has been carried on under difficulties. The soil, which is heavy and stiff, is not well suited to the production of tip-layered plants. As a consequence of this unfavorable soil, the stock of new varieties increases very slowly. Besides, mosaic has taken a heavy toll and many desirable seedlings have succumbed as a result of the combination of these unfavorable circumstances. So, a black raspberry of merit which surmounts these obstacles and persists in the Station plantings for several years deserves more than passing notice. Naples is such a berry. The plants are large, vigorous, and heavily productive. The berries are large, firm, handsome, glossy black, and possess excellent quality for table and shipping. Under conditions of average infestation the plants do not acquire mosaic rapidly, but where mosaic is rampant it is necessary to take the usual precautions to protect the planting from disease. The symptoms of mosaic are sufficiently plain to make rogueing a relatively simple matter. Naples usually ripens from 4 to 6 days later than Plum Farmer.

Naples was produced at this Station in 1921 by crossing Honeysweet with Rachel. It was introduced in 1932 by the New York State Fruit Testing Association.

Plants tall, vigorous, upright, hardy, very productive; canes numerous, stocky, dull green, heavily glaucous; prickles of medium size, greenish; leaves usually in threes, medium in size, oval, tapering at the apex, dull green, upper surface slightly pubescent. Flowers midseason, white; pedicels prickly, slightly pubescent; calyx smooth, slightly pubescent. Fruit late midseason; berries large, regular, broad, roundish; cavity medium in depth and width; drupelets numerous, of medium size, cohering strongly, glossy black, moderately juicy, firm, mild subacid; quality good.

STRAWBERRIES

CATO

Cato was raised from seed of the same cross that produced Clermont and Culver, Marshall by Howard (Premier). It was introduced primarily for home use, being nearly equal to the well-known

Marshall in that respect and much superior in plant characters. The berries are large and attractive in appearance, somewhat inclined to bruise, and rather dark in color for markets that prefer the Howard. In addition to its quality, the plants of Cato are vigorous and productive. They fill out the row well and show very little leafspot. This variety is eminently adapted to the home garden because of its high quality.

Cato was introduced in 1931 by the New York State Fruit Testing Association.

Plants numerous, vigorous, healthy, productive; leaves large, dark green, smooth, slightly glossy. Flowers perfect, medium in size; fruit-stems medium in length, thick, branching; pedicels of medium length and thickness; calyx of medium size, flat, bright green. Fruit ripens between Clermont and Culver, about four days later than Howard; berries large, retaining their size well thruout the season, roundish wedge-conic; apex pointed; color dark glossy red, attractive; seeds slightly raised; flesh dark red, juicy, moderately firm, subacid; quality very good.

CLERMONT

In 1923, a number of crosses were made between different varieties of strawberries and about 5,000 seedlings were raised. The more promising of these seedlings were saved for further testing. Altho 15 different combinations were made only those seedlings raised from the cross between Marshall and Howard (Premier) possessed sufficient merit to be retained. Clermont was one of these seedlings and from its first fruiting in 1925 it has been conspicuous in the variety collection because of its unusually handsome appearance. The berries are large, very smooth and regular in appearance, bright glossy red which makes them appear almost as if they were varnished, with an attractive green calyx. One of the outstanding characteristics of Clermont is the ability of the fruit to hold up in size until the last picking with the production of a minimum number of poorly developed or undersized berries. The quality is excellent, appealing to those who like a mild berry. It ripens 2 or 3 days later than Howard. It is somewhat more resistant to bruising than that variety. The plants are large, fill out the row well, yield good crops, and have never shown an undue amount of leafspot. The behavior of Clermont in various parts of the State indicates that it deserves extended commercial trial.

Clermont was named in July 1929 and introduced in the spring of 1931 by the New York State Fruit Testing Association.

Plants numerous, vigorous, tall, healthy, productive; leaves medium green, slightly rugose and slightly glossy. Flowers perfect, above medium in size; fruit-stems long, medium in thickness, branching; pedicels long, moderately thick; calyx medium in size, flat, bright green. Fruit ripens early, two or three days later than Howard; berries uniformly large, regular, conic except that the early berries are slightly wedge-conic; apex pointed; color bright glossy medium red, very attractive, colors evenly; seeds slightly raised; flesh medium red, juicy, moderately firm, slightly hollow at the center, mild subacid, pleasantly flavored; quality good.

CULVER

The history of Culver is identical with that of Clermont, and it was introduced by the New York State Fruit Testing Association at the same time. Culver was first selected by a representative of the National Preservers Association as being one of the most suitable of the seedlings at the Station for the making of strawberry preserves. In addition to its value for this purpose, Culver is well worthy of trial for market or home use. The berries are large, handsome, darker in color than Clermont, and red to the center. Because of a tendency to bruise, Culver will need careful handling and it is primarily adapted to nearby markets or home use. The flavor is pleasantly sprightly and the quality is good. In season it is 3 days later than Clermont and 5 days later than Howard.

Plants large, vigorous, unusually tall, moderately productive, usually resistant to leafspot; leaves large, characteristically dark green, slightly rugose and slightly dull. Flowers perfect, of medium size; fruit-stems long, medium thick, branching; pedicels long, slender; calyx very large, flat, bright green. Fruit ripens five days later than Howard; berries large to very large, fairly uniform, regular, conic to wedge-conic; apex pointed; color attractive dark glossy red, coloring evenly; seeds sunken; flesh dark red, juicy, tender, pleasantly sprightly; quality good.