

EXPERIMENT STATION
OF THE
KANSAS STATE AGRICULTURAL COLLEGE,
MANHATTAN.

BULLETIN No. 73—JULY 1897.

HORTICULTURAL DEPARTMENT.

S. C. Mason, M. S.,
Professor of Horticulture and Superintendent of Orchards and Gardens.
W. L. Hall, Assistant.

MISCELLANEOUS FRUIT NOTES.

MUNSON'S HYBRID GRAPES.

OF the hybrid grapes produced by Mr. T. V. Munson, of Denison, Tex., 20 varieties have been tested in the Experiment Station vineyard. A portion of these were set in 1890, and the remainder in 1891, so that we have the results of three and four years of bearing to report upon.

The parentage of these varieties, as given by the originator, is shown in the following list, the pistillate parent being named first:

I. { Bell, } from seed of Elvira × Delaware.
Blanco, }
Beagle, from seed of Elvira × Ives or Black Eagle (?).
Early Market, } from seed of Elvira × Triumph.
Rommel, }
President Lyon, from seed of Elvira × Lindley.
Ruby, from seed of Elvira × Brighton.
Conelva, from seed of Concord × Elvira.
Brilliant, from seed of Lindley × Delaware.
Gold Coin, from seed of Cynthiana × Martha.

II	}	Munson's No. 82 (unnamed),	} from seed of <i>V. lincecumii</i> × Herbemont.
		“ No. 98, Blood,	
		“ No. 111, Sweetey,	
		“ No. 122, Letoney,	
		“ No. 129, Carman,	
		“ No. 76, Fern Munson,* from seed of <i>V. lincecumii</i> × Triumph.	
		“ No. 88 (unnamed), from seed of <i>V. lincecumii</i> × <i>V. rupestris</i> .	
		“ No. 92, Pulpless, from seed of <i>V. lincecumii</i> × Elvira.	
“ No. 130, Texas Highland,† from seed of <i>V. lincecumii</i> × Agawam.			
“ No. 104, Isidore Bush, from seed of Herbemont × <i>V. lincecumii</i> .			

Taking up the fruits in the first class of hybrids, we find *Bell*, from Elvira X Delaware, showing a much more free growth of vine than either parent, but with the canes bearing more resemblance to the Delaware in the smooth, hard, brown wood. The foliage also partakes somewhat of the Delaware character. The fruit, ripening the latter part of August, is yellowish white, having a good deal of resemblance to the Missouri Riesling and the characteristic flavor of the Taylor family, to which Elvira and Missouri Riesling belong.

Blanco, said to be of the same parentage, is a vine of much the character of Amber, of the Taylor family, and has nothing in common with Delaware. The fruit, as in the previous one, ripens during the latter part of August, and is of a pale, waxy yellow color, with just a shade of amber in the sun. In flavor and texture it is an all-around Taylor, and could most readily be accounted for by supposing it to be a plain Elvira seedling.

Beagle, which Mr. Munson at first considered as a hybrid between Elvira and Black Eagle, but later said that he presumed was the result of a natural pollination of Elvira from an Ives vine near, might with equal truth, it seems to me, be regarded as a straight Elvira seedling, showing nothing more of *V. labrusca* in its make-up than does Montefiore. It is a Taylor in vine characters, and the fruit, small, black, and early (August 15), has little else to commend it. It has the peculiar flavor belonging to the Taylor family in excess, and lacks in the pleasing, sprightly qualities that a table grape must have.

Of the two varieties ascribed to Elvira fertilized with Triumph, if *Early Market* be truly the result of such a cross, it certainly shows none of the characters of the male parent. Here again we find the vine and foliage characters to be those of the Taylor family. The fruit, though ripe by the first of August, is small, black, poor in quality, and small in bunch.

Rommel, also ascribed to the same parentage, while showing some of the leaf and vine characters which refer it to the *V. riparia* side of Elvira, yet lacks in vigor of growth, has rather scanty foliage, and

*First disseminated under name of "Hilgarde."
 †First disseminated under name of "Admirable."

is quite tender during winter—points all in common with Triumph. The fruit, though produced in rather small and uneven bunches, is medium to large in berry, round, clear pale yellow, tender skinned, juicy, sweet and pleasant in flavor, though lacking in the fine qualities of Triumph and in sprightliness. While not with us a sort worthy of general introduction, it is very interesting in the study of hybrid effects.

President Lyon, from Elvira X Lindley, has hardy, free-growing, rather slender vines, showing many Taylor characters. The fruit, ripe by the middle of August, is borne in medium-sized, rather compact, shouldered bunches; berry, about the size of Delaware, purplish red. A very fair, early table grape, but quickly past flavor, overripe, and shriveled. It is worth further trial in amateur collections.

Ruby, from Elvira X Brighton, shows less of the Taylor characters in vine and leaf, but the medium-sized, round, dull yellow berries, striped with amber or dull red, have the characteristic flavor of the Taylor class, and none of the fine qualities which we recognize in the Brighton. The bunch is small and uneven.

Summing up this class, having Elvira as pistillate parent, we find traits belonging to the Taylor family in all the *vines*, and predominant in all but two. In the *fruit*, Taylor again predominates, only two showing well-marked characters derived from the pollen-bearing parent, and both of these are hybrids of *Vitis vinifera*, Lindley and Triumph. All are hardy but Rommel and Ruby, and here it seems probable that the tenderness is referable to *Vitis vinifera* blood.

In *Conelva*, for a contrast, we have Concord as the pistillate parent, fertilized with pollen of Elvira. Here we find a vine of much more Concord-like habit, a medium-sized black fruit, having neither the tough pulp and the foxiness of the Concord, nor the characteristic flavors of the Taylors, decidedly flat and lacking in refreshing qualities. Hardiness alone recommends it.

In *Brilliant*, which is from Lindley fertilized with Delaware, we have one of the finest red grapes yet offered to the public. It is of a little brighter, more attractive red than Brighton and a little more brisk and less heavy juice, with perhaps a trifle of harshness next the skin not to be noticed in the Brighton. It would be difficult to trace the characters in this more to one parent than to the other. While a free grower, it needs regular winter protection with us.

Gold Coin gives us a curious study, and a grape which I imagine to be of more value to the wine grower than for the table. With Cynthiana or Norton's, which Mr. Munson seems to regard as synonymous, for pistillate parent, and pollinated by Martha, we may rea-

sonably expect to find some positive characters resulting, and are not disappointed. The vine shows strikingly *oestivalis* characters and habits of growth; the leaves are more of the Cynthiana character than of Martha or other *labrusca* varieties, though the tendrils show a curious compromise between the regularly intermittent tendrils of *oestivalis* and the continuous ones of the Concord family, in having them partly intermittent and partly continuous. The fruit seems to partake a good deal of the Martha characters, however, the bunch being more of that habit; berry as large as Concord, golden yellow, pulpy but not tough or stringy, flavor sweet but lacking sprightliness; seeds with markings of *oestivalis*.

It is in Mr. Munson's Post Oak hybrids that we find a class of grapes most wholly distinct from our northern types.

Of the ten containing Post Oak blood, all are late in blooming, coming into blossom after the *labrusca* and *riparia* varieties are out, or even ten days or two weeks later than they.

Of the five from *V. lincedumi* fertilized with Herbemont, the No. 88 (unnamed) has the least value; No. 98, *Blood*; No. 111, *Sweetey*; and No. 122, *Letoney*, all have handsome, compact bunches of small, black, very juicy and pleasant tasting fruit, though their small size and the abundance of their seed will prevent their being popular for the table; and *Carman* has fruit as large as Ives, bears an abundance of handsome bunches, with a fair flavor, though it lacks a little in sprightliness and has too many seeds for a first-class grape. This last is well worth an extensive trial. The vines of all these show much of the Herbemont in character, and are strong growers.

In No. 76, *Fern Muson*—Post Oak X Triumph—the effect of Triumph in producing a vine lacking vigor and thin in foliage seems to be apparent. Its bunches are of the Triumph type, much less compact than Herbemont; berries black, with a heavy bloom, a good deal of tough pulp and general suggestions of *labrusca*, though a very fair fruit. It ripens late.

No. 130, *Texas Highlands*—Post Oak X Agawam—shows much of the Post Oak in growth of vine and leaves. It bears rather scantily, but the fruit is of fine size—black, juicy, rich, and pleasant, the best flavored of the lot.

No. 92, *Pulpless*—at first named for Mr. Van Deman, from Post Oak X Elvira, shows Post Oak vine, but we trace Elvira in the fruit. The bunches are handsome and compact; berry medium, purple, and with a pulp like a thin jelly. It is wholly wanting in pleasing flavor when ripe.

No. 88—Post Oak X *Vitis rupestris*—still shows the Post Oak

vine. The fruit is small, black, juicy, but too harsh and wild to be regarded as valuable.

In No. 104, *Isidore Bush*, in which Herbemont is fertilized by Post Oak, we have a Herbemont type of vine, and a small, black fruit of no merit.

Summarizing: All the Post Oak hybrids are tender in our climate, and need winter covering. All are vigorous growers except the Triumph hybrid; and all are late in blooming and in ripening of fruit. Blood, Sweetey and Letoney give us a delicious juice for canning, and doubtless would make a fine wine; Carman is a very fair table grape; Texas Highland is a better, but does not bear well. We have several others of this class to report upon later.

From this brief glance at all of these hybrids, we may fairly infer, it seems to me, that the pistillate parent exercises a stronger control over the character of the vine than does the pollen-bearing parent, while the predominating influence of the male (or pollen-bearing) parent can most often be detected in the fruit; and further, that the strong tendency towards tenderness from a *V. vinifera* cross is not escaped in the third generation.

THE MARIANA PLUM AS A STOCK.

The Mariana has been tested as a stock for a sufficient variety of plums to indicate that it can be used with excellent results for the various species of American plums, for the varieties of *Prunus domestica*, and for the Japanese varieties.

Robinson, Weaver, Moreman, Golden Beauty, and Wyant, of the American types; Hungarian Prune (a Russian variety of *P. domestica*); and Botan, of Japan, were grafted upon Mariana stocks in 1890, and are now in bearing, being strong, well-grown trees. No trouble has been experienced from sprouting of the stock, except in cases where the soil has mashed away so as to bring the roots very near the surface.

A few specimens of *Prunus pissardii* grafted at the same time have done well.

The apricot grafted on Mariana has behaved in a very peculiar manner. A very sharp line of demarkation between stock and cion has been visible throughout the growth, in some cases as sharp as though a fine wire had been bound around the tree and overgrown. Last spring, a heavy wind broke over a tree left in the nursery row, one-half of the apricot trunk parting from the plum stock about as smoothly as if by a saw kerf. To test the matter further, a tree six

inches in diameter was dug out, and a section which included stock and cion cut from the base of the trunk. On sawing a longitudinal section out of this the difference between the two woods was indicated by a sharply drawn line from heart to outside, and rising a little, so that if the apricot trunk had been removed the Mariana stump would have been left with a concave top. Toward this line of separation the wood grain from each side made a sharp curve inward, becoming parallel with it. A section one-fourth inch in thickness was readily broken with slight pressure, breaking sharply on this line across the entire section, except a small portion at the center.

This almost total lack of continuity in grain, though stock and cion do not differ in size, would indicate a great dissimilarity and suggest the probability of a short life. So far the growth has been vigorous and equal to any trees of the age in the orchard, except peach.

We have budded with fair success some of the American varieties; two of the Japanese; Mr. Burbank's hybrid Wickson, and the Hungarian Prune on Mariana stocks. These are still too young to demonstrate what they will do, but growth so far has been free and healthy.

In propagating this plum for stocks we have rooted cuttings in a bench in the propagating house, though such treatment is not at all necessary, as they can be bunched and stored in a cool out-of-door pit for callusing, and then planted in nursery rows.

This seems to us to be the best all-around plum stock that we have.

PEACH vs. PLUM STOCKS FOR PEACH-TREES.

In 1891 there was set an experimental peach orchard of 91 trees, of a number of varieties. Of these 47 were budded on peach stocks in the ordinary way, and 44 were ordered on Mariana plum stocks, but proved on being grown to be on Myrobalan stocks, from the sprouts which were sent out in great numbers.

The plum-worked trees have not been as large, strong growers as the peach worked, early began to show signs of failing, and gave a trunk with a strongly marked enlargement just above the stock. As is commonly expressed, they overgrew the stock. At no time have they shown themselves better bearers, and at present the record stands: Of peach-worked trees, 24 sound and vigorous and 23 dead or very poor; of the plum-worked trees, the entire 44 are either dead or in very poor condition. The evidence against the value of Myrobalan stocks for peaches is conclusive.

RUSSIAN FRUITS.

Of the Russian varieties of apple, cherry and plum obtained from Professor Budd, of the Iowa Agricultural College, and growing in our grounds, the plum and cherry were set in 1890, and the apples at some

date previous to 1888 — the organization of the Experiment Station — they then having the appearance of having been set about two or three years. They have borne a little fruit from time to time, but at no time enough to be of commercial importance, and generally it has been difficult to secure perfect specimens for description. During the seasons when twig blight has prevailed, these have been among the worst, and nearly all bid fair to be short-lived. In season, the varieties are all early to late summer, there not being a real fall variety, much less a winter keeper, in the lot. In quality, they are flavorless or harshly sour as a rule, but are lacking in fine dessert-fruit qualities. Unless these qualities, in the many varieties which we have not tested, are far ahead of what we have fruited, it is difficult to see what claim these varieties can have on the Kansas grower. Leaving the question of their value in the more severe northern climate to others, for Kansas these are not recommended.

Following are descriptive notes of a few of these sorts:

APPLE, *Neumeister*. (Budd.) Fruit of small to medium size, oblate conic; basin broad, shallow, corrugated, eye closed; cavity small and narrow; stalk short and stout; color yellowish green, streaked on sunny side with two shades of red; flesh rather coarse, of yellowish color; flavor sprightly acid, but rather coarse and harsh; now partly ripe (July 28). The fruit is inclined to be borne in clusters of two or three, and thus helps their worminess. The tree has coarse, stiff, angular branches and twigs. Leaves abundant, and are dark green; blighted but little this season.

APPLE, *Herrenapfel*, Russian. (Budd.) Fruit varying from oblate to oblong conic, rather irregular; basin deep, abrupt, somewhat corrugated; calyx lobes short, open, eye broad; cavity somewhat pointed; stock short; skin clear, ivory yellow, with coarse white dots; flesh snowy white, becoming rather mealy and mellow before ripe; flavor mild, insipid sweet. Now overripe (July 28). The tree is a fine grower, with roundish top and slender branches.

APPLE, *Antonovka*, Russian. (Budd.) Fruit this year smaller than last, and dropping early; of medium size, oblate conic, irregular and angular shape; basin abrupt, of medium size, strongly corrugated; calyx lobes closed; cavity narrow, irregular, russeted; stalk medium; color waxy yellow, with numerous indistinct large white dots; flesh firm, rather coarse, yellowish white, sharply acid, but not so harsh as some; tree coarsely branched and irregular; blights among the worst; not fully ripe July 28.

APPLE, *Muscatteller Livlandischer*, Russian. (Budd.) Fruit large, ablate conic, regular, or slightly compressed and angled; basin rather

broad, abrupt, coarsely corrugated; calyx open, eye large; cavity broad, deep, russeted; stalk of good length, stout; color yellowish green, and streaked and mottled with two shades of red, over which is a thin lilac bloom; flesh firm or tough, yellowish green, coarse in texture; of harsh, brisk, acid flavor; tree with coarse angular branches; leaves broad, thin, downy beneath; season August.

APPLE, *Skrischapel*, Russian. (Budd.) Fruit small, oblate conic, angled; basin shallow, corrugated; calyx closed; cavity deep, irregular; stalk short and stout; color green, coarsely streaked with red; surface of fruit covered with thin bloom, and marked by scattering large white dots; flesh firm, coarse, greenish white, sharply acid; not fully ripe July 28.

APPLE, *Russian, No.161*. (Budd[?].) Fruit small to medium, conic or roundish conic; basin small, corrugated; calyx closed; cavity narrow, pointed, russeted; stem of good length and thickness; color pale green, faintly flushed and streaked with red in the sun; large, scattering white dots and very thin bloom over the surface; flesh white, crisp, sharply acid, with decided aromatic flavor; not yet fully ripe (July 28); seeds large, numerous; leaves medium to large, oval, downy on the under side; not at all of usual Russian type.

APPLE, *Russian No.413*. (Budd.) Tree upright, spreading, with rather slender branches and twigs; bark light brown; young twigs a birch brown and slightly pubescent; leaves broadly oval, thin, medium green; fruit quite abundant, of medium size, oblate conic, regular; color apple-green, finely streaked with red of two shades; marked by small, scattering white dots; basin small, shallow, slightly corrugated; calyx lobes short, eye closed; cavity narrow, smooth, and regular; stock short to medium, rather stout, a slight russeting in cavity; flesh greenish, rather coarse, spongy, and a little mealy when ripe; a brisk, sharp acid, not unpleasant in taste, but lacking fine flavor.

The following Russian varieties of cherry, set in 1890, from Professor Budd, have fruited in sufficient quantity to determine, pretty fairly their value here. The trees, as a rule, have been strong and healthy growers, some of them making fine size. None of these trees have yet shown evidence of being sufficiently good bearers, however, to pay for giving them room. It may be that they must have greater age, but, if that is the case, there are varieties of the sour type, as the Wragg, for instance, possessed of equal if not greater merit in fruit that come early into bearing also. Of the following lot from Professor Budd, the Galapin seems to belong to quite a different class

from the others, and, if more regular bearing were included in its characteristics, would be a very valuable sort:

CHERRY, *Galapin*. (Budd.) Tree stout, with heavy, semi-erect branches, lateral twigs few and small, the broadly oval, thick, shining leaves produced from short spurs along the main branches; fruit large, broadly roundish, with a distinct suture and fold near the stalk, color bright red, firm, meaty, of a pleasant sweet flavor and very desirable, but the yield here over several years has been too uncertain to recommend its culture. Ripe June 14, in 1894.

CHERRY, *Lithaur Weichel*. (Budd, 1890.) Fruits two or three in a bunch, small, roundish, a little compressed, borne on long, slender stalk; color dark red, flesh and juice red; skin thick and tough; pit small; flavor harsh. Ripening unevenly, June 18, 1897. Not to be recommended.

CHERRY, *No. 25, Orel*. (Budd, 1890.) Tree with spreading top. A medium grower. Fruits usually 1 to 2 on a spur, large, rather oblate and angular, bright red; flesh yellow, juicy, good acid flavor; skin rather tough; pit large and round. Yield light and scattered; ripe June 18.

CHERRY, *No. 26, Orel*. (Budd, 1890.) Tree vigorous, with fine spreading top. Fruit of medium to large size, on a very long, slender stalk, singly or in twos or threes, roundish oblate, a little irregular; color bright red; juicy; flavor harsh and wild. First ripening June 18.

CHERRY, *No. 109, Rega*. (Budd, 1890.) Tree a rather fine, upright grower. The yield is light, and most of the fruits set singly. The fruit is large, of a fine dark red color, set on a stalk rather short and stout; flesh and juice red; flavor pleasant, but lacking somewhat in fine quality. It would be an desirable cherry if sufficiently productive. It ripened by June 18, in 1897.

CHERRY, "*Baluder Morello*, a fine Ostheim." (Budd, 1890.) Tree a good grower, upright. Fruit, medium to large, 1 to 2 in a cluster, on rather slender stalks; color dull red; skin rather tough; flesh red, tender, and juicy; flavor acid, and lacking in richness. Yield a light one, ripening unevenly, June 18.

CHERRY, *Sussefruch Weichel*. (Budd, 1890.) Tree a good grower, rather upright. The fruits, which are borne singly, or occasionally in pairs, on slender stalks of medium length, are of medium size, roundish heart-shaped; dark red; skin fairly tough; flesh tender, juicy, red to the pit; flavor lacking in richness.

The two following varieties are of American origin, and the trees were not obtained from Professor Budd:

CHERRY, *Wier's No. 13*. Tree a rather upright grower, with small and rather scant leaves; fruit ripe June 5 in 1894, a little earlier than Early Richmond; of medium size, dark red; skin rather tough, and would handle better than Richmond; flesh and juice reddish; a morrello in flavor; but mild and pleasant. This has not borne with sufficient regularity to be a valuable variety for general planting.

CHERRY, *Wier's No. 19*. Tree upright and more slender than No. 13; leaves small and scant; fruit oval or almost oblong, medium sized; skin and flesh rather fine dark red, not as pleasantly flavored as No. 13, and not a sufficiently reliable bearer to be valued.

CHERRY, *Wier's No. 2*. (Budd, 1890.) This must have been an error in stock, as there is nothing to distinguish this tree from a young Early Richmond in first bearing.

The plums of the lot from Professor Budd are all clearly of the *Prunus domestica* type in the foliage, fruit, and pit. They have not as a rule been as good growers as the cherries, a number of them proving decidedly unhealthy. Not all have yet borne, and those that have some of them very scantily.

Richland and *Communia* would seem so far to be the most valuable garden varieties, though they must be sprayed frequently against the brown rot and the curculio watched very closely to obtain much desirable fruit.

A variety labeled Hungarian Prune, but this single tree differing from the others of that name in being smaller fruited and more free and slender in growth, is the most promising commercial plum of the lot, judged from its first crop, which was borne this year. Its fruit is sweeter, firm fleshed, and quite free from disease, and but little attacked by curculio and gouger. If in the future these characteristics are more fully established, this one tree may prove the source of much value to the West. It is probably in with the Hungarian Prune lot by mistake, though there is the possibility of this being a sport from the original. It differs in a very marked way from all others of this northeast Europe importation which we have received.

PLUM, *Communia*. (Budd, 1890.) The trees of this variety are rather poor growers, with smooth bark and broad, oval leaves. The fruit is large of the class, smooth, oval or nearly oblong, pale purple, somewhat mottled, and with a very thick lilac bloom. The flesh is rather too soft to handle well when fully ripe, but very fair quality, though lacking in real fine flavor. This variety seems to be about as

subject to attacks of curculio and brown rot as the Richland. Ripens in the early part of August.

PLUM, *Early Red*. (Budd, 1890.) Tree more slender and with smaller twigs than usual in the Russian class. Fruit of medium size, long, oval, somewhat irregular, with very slight suture; stalk slender; color mottled purplish red, with thick pale lilac bloom; flesh yellow, a little inclined to be mealy, but quite pleasant to eat—one of the best of its class. Some brown rot present. This variety is now ripe (August 6).

Hungarian Prune. (Budd.) Trees of this variety have been in our trial rows for many years. They are strong, rather upright growers, with coarse shoots, and in character show clearly the *P. domestica* origin. They often set quite full, though but little fruit has ever been perfected, they being the special prey of the curculio and the brown rot. This fruit is, in shape and general characters, much like the description and figure of the German prune in Downing, except that it is broader and more rounded. It cannot be recommended for profitable productiveness as tested here.

PLUM, *Moldavka*, Russian. (Budd, 1890.) Fruit large, irregular, broadly oval, with broad, shallow suture; color dull purplish red, with heavy purplish bloom; flesh yellow, coarse, rather mealy, and not rich. Trees poor growers, with coarse, stiff branches.

PLUM, *Richland*. (Budd, 1890.) Tree an upright grower, of only medium vigor; leaves small, oval, roughly pubescent. Fruit irregular, egg shaped, of medium size, having only a slight suture; stalk slender, not deeply inserted; color dull purple, with a very dense lilac bloom; skin thin and tough; flesh dull yellow, fairly firm, and rather rich and sweet for the Russian class. The trees have set enormously full this year, but have been severely attacked by brown rot and curculio, so that not half the crop is maturing; now ripe (August 15).

PLUM, *Weizerka*. (Budd, 1890.) Trees rather slight growers, spreading, clean and healthy; leaves rather small, oval, thick, coarse, flat; fruit slightly one-sided, small, oval or broader at apex; very slight suture; skin dull purple, covered with thick lilac bloom; flesh greenish yellow, firm, not so pleasant in flavor as the Richland.

PLUM, *White Nicholas*. (Budd, 1890.) These cannot be distinguished from Early Red in tree and leaf, but the fruit seems to be slightly more broad and oblique, and there is a difference in the pit. It is also a trifle later in ripening.

PLUM, *Burbank*. (E. & B., 1894.) The tree is broadly spreading, with flat crown, branches coarse; fruit borne on short lateral spurs along the main branches. The stalk being very short, gives

the fruit the appearance of being suspended from the main branches. Color dull red and yellow, more or less mottled. Ripens very slowly, but hangs on well.

Prunus simonii. (Japanese.) Trees upright in growth, with long sprouts and rather ragged habit. Has not proved healthy here, and frequently died back, to sprout from the roots. It has borne but seldom, and much of the fruit set blights or rots. Specimens were figured and described in 1895, as follows: Fruits an inch and a half to two inches in diameter, roundish oblate with well-marked suture on one side; color yellowish till fully ripe, then turns to deep, dull red, with small flecks of waxy yellow; flesh fine, somewhat leathery. There is a peculiar odor suggestive of cantaloupe, and a resinous, slightly astringent, but, on the whole, rather agreeable flavor. The pit is roundish, flattened, quite rough, and small for the size of the fruit. Time of ripening, early in July. This cannot be recommended in our locality, either for ornament or for fruit.

Wyant. *P. americana*. (Budd, 1890.) See Bulletin No. 38, Cornell, 1892, on "Cultivated Native Plums and Cherries."—*Bailey*. Trees of low, spreading, bush habit, having many small branches and thorny growth. Fruit large, roundish or slightly oblate, and distinctly compressed; color as it ripens yellowish, striped with dull red; flesh deep yellow, a little coarse and somewhat astringent next to the skin, but otherwise rich and sweet. This is apt to be badly stung by *curculio*, but is a promising variety.

In the spring of 1891, as a number of plats of peach pits of several budded varieties began to germinate in one of the propagating benches, it was noticed that now and then a pit would contain two seeds and two young trees were pushing out instead of one. The question arose, would these trees from the same fruit and pit differ from each other when grown and in bearing as decidedly as peach seedlings usually differ? Accordingly they were potted off with the labels, respectively, "Twins A, No. 1," and "Twins A, No. 2," and so on down the alphabet as the pairs occurred, a note of the parent variety also being kept. These were later removed to nursery rows, and finally to the trial orchard, where a number of them bore first in 1895, and this year again quite abundantly, last year's crop being but little.

Of the distinctness of each tree as a variety there can be no question, the trees of some pairs being more distinct from each other than from trees in other pairs. In other cases the two trees were so nearly alike as to call for an inspection of minute details of leaf and gland in order to distinguish them. The resemblance to the variety from which the seed was produced was very marked, and especially in the case of the seedlings from Hale's Early.

Several of these trees have proved of some merit, and in particular some of those from Hale's Early. Further trial and testing in various soils and locations will of course be needed to determine whether any of them will warrant general introduction. Both the "I No. 1" and "I No. 2" are extra-early sorts of some merit, and "G No. 1" and "M No. 1" are both medium in season and very nice fruit; all are of seed from Hale's Early. Following are descriptive notes on three of these "twin" varieties:

PEACHES, *Twins*, "M No. 1." (August 7, 1897.) A spreading tree, with rather slender branches, closely resembling "G No. 1." Very full of fruit, somewhat smaller than "G No. 1," and brighter colored; flesh nearly white, juicy, and luscious — a richer peach than the "G No. 1." This also would merit further trial. It is a later fruit by three weeks than "M No. 2," just south of it. Close observation of the glands shows a larger gland and a greater number on the leaves of "M No. 2" than on this. At present time the twigs on "M No. 2" are distinctly more red than on "M No. 1." The question, Will two seeds from the same pit give two identical trees? seems to be duly answered in the negative in this case.

PEACHES, *Twins*, Columbia No. 1. (August 10, 1897.) Tree with spreading top, free grower. Fruit of good size, roundish; yellowish green color; surface smooth and velvety; dark, with a bright blush in the sun; flesh greenish white, rather coarse, juicy, rich, and sugary in flavor. Inclined to be loose around the pit, which is large. Now ripe (August 10). Worthy of further trial.

PEACHES, *Twins*, "G No. 1." (August 7, 1897.) This is a spreading tree with rather slender branches. The fruit is of medium size, round, smooth, with a shallow suture, and minute point at apex set in a slight depression. Colors a rich red with darker splashes; flesh free, greenish, juicy, and pleasant; pit small. Ripening during the past week and bearing well. Worthy of an extensive trial.

PEACHES, treated with dendrolene July 2, 1896, by the entomological department. Permission was given to treat a number of peach-trees with dendrolene, which was applied upon the bark for about a foot just above the ground. In all cases the damage to trees has been great. Some are dead, the bark and cambium, and even the new wood, having a dead appearance. In some, where the inner bark and cambium are now green and healthy for one-third or one-fourth the way around the tree, it has made considerable growth this season, though not fully healthy. With one-half or more of active cambium surface, the trees seem to suffer but little, so far as present indications show.