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Horticultural and Entomological Department

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Notes from the Plum Orchard

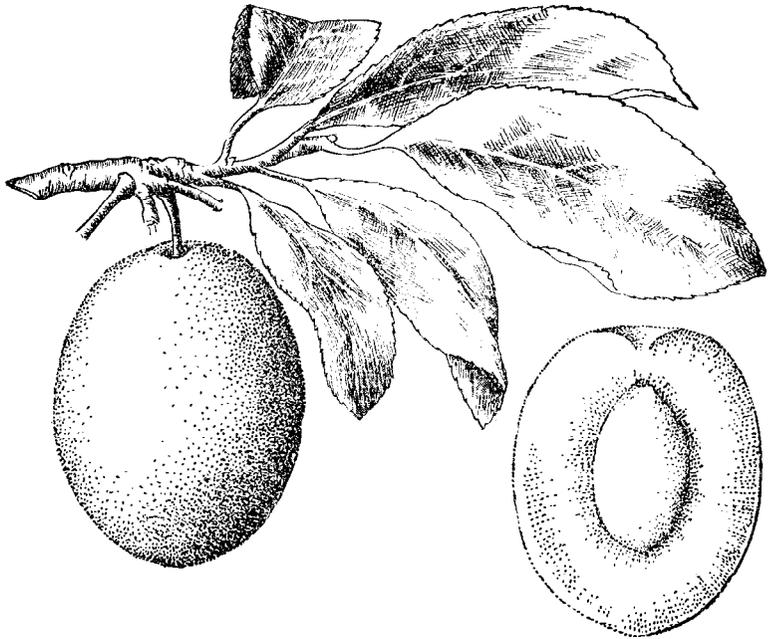
THE EUROPEAN PLUM, *Prunus domestica*.

THE varieties of the European plum have somewhat improved their record since the publication, in Bulletin No. 73 of this Station, of the earlier notes upon the plum orchard.

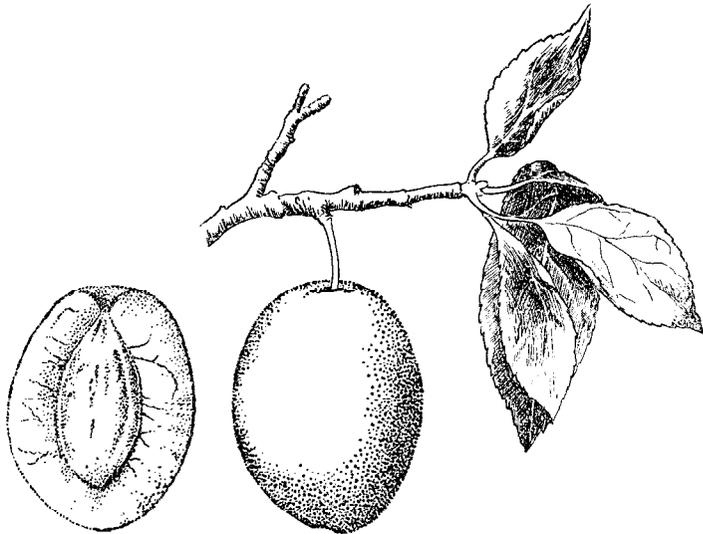
While the severe cold of February, 1899, so widely injurious to fruit trees in this latitude, killed no trees of this species, the wood in all the varieties, without exception, was blackened, every branch showing more or less injury, trees of the Communia, Early Red and Hungarian Prune suffering less than others, the first-named alone producing fruit, a light crop, the following summer. All, however, have since made a very good growth, which at this date (November, 1900,) appears to be perfectly healthy, the wood of the last two seasons covering entirely the blackened portions within. All varieties except Tatge bore fruit the past season, trees from Professor Budd's Russian importation, under the labels "19 Orel" and "20 Orel," giving their first crops.

CHARACTERS OF THE EUROPEAN PLUM.

Trees of the *domestica* varieties are usually strong growers, of fairly upright habit, spreading somewhat as they grow older; the bark is smooth and gray, the twigs often downy; the leaves are large,



COMMUNIA.



EARLY RED.

generally obovate, coarse and heavy in texture, usually downy beneath, and coarsely toothed.

With the exception of "20 Orel," all the varieties of this species here noted produce fine fruit, of good color and size and rich flavor. Their liability to rot and to injury by the curculio, as well as their tendency, so far as here observed, to bear only light crops, are much against them. The experience at this Station shows, however, that the rot may be largely reduced by thinning the fruit and by the intelligent use of fungicides, and it is too early to decide that the trees with greater age will not give satisfactory crops. It is believed that the best of the sorts will repay culture under the hands of the careful fruit-grower.

NOTES ON VARIETIES.

Communia (Plate III*).—Large, one and three-eighths to one and three-fourths inches long, and one and one-eighth to one and one-half broad; oval or nearly oblong; purple with heavy bloom; suture very slight; flesh firm, yellow, distinctly veined; cling; flavor good, mild subacid; very good after canning. August 13 to 30.

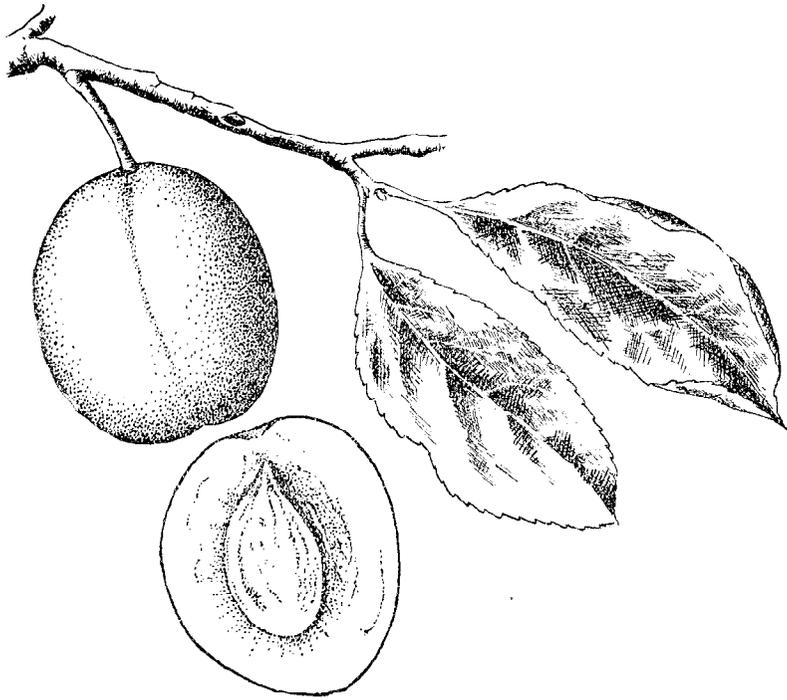
Early Red.—Medium to large, one and one-eighth to one and one-half inches long, and seven-eighths to one and one-eighth broad; oblong-oval, somewhat flattened, pointed; dark reddish purple with heavy bloom; suture slight; flesh yellowish green; flavor fair; nearly free; rich and good when canned. July 20 to 30.

Hungarian Prune.—Medium to large, one and three-eighths to one and three-fourths inches long by one and one-eighth to one and three-eighths broad; oblong, often broadest at apex; dark reddish purple with medium bloom; suture slight; flesh greenish yellow, firm; nearly free; flavor good. August 15 to 25.

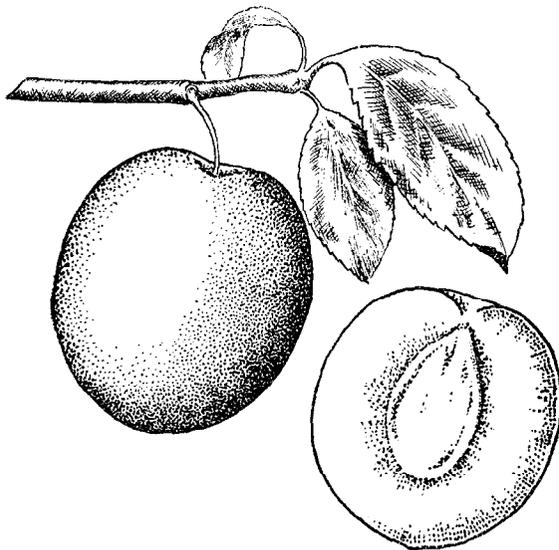
Moldavka.—Large, one and one-half to one and three-fourths inches long, and one and five-sixteenths to one and seven-sixteenths broad; round, sometimes slightly elongated; dull red, covered with heavy purple bloom; flesh greenish yellow, coarse-grained; flavor fair, subacid; free; skin medium; fair for dessert; acid after canning. August 10 to 17.

19 Orel (Plate IV).—Medium to large, one and one-eighth to one and one-fourth inches long, and one and one-eighth to one and one-fourth broad; round; dark purplish red with light bloom; flesh yellow, sweet, juicy; flavor good; semicling; a desirable dessert plum and good for canning, though acid after cooking; productive, and in every way superior to the next. July 19 to 29.

*See full-page half-tone engravings (from photographs) at back of this Bulletin.



HUNGARIAN PRUNE.



MOLDAVKA.

20 Orel.—Medium to large, one and one-eighth to one and one-fourth inches long, and one to one and one-eighth broad; dark purple with light bloom; flesh yellow, dry; semicling; flavor poor; not a good fresh fruit and somewhat astringent after canning; a poor plum. July 24 to 31.

Richland. —Medium, one to one and one-eighth inches long, and seven-eighths to one inch broad; oblong-oval or pointed; suture slight; purple with a very heavy light gray bloom; flesh yellow, firm, fairly sweet; nearly free; skin thin but tough; good after canning. August 31 to September 11.

Spaulding (Plate V).—Large, one and three-sixteenths to one and seven-eighths inches long, and one and three-sixteenths to one and one-half broad; round, often slightly elongated, oblong; fine green color, light gray bloom; suture slight; flesh yellowish green, sweet, finely flavored; nearly free; skin thin; an excellent fresh fruit and very sweet and rich canned. August 5 to 30.

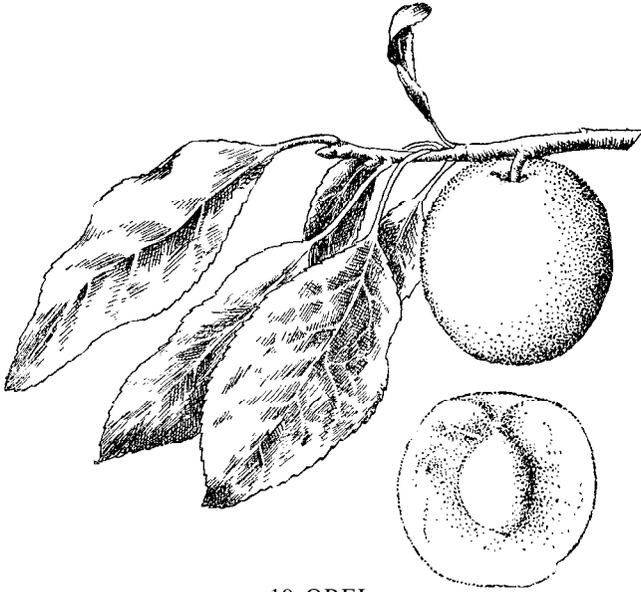
White Nicholas. —Medium to large, one and one-fourth to one and five-eighths inches long, and one to one and one-fourth broad; oblong, often oblique and pointed; suture slight; purplish red with thick light gray bloom; flesh yellowish green; flavor fair; skin medium; very good after canning. July 20 to 30.

Wiezerka (Plate VI).—Small to medium, seven-eighths to one and one-eighth inches long, and three-fourths to one inch broad; oval, flattened or oblique; suture slight; purple with heavy light gray bloom; flesh greenish yellow; nearly free; flavor only fair; fairly good after canning. September 5 to 15.

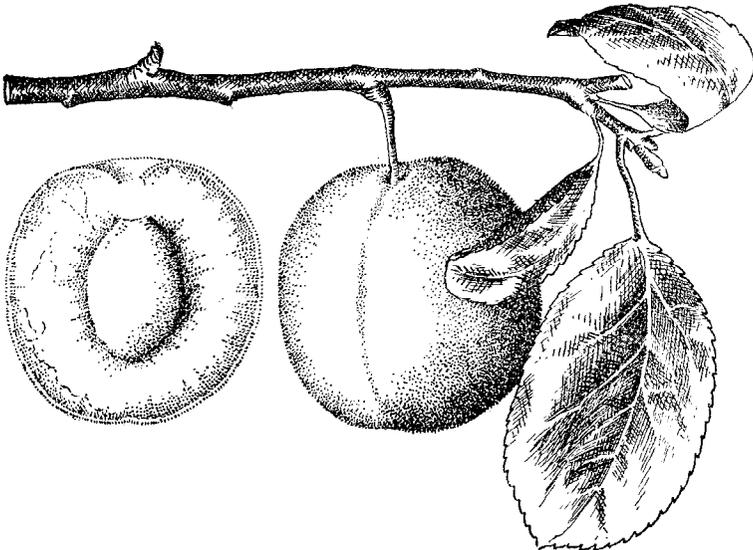
THE JAPANESE PLUM, *Prunus triflora*.

The cultivation of the Japanese plum upon the grounds of this Station was begun in 1891, when cions of a variety called "Botan" were grafted upon rooted Marianna cuttings, and, after having grown two years in the nursery, the trees were set in the orchard. In July, 1898, these trees measured twelve feet in height, with spreading tops, but they were all destroyed by the severe cold of February in the following winter, possibly through the lack of hardiness in the stock upon which they were worked. In 1894 trees of Abundance, Burbank, and Ogon, from the nursery of Ellwanger & Barry, Rochester, N. Y., were set in the Station orchard, and these are at present in fair condition.

Of these trees, the Burbank bore a few plums in 1896 and 1897. The freeze of February, 1899, left the wood of Abundance and Bur-



19 OREL.



SPAULDING.

bank somewhat injured, while the Ogon, though it did not escape injury, showed less. Nursery trees of the three varieties, however, were equally injured. Though in the Station orchard the fruit-buds on these varieties were all killed, in the orchards of Messrs. T. C. Wells and Sam Kimble, less than a mile away, a few fruits were produced upon Burbank trees. These facts speak well for the hardiness of these plums when dormant, and they appear, by comparison under such conditions, to be fully as hardy as the peach. As with this fruit, however, by reason of their early blooming period, the flowers are especially liable to injury by late frosts.

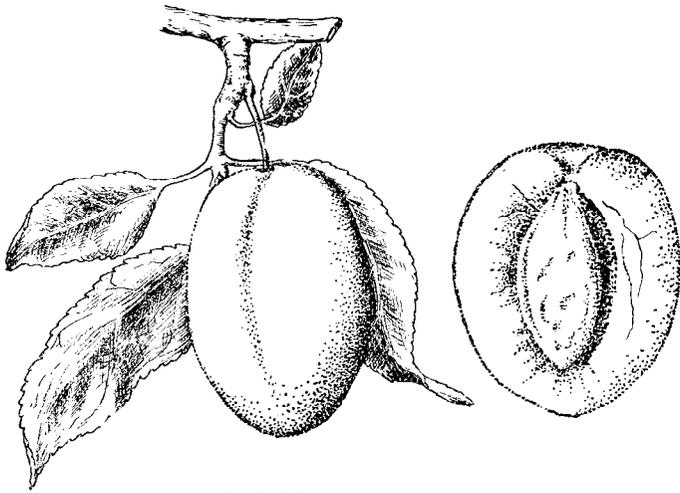
In the spring of 1900 all trees of the Japanese varieties were full of buds, and on April 7 about one-half of the blossoms were fully open. Upon the 11th and 13th the temperature fell to twenty-eight degrees, and examination upon the 16th showed that few of the early blossoms had escaped injury, the ovary being blackened and the petals fallen. The blossoms not open upon the 13th escaped injury and a fair crop of fruit set, the Burbank carrying the most and the Ogon the least.

CHARACTERS OF THE JAPANESE PLUM.

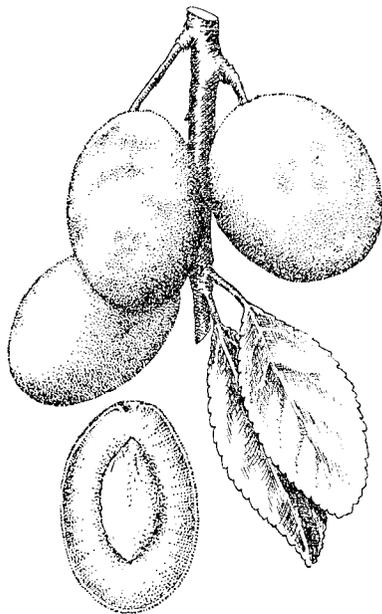
The trees of the varieties under consideration have much the same habit of growth, the form being rather upright, with the forked branches spreading widely toward the top. The leaves are rather large, obovate, usually acute at tip, the margins finely serrate; the buds are in threes, whence the specific name; the flowers and fruit short-stemmed.

In quality, the fruit of Abundance and Burbank ranks first class, being large, finely colored, and of good flavor; while that of Ogon is not better than second class, its plain yellow color being less attractive and the fruit lacking flavor and juiciness. All are good keepers and ship well. The skin is thin but quite tough—so much so that some prefer to peel the fruit before canning. These varieties are more affected by the brown rot than the cultivated natives, though less so than are the European plums. In the Japanese plums, especially, the importance of thinning the fruit was shown by the fact that, unthinned, the fruit rotted badly, but when thinned it was little affected. Few of the fruits were injured by the curculio, though the catch of the insects was not appreciably less from these trees than from the others.

All things considered, the Japanese plums are the finest grown in our climate, being handsome and fine flavored, good keepers and shippers, and bringing the highest price in the market.



WHITE NICHOLAS.



WIEZERKA.

NOTES ON VARIETIES.

Abundance.—Large, one and three-fourths to two and one-fourth inches long, and one and one-half to two and one-fourth broad; round, pointed; yellow splashed and often nearly covered with red; flesh yellow, juicy; flavor excellent; pit small; cling; stem short; suture distinct. July 6 to 16.

Burbank (Plate VII).—Large, one and one-half to two and one-fourth inches long, and one and one-half to two and one-eighth broad; round, slightly oblate; yellow, streaked and splashed, sometimes nearly covered, with dull red; suture slight; flavor rich; flesh yellow, juicy; nearly free; skin thin but tough—should be removed before canning. July 17 to 30.

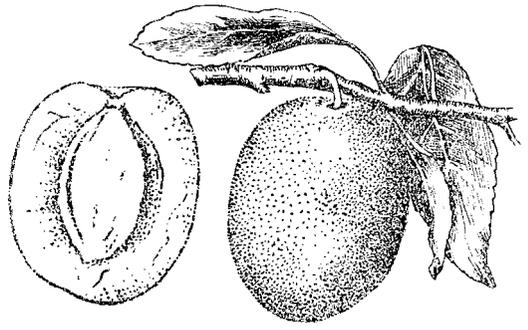
Ogon.—Medium to large; one and one-eighth to one and five-eighths inches long, one and one-sixteenth to one and five-eighths broad; round; greenish yellow; suture distinct; flesh greenish yellow, fairly juicy; flavor good; free. July 6 to 16.

The Wickson plum, a hybrid of *Prunus triflora*, the Japan plum, with *Prunus simonii*, a plum probably from China, is often classed with the Japanese plums. It is one of many hybrids produced by Mr. Luther Burbank, of Santa Rosa, Cal. It is an upright grower, the leaf narrower than the Japan plums, and has always bloomed a few days before them. The Wickson trees were more severely injured by the freeze of February, 1899, than the Japan plums, several trees being so badly injured that they died during the summer. It is an early bearer; several trees, budded in the summer of 1898, each matured a few plums in 1900. Those ripened have been finer in appearance than Burbank or Abundance, but have not been so juicy or finely flavored.

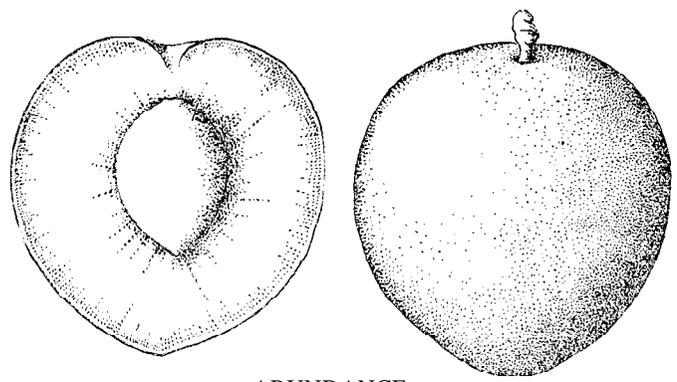
Wickson.—Large, two to two and three-eighths inches long, and one and seven-eighths to two and one-sixteenth broad; conical, pointed; yellow, blushed and streaked, sometimes nearly covered, with red; suture distinct; flesh yellow, juicy; flavor good but not rich; stem very short; semicling. August 20 to 28. Fruit on nursery trees ripened September 26.

NATIVE PLUMS.

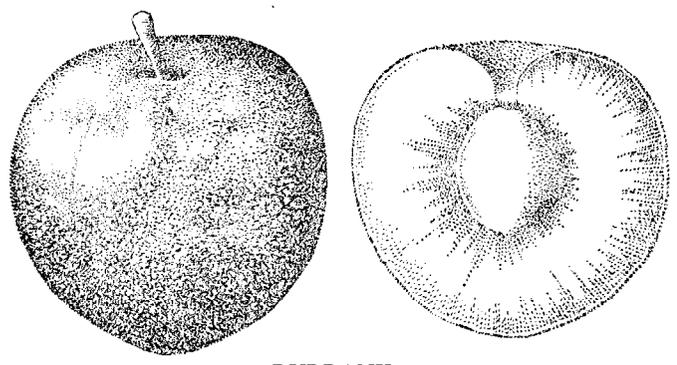
Probably the most promising classes for Kansas are those known as the cultivated native plums. Selected varieties of these, found growing wild, were early planted in orchard and garden, and, under cultivation, have usually improved in quality and size. Generally these were first disseminated by sprouts, but latterly they have been



20 OREL.



ABUNDANCE.



BURBANK.

propagated and sold by the nurseries. Desirable varieties have also originated under cultivation, and to-day there are numerous named varieties grown in America.

In the classification of varieties there is often disagreement among authorities. While the literature of plum botany is interesting, the horticulturist's interest in the relationships is with the larger questions of fruitfulness and hardiness rather than with botanical characters. With this in mind, the view that the different groups, formerly classified as groups of the species *hortulana*, are hybrids of *Prunus americana* and *Prunus angustifolia* (*chicasa*) is satisfactory to plum growers, in that it is an easy solution of what has been a difficult problem. (Bailey, in Cornell Bulletin No. 13; Waugh, *Garden and Forest*, 1897, page 340.) Following this plan, the native plums, varieties derived from the different wild plums of America, will be classed as *americana*, *angustifolia* (*chicasa*), or *hortulana* hybrids.

THE AMERICAN PLUM, *Prunus americana*.

All varieties of *Prunus americana* grown here have proved entirely hardy. Trees of Weaver set in 1894 bore a full crop of fruit in 1898, and have each year since. Wyant, set in 1894, bore a full crop in 1897, the smaller trees being loaded with fine plums. It shows a disposition to bear light crops each alternate year. Trees of Bixby, De Soto, Wolf, and Hawkeye, set in 1898, in 1900 bore crops large enough to furnish fruit in sufficient quantities to test their value for canning. Rollingstone, set in 1898, bore a few plums in 1900.

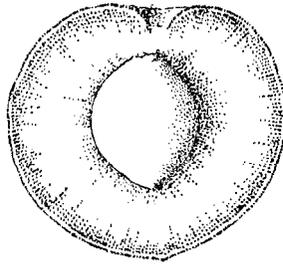
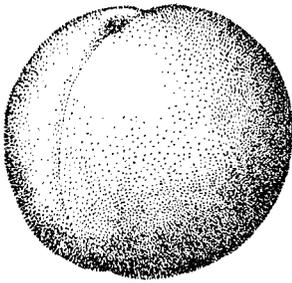
CHARACTERS OF THE AMERICAN PLUM.

The *americana* is easily distinguished. The tree is large, spreading, frequently thorny; twigs grayish brown; the leaves large, obovate, pointed, coarsely serrate, coarsely veined, rough, never glossy. The fruit is usually firm fleshed, covered with a more or less heavy bloom; thick skinned; stone rather large in proportion to the size of the fruit.

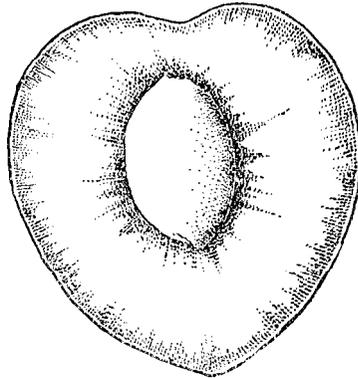
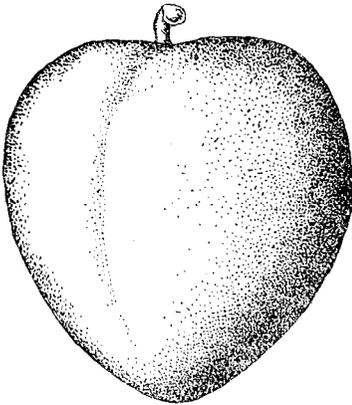
All the following varieties show the specific character of the *americana*. The skin is thick, but cooks up fairly well in canning. When canned they are a fairly rich, very pleasant fruit. Their hardiness, habit of early bearing and the excellence of their fruit entitle them to a permanent place in the list of desirable plums.

NOTES ON VARIETIES.

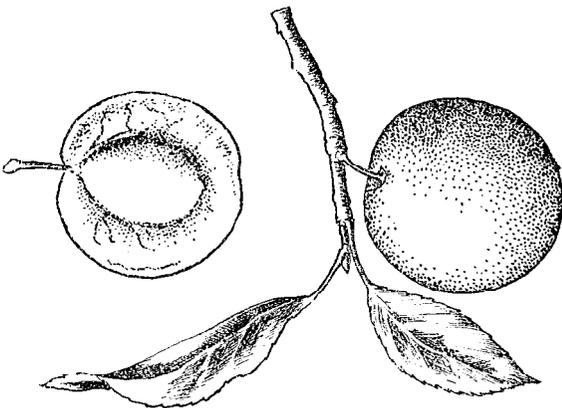
Bixby.—Medium, one to one and one-sixteenth inches long, and one to one and one-eighth broad; round oblong; dark yellow splashed or covered with red; skin medium; flesh yellow; flavor good; cling. August 3 to 12.



OGON.



WICKSON.



QUAKER.

De Soto.—Medium, one to one and one-fourth inches long, and seven-eighths to one and one-eighth broad; yellow splashed or clouded with red; flesh yellow, firm; flavor good; skin thick; cling. August 20 to 28.

Hawkeye (Plate VIII).—Medium to large, one and one-eighth to one and three-eighths inches long, and one to one and one-fourth broad; round oblong; flesh yellow, firm; flavor good; skin thick; cling. August 25 to September 5.

Quaker.—Medium, one to one and one-eighth inches long, one to one and one-eighth broad; yellow splashed and sometimes nearly covered with a dull red; heavy bloom; flesh yellow; flavor excellent; skin thick, somewhat astringent; cling. August 5 to 15.

Rollingstone.—Medium to large, one to one and three-eighths inches long, and one to one and one-fourth broad; round oblong; purplish red; flesh yellow; flavor good; skin medium thick; cling. August 20 to 28.

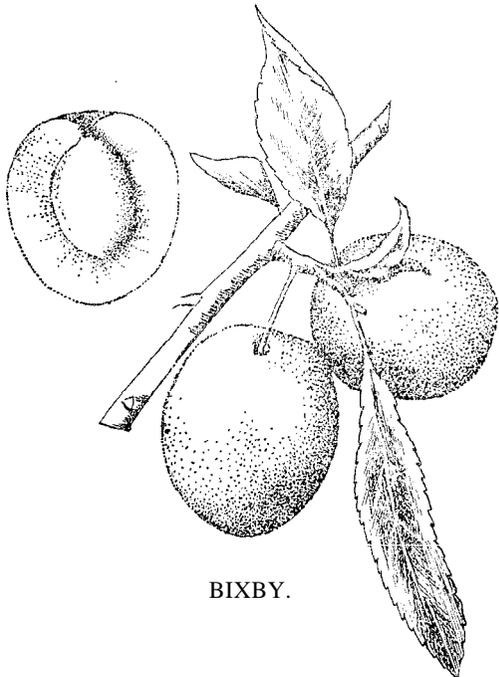
Weaver.—Medium to large, one and one-half to one and three-fourths inches long, and one to one and one-fourth broad; round oblong; red or yellow ground; flesh yellow, firm; flavor good; semicling; tree larger, not so rough as Wyant. August 15 to 31.

Wolf.—Medium, one and one-fourth inches long, and one and one-fourth broad; round; yellow almost covered with medium dark red; flesh yellow, firm; flavor good; skin thick; semicling; twigs of this variety markedly gray, and the habit especially irregular. August 24 to September 4.

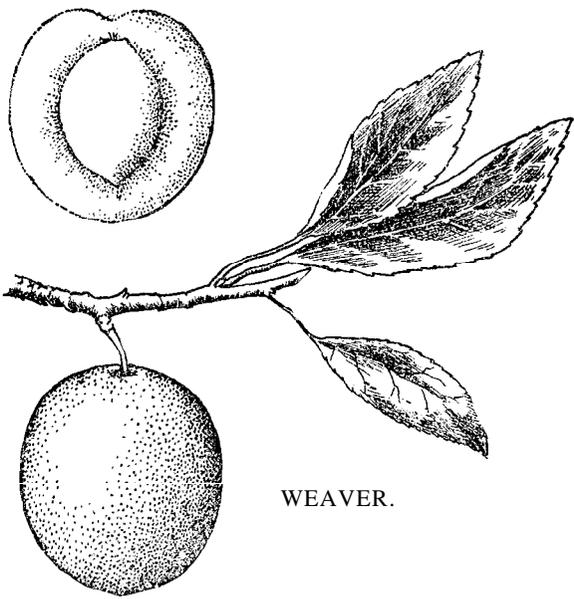
Wyant (Plate IX).—Medium to large, one and one-half to one and seven-eighths inches long, and one and one-fourth to one and five-eighths broad; round, slightly flattened; purple red, medium bloom; flesh yellow; semicling; skin thick, astringent; otherwise good and of rich flavor; tree small, of uneven, crooked appearance. August 10 to September 1.

THE CHICKASAW PLUM, *Prunus angustifolia*.

The trees of varieties belonging to this species all showed some injury after the freeze of February, 1899. Four trees of Transparent were killed. Emerson was badly injured, but has made a fair growth since. Robinson and Pottawatomie were not seriously injured, and bore fair crops of fruit in 1899 and 1900. Robinson is a heavy bearer. Five-year-old trees bore two and one-fourth bushels of good plums. The fruit is larger and better in quality than Pottawatomie, but has



BIXBY.



WEAVER.

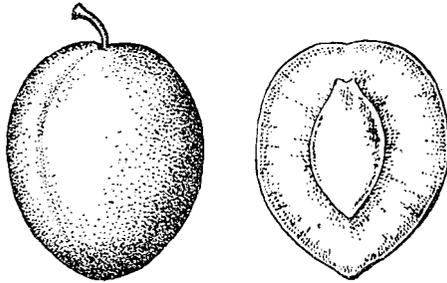
been more affected by brown rot. Pottawatomie, however, is the better shipper.

CHARACTERS OF THE CHICKASAW PLUM.

Trees belonging to the species *angustifolia* are less stocky, less thorny and smaller than the *americana*. The bark is usually smoother, often resembling the bark of the cherry tree. The older trees are often of a drooping habit, caused by the heavy loads of fruit bending the slender branches. The bark of the young twigs is reddish brown and smooth, giving the tree in its winter condition a clean, bright appearance. The leaves are much smaller than those of the *americana*, lanceolate or oblong lanceolate, very finely serrate, and partially folded or trough-like. The fruit is rather smaller than that of the *americana*, usually thin skinned and with but a very light bloom. The flesh is juicy, pulpy when fully ripe, and usually pleasant.

NOTES ON VARIETIES.

Emerson.—Medium, seven-eighths to one inch long, and three-fourths to seven-eighths broad; oval; red with light bloom; flesh yellow; flavor mild, fair; skin thin; cling, July 1 to 20.



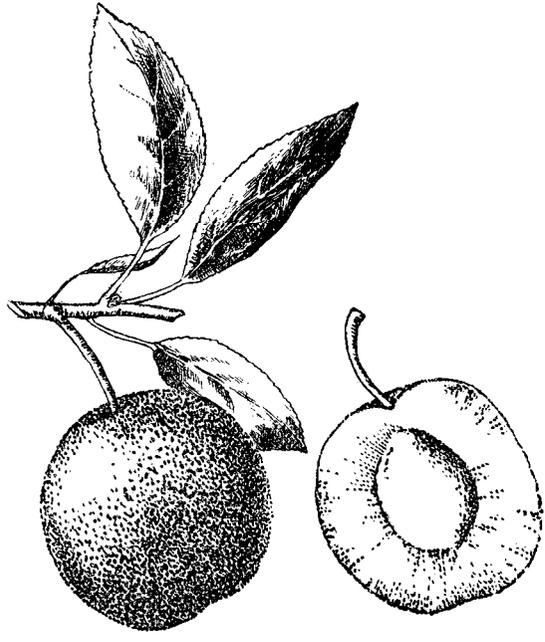
EMERSON.

Pottawatomie.—Medium to large, one to one and one-half inches long, and one to one and one-fourth broad; purplish red with light bloom; flesh yellow; flavor good, subacid; skin medium; cling. July 13 to 27.

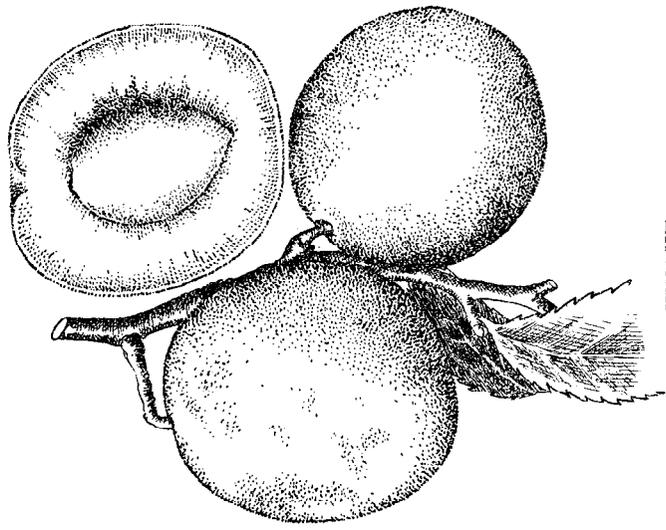
Robinson.—Round; one to one and one-half inches long, and seven-eighths to one and one-fourth broad; dark red, with light dots; flesh yellow, juicy, sweet; flavor fine; cling; excellent for canning; rather too soft for shipping. July 20 to August 10.

THE HORTULANA PLUM, *Prunus hortulana*.

The varieties classed as *hortulana* hybrids vary so greatly as to be divided into groups, each of which has characters like both the parent species; indeed, some authorities incline to the view that some varie-



WOLF.



WYANT.

ties are the product of a second cross. (Cornell Bulletin No. 38; Vermont Experiment Station Report, 1896-'97.)

Whatever their botanical relationships, some of the plums placed in this class are most excellent fruit, worthy of a place in every garden.

WILD GOOSE GROUP.

Charles Downing and Clifford are sufficiently similar to Wild Goose as to be grouped with it. They are usually described as peach-like in twigs and leaves and general habit of growth. They are of a fine color, ripen early, and have been fairly regular bearers. They were somewhat injured by the cold weather of February, 1899. Clifford was more seriously injured than the others, much of the young growth having been killed. The fruit-buds of all these three varieties were killed. They made good growth in 1899 and 1900, healthy layers of new wood having been formed around the dead heart-wood, and the trees seem to be little the worse for the winter injury.

NOTES ON VARIETIES.

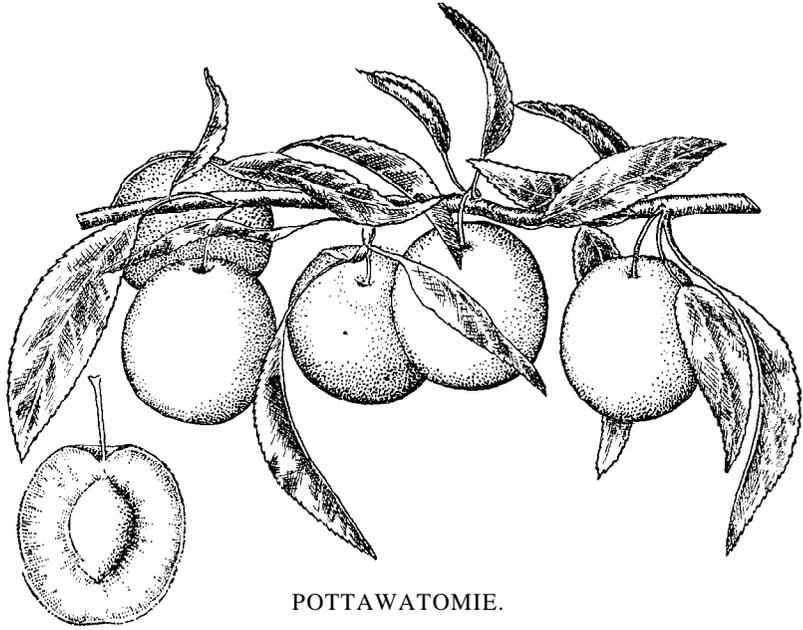
Clifford.—Medium, one to one and one-eighth inches long, and seven-eighths to one broad; oblong, sometimes pear-shaped; red with very small dots; bloom light; flesh yellow; flavor subacid, good; skin thin; cling. July 1 to 10.

Charles Downing (Plate X).—Medium, one and one-eighth to one and one-fourth inches long, and one and one-eighth to one and one-fourth broad; bright red with many fine dots; flesh yellow; flavor good; skin medium; cling; stem one-half inch in length; often with a cavity next the stone. July 1 to 9.

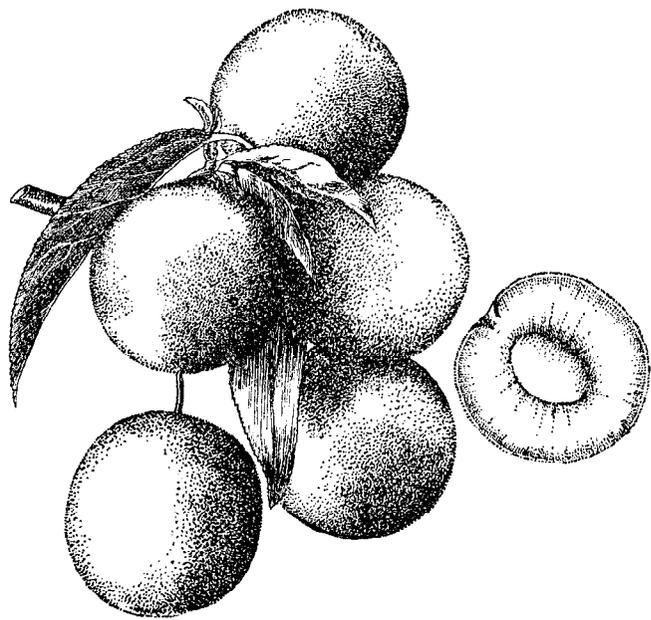
Wild Goose.—Medium to large, one and one-eighth to one and one-half inches long, and one inch in breadth; round oblong; flesh yellow, firm; flavor subacid, good; skin medium; cling. June 29 to July 15.

MINER GROUP.

Clinton and Maquoketa of the Miner group are later in season and thicker skinned than fruits of the Wild Goose group. The leaves are thicker and shorter, resembling more the leaves of the *americana* varieties than those of the Wild Goose or *angustifolia*. They were injured by severe cold less than varieties of the Wild Goose group. Clinton bore a fair crop of fruit in 1899, the summer following the most severe cold ever recorded here. In 1900 both bore fair crops of good plums. In some seasons Clinton has been badly affected with brown rot, but its regularity in bearing and the good quality of its fruit recommend it for planting. The Maquoketa has not been grown



POTTAWATOMIE.



ROBINSON.

here as long as the Clinton, but its record compares very favorably with the older Clinton trees.

Clinton (Plate XI).—Large, one and one-fourth to one and three-fourths inches long, and one to one and one-half broad; round, varying to oblong; red; flesh yellow; flavor good; skin medium thick; cling. August 10 to September 5.

Maquoketa.—Medium to large, one to one and one-fourth inches long, and one to one and one-eighth broad; round, slightly oblate; suture distinct but not deep; bright red; flesh yellow; skin medium thin; cling. August 20 to 30.

WAYLAND GROUP.

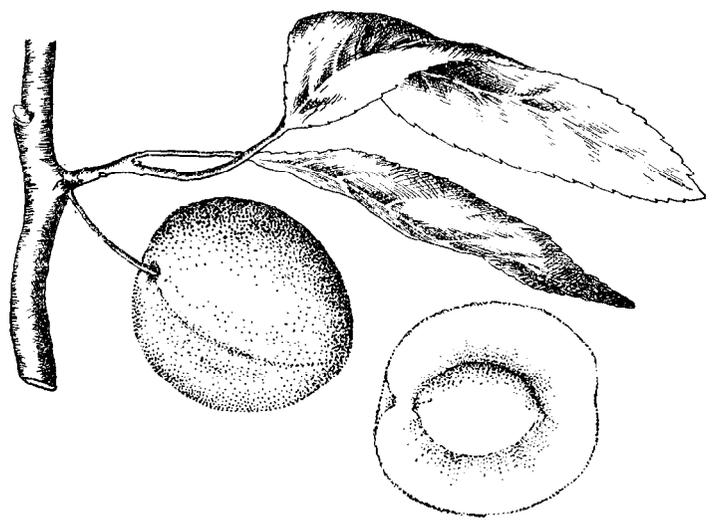
The trees of this group are strong, spreading growers, and have many small branches. The older trees of Moreman and Golden Beauty have very rough bark, often curling back like that of some of the *americana* trees.

Golden Beauty, Moreman and Wayland represent the Wayland group in the Experiment Station orchard. The trees of Moreman and Golden Beauty are older than those of Wayland, but all three sorts have proved worthy of a place in every collection.

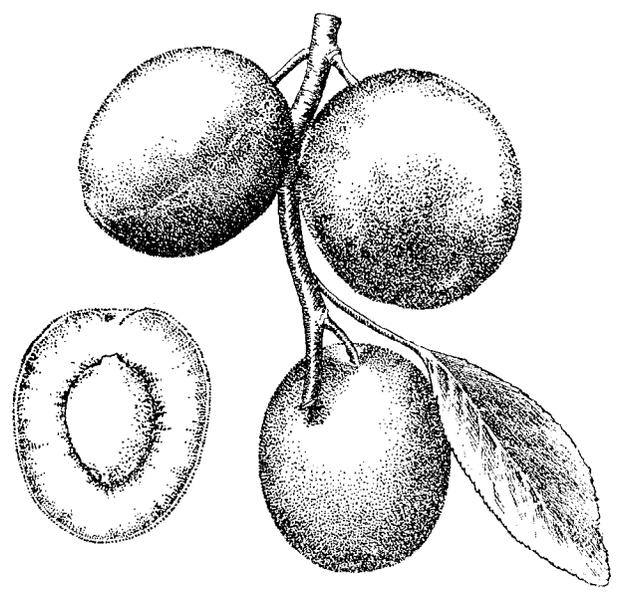
Moreman has been the heaviest bearer in the orchard. In 1900 tree No. 17 yielded four and one-half bushels and tree No. 19 five bushels of good marketable plums. They color some time before ripening, are a fine bright red, and ripen up fairly well off the tree. They ship well and stand handling. When fully ripened they have a fine flavor, slightly resembling a well-ripened cherry. The fruit is hardly juicy enough for best canning quality, but is a favorite for jelly and marmalade.

Golden Beauty has the fault of overbearing. When thinned, the fruit grows to very fair size, is a fine golden yellow, colors before ripening, is a good shipper, and handles well. When fully ripe it is a good dessert plum, having a very fine flavor, somewhat resembling that of the apricot. The texture of the skin is against it for a canning fruit, as it seems tougher after canning than while fresh. This plum is excellent for marmalade. A peculiarity of this variety is that the pits very frequently open when the fruit is fully ripe.

Golden Beauty (Plate XII).—Medium, one to one and one-fourth inches long, and seven-eighths to one and one-eighth broad; round ovate; yellow; flesh yellow; very finely flavored when fully ripe; skin medium thick; semicling; good keeper; heavy bearer. September 2 to October 1.



CHARLES DOWNING.



CLINTON.

Moreman (Plate XIII).—Small to medium, seven-eighths to one and one-eighth inches long, three-fourths to one inch broad; dark red; flesh red, quite firm, and finely flavored; skin medium thick; cling; a good keeper and shipper. September 1 to 25.

Wayland.—Fruit large, one and one-fourth to one and one-half inches long, and one to one and three-fourths broad; round oblong; light red; flavor good; skin medium thick; semicling. September 1 to 15.

A plum bought for Bluemont, set in 1898, bore in 1900 a fair crop of fruit. As Bluemont is classified by Waugh as a variety of *Prunus watsoni*, this tree may be incorrectly named, as its manner of growth and the characters of its leaves and blossoms are of the *angustifolia* type. The fruit, however, has a thicker skin with a heavier bloom than any of the *angustifolia*, and possibly this variety belongs with the *hortulana* hybrids. Its description, under the name as received, here follows:

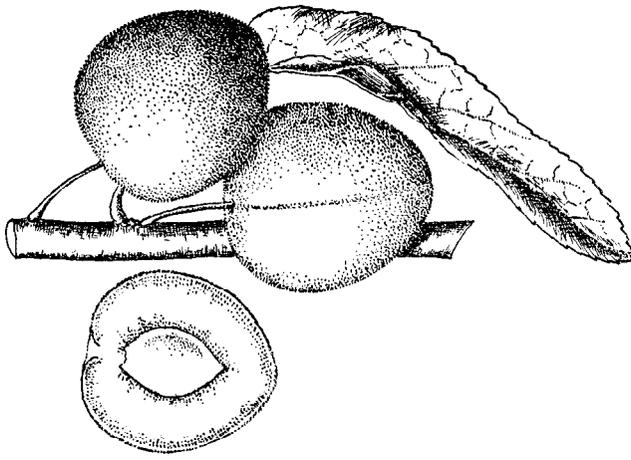
Bluemont (Plate XIV).—Medium, one to one and one-eighth inches long, one and one-eighth broad; round, slightly flattened; dull red with heavy bloom; flesh yellow, rather coarse; flavor fair; skin medium thick; cling. August 22 to September 4.

Pissard's plum (*Prunus pissardi*) has been grown by the Experiment Station as an ornamental. It was injured by cold in 1899, but has since made a good growth. The leaves are red, and the color quite persistent; when in bloom, before the leaves, it is a mass of white. It is a desirable ornamental tree where one of small size is required. It has been a shy bearer, the crop usually consisting of but a few plums.

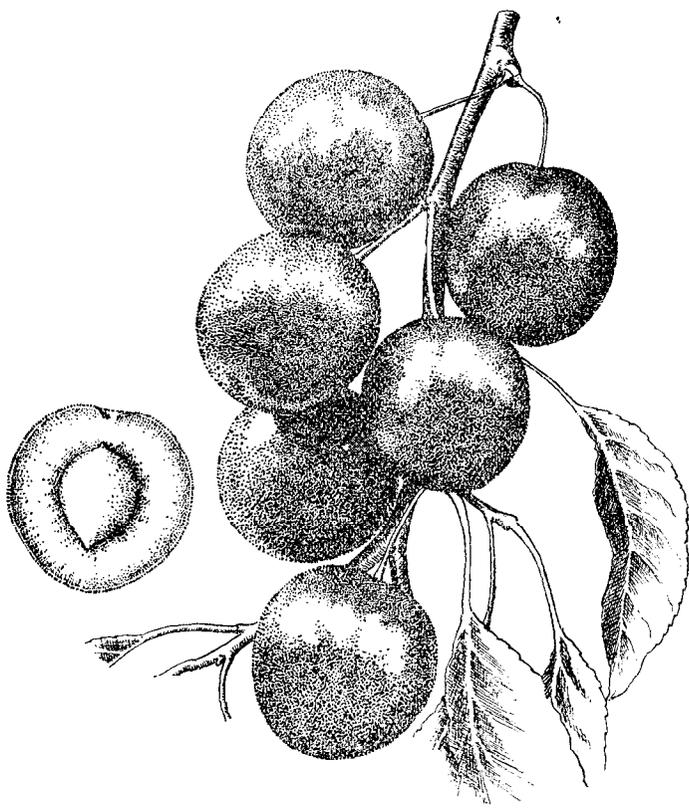
Prunus pissardi.—Medium, one and one-eighth inches long, one inch broad; oblong; very dark red; flesh red; flavor acid; fair. June 21 to July 1.

Prunus simonii.—Trees of this species have at several different times been planted. They have proved tender, being injured in ordinary winters, and all trees entirely killed in 1899.

Trees of Marianna have been in the Experiment Station orchard for a number of years. The tree is an upright, spreading grower; leaves ovate or oblong ovate; flowers small. Its botanical relation seems to be a matter of doubt. Trees of this variety have not been regular bearers, but have occasionally borne a fair crop of fruit of medium quality.



GOLDEN BEAUTY.



MOREMAN.

Marianna.—Medium to large, one and one-eighth to one and five-eighths inches long, and seven-eighths to one and three-eighths broad; round oblong; bright red with fine dots; flesh soft and sweet. July 5 to 15.

Blackman, thought by botanists to be a hybrid of plum and peach, sets very full of buds, but the blossoms are defective in both stamens and pistils, and the petals are wanting. No fruit is ever produced. The accompanying illustration (fig. 1, next page,) shows the form of the blossoms. This variety is no use for any purpose.

The failure of many trees to bear fruit is often caused by imperfect pollination. In some cases cross-fertilization is necessary, because the pistil is in the receptive condition before the pollen of the stamens is available. This condition, termed proterogyny, is shown in the illustration (next page) of a blossom of Wild Goose. While the Experiment Station is not yet prepared to report as to the affinities of plums with respect to the varieties which are most valuable for fertilizing others, the chart showing the dates at which the different varieties bloom may prove helpful to growers who contemplate setting plum orchards. The dates given are for 1900, as more varieties bloomed this year than heretofore. The dates vary in different seasons, but the relative date of blossoming has been fairly constant.

Some varieties tend to overbear and, unless thinned, the fruit is unsatisfactory. Trees of Clinton, Robinson and Golden Beauty frequently set so full as to need propping, and, where the curculio are prevented from destroying the crop, they do not reach full size. When thinned so that the plums do not touch, the yield has not only been slightly increased over those unthinned, but the value of the crop was largely increased on account of the greater size and better quality of the fruit.

The following record was made by five branches of a Burbank tree which set very full. The other branches were not crowded.

Branch *A*, not thinned, had forty plums June 18. Twenty plums, averaging one and one-half inches in diameter, were ripened in good condition.

Branch *B*, not thinned, had on June 18 twenty-five plums. Three plums ripened, one poor, two in good condition, averaging one and five-eighths inches in diameter.

Branch *C*, not thinned, had, June 18, forty plums, nineteen of which ripened, averaging one and five-eighths inches in diameter.

From branch *D* twenty-seven were removed, leaving thirty on

the branch. Twenty-two fine plums ripened, averaging nearly one and seven-eighths inches in diameter.

From branch *E* twenty were removed, leaving nineteen plums. Eighteen plums, averaging one and three-fourths inches, ripened.

To sum them up: Of 105 plums left on three unthinned branches, forty-one ripened in fair condition, averaging nearly one and five-eighths inches in diameter; of forty-nine plums left on two branches from which forty-nine had been removed, thirty-one plums, averaging over one and three-fourths inches, were ripened in good condition.

In wet seasons, when brown rot is more injurious, thinning should prove even more advantageous.

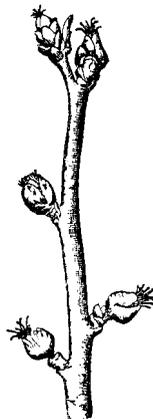


FIG. 1.



FIG. 2.
Proterogynous blossom.



FIG. 3.
Normal blossom.

NURSERY NOTES.

Burbank and Abundance, budded on peach roots, have grown to a height of five feet the first season from the bud.

Set in orchard rows, three BURBANK trees give the following measurements:

Tree 1, five leading branches made an average growth of four feet six inches during 1900.

Tree 2, five leading branches made an average growth of four feet ten inches during 1900.

Tree 3, five leading branches made an average growth of three feet six inches during 1900.

ABUNDANCE trees give measurements as follows:

Tree 1, five leading branches made an average growth of three feet six inches during 1900.

Tree 2, five leading branches made an average growth of three feet one inch during 1900.

Tree 3, five leading branches made an average growth of three feet five inches during 1900.

OGON trees give measurements as follows:

Tree 1, five leading branches made an average growth of three feet five inches during 1900.

Tree 2, five leading branches made an average growth of three feet three inches during 1900.

Tree 3, five leading branches made an average growth of two feet nine inches during 1900.

In orchard rows, four best branches of GOLDEN BEAUTY trees made an average growth of two feet ten inches during 1900.

In orchard rows, four best branches of WILD GOOSE trees made an average growth of two feet ten inches during 1900.

Four best branches of WEAVER made an average growth of two feet eight inches during 1900.

In nursery rows, budded on peach, four best branches of MOREMAN made an average growth of five feet six inches; in orchard rows, five best branches made an average growth of two feet four inches.

In nursery rows, on peach roots, WICKSON attained a height of five feet; in orchard rows, seven best branches made an average growth of three feet three inches.

In nursery rows, on peach roots, WEAVER trees attained a height of four feet six inches; in orchard rows, four best branches made an average growth of two feet eight inches.

In nursery rows, on peach roots, ROBINSON trees attained a height of five feet; in orchard rows, five best branches made an average growth of five feet.

In orchard rows, four best branches of DE SOTO made an average growth of two feet nine inches.

In orchard rows, three best branches of WOLF made an average growth of two feet one inch.

Close planting being necessitated by lack of space, the trees in the Experiment Station plum orchard are sixteen feet by twelve feet apart. Judging by the growth of these trees, eighteen feet is a much more desirable distance for planting.

The experience and observation of this department warrant the recommendation of clean culture for plums, keeping the ground shallowly cultivated or disked. The two-horse spring-tooth cultivator and a five-and-one-half-foot disc have been used while the trees were small, and a one-horse, five-toothed cultivator since the trees have grown too large for the two-horse tools. By the use of these tools the surface soil is kept loose and fine. Where exposed to winds, or so sloping as to be in danger of washing, sowing oats or rye in August is a good preventive. Oats are preferable, as the rye is hard to kill in spring by shallow cultivation.

The curculio has been controlled successfully by jarring the trees in early morning and collecting the insects in the curculio catcher, a cut of which appears on plate II; the can below the canvas into which the insects fall is partially filled with kerosene. A sheet with the seam ripped half the length to permit its being readily placed around the tree is a cheap and effective substitute for the catcher here figured. When the sheet is used the insects should be collected in another receptacle after jarring each tree. Among the diseases of the plum, the black-knot, the brown rot, the plum-leaf rust and the shot-hole fungus have occasioned trouble in the Experiment Station orchard.

Black-knot appears as a rough black spot, usually swollen, on the young wood, frequently in the forks of branches. It has been controlled by cutting out and burning the affected part as soon as the disease is detected.

Brown rot attacks the leaves, blossoms, and fruit. It is most readily recognized when it appears on the fruit, which becomes brown when affected, afterward soft, and small tufts or patches of the light yellow spores appear on the surface. The fruits frequently dry up and remain on the tree through the winter as "mummies." The injury from brown rot has been lessened by collecting and burning the diseased fruit, and by spraying with Bordeaux mixture once before the blossom buds open, and at intervals of two or three weeks, until the fruit begins to ripen.

The plum-leaf rust appears as yellow or brown patches; later the brown spore dust appears on the lower side of the leaf. In severe cases the leaves appear nearly covered with the dust, and fall, the tree loses vigor, and the next crop of fruit is much reduced or falls altogether. Wild Goose and Wayland have been most subject to this disease. Since spraying for brown rot has been practiced, the injury from rust has been reduced.

The shot-hole fungus first appears as spots on the leaves; later many of the spots fall out, giving the leaves the appearance of having been punctured or torn by shot. This disease has been much less serious since the trees have been sprayed with the Bordeaux mixture.

From the reports of successful spraying by the various experiment stations, as well as by experience here, there is warrant for the statement that the proper and persistent use of the Bordeaux mixture will practically control the fungus diseases of the plum.



PLATE I.—SPRAY APPARATUS.



PLATE II.—CURCULIO CATCHER.

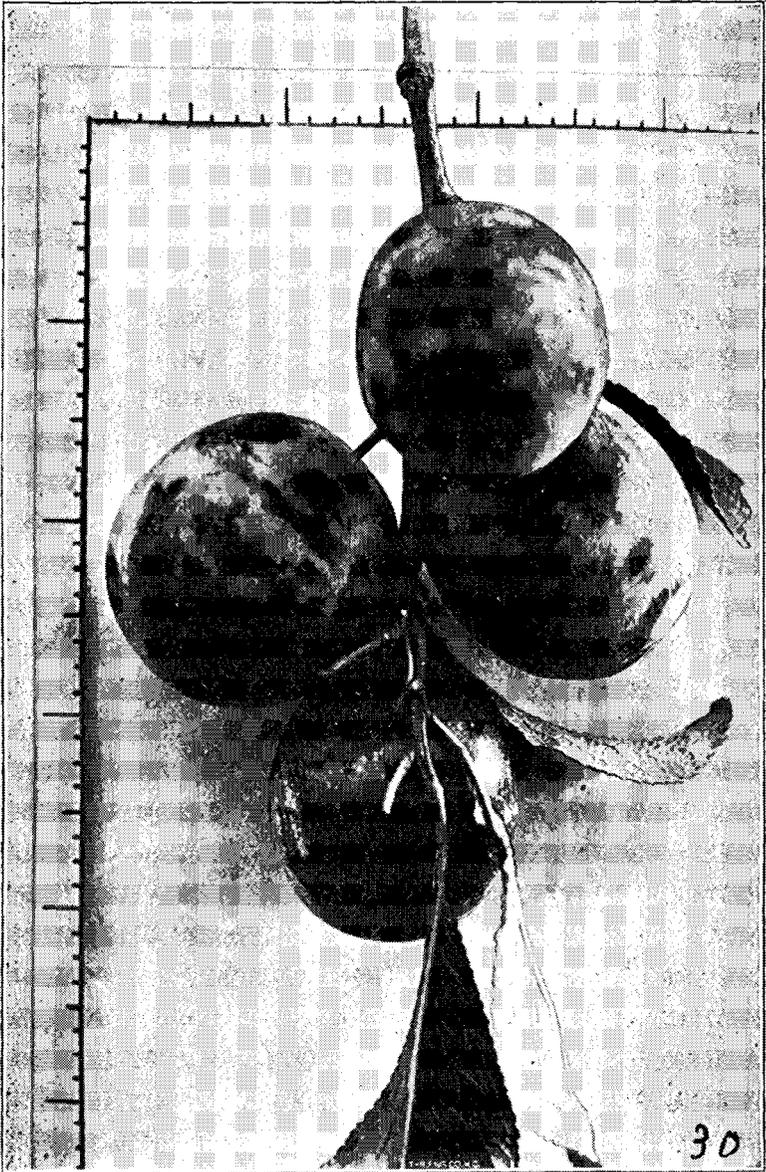


PLATE III.—COMMUNIA.

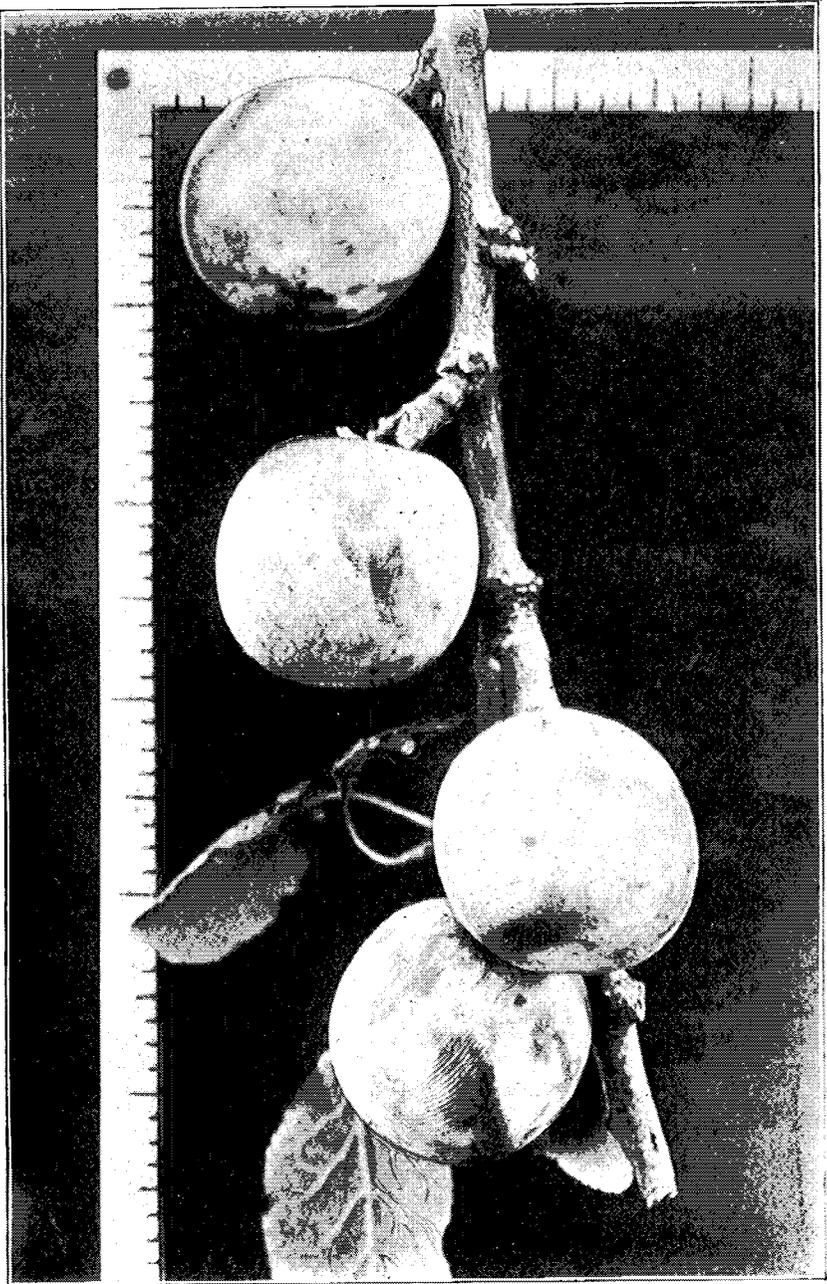


PLATE IV.—19 OREL.



PLATE V.—SPAULDING.

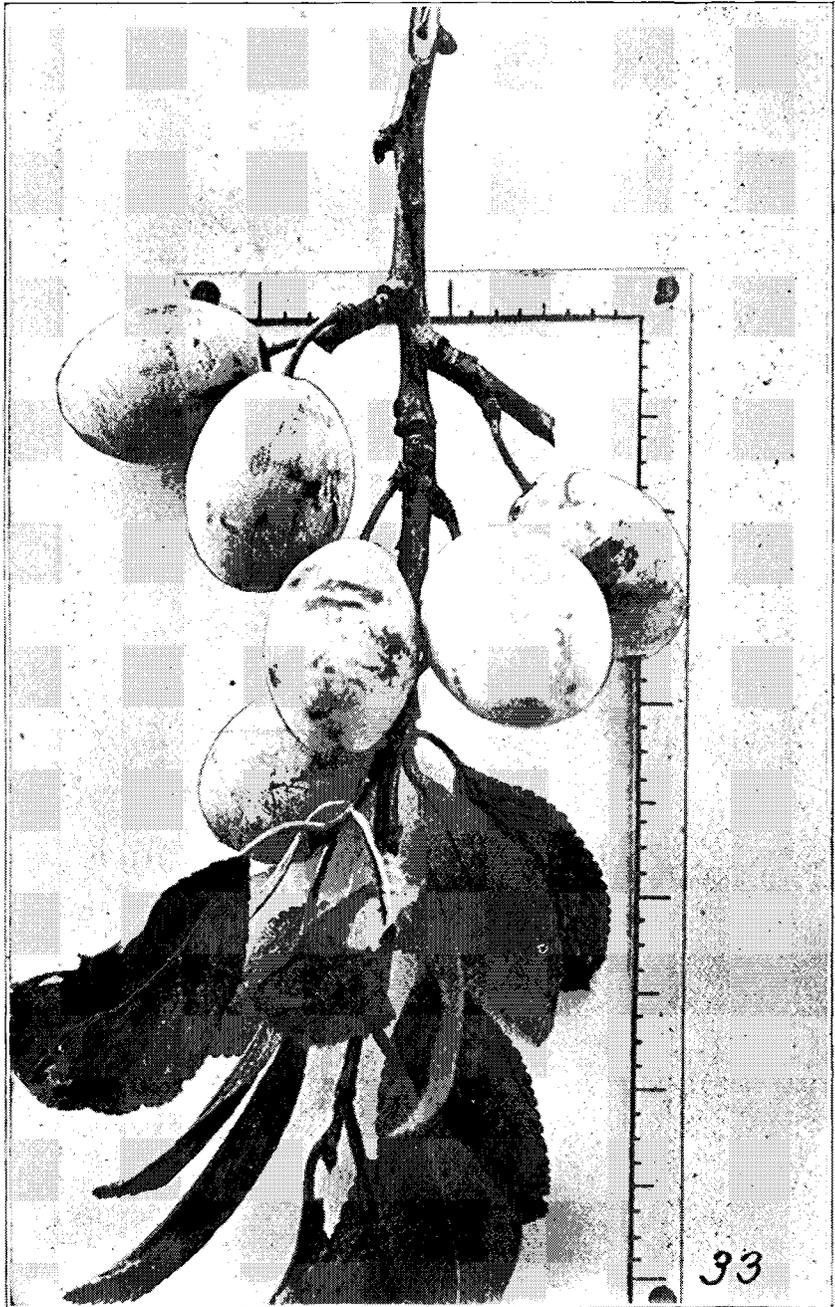


PLATE VI.—WIEZERKA.

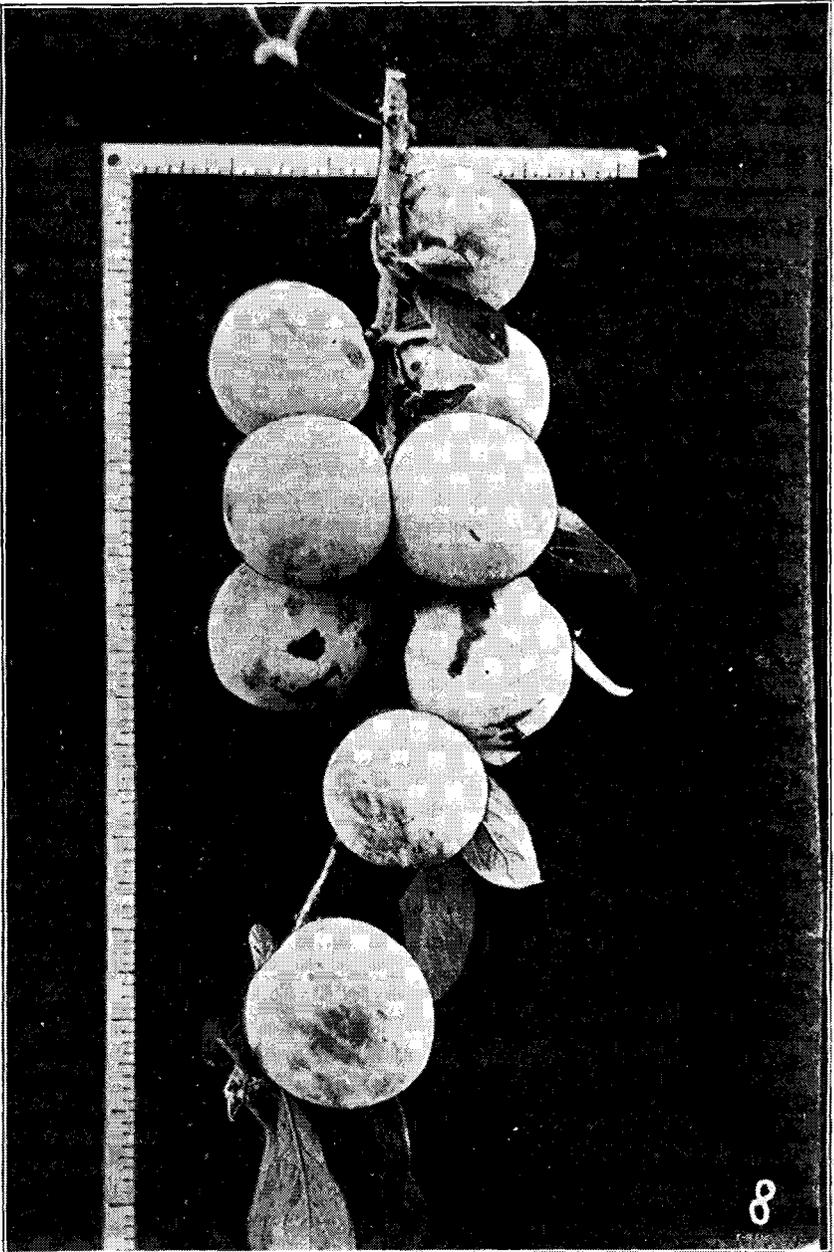
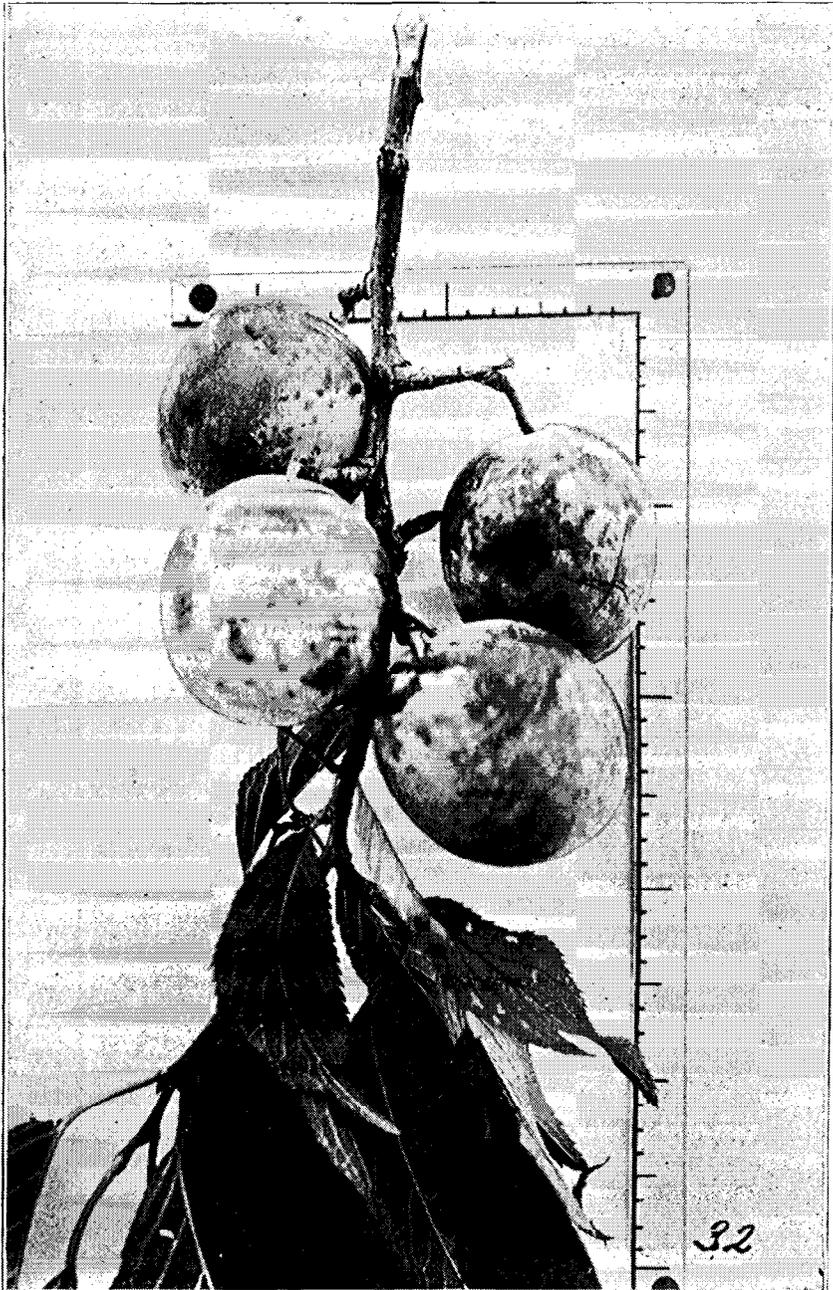


PLATE VII.—BURBANK. Reduced to one-half size.

PLATE VIII.—HAWKEYE.





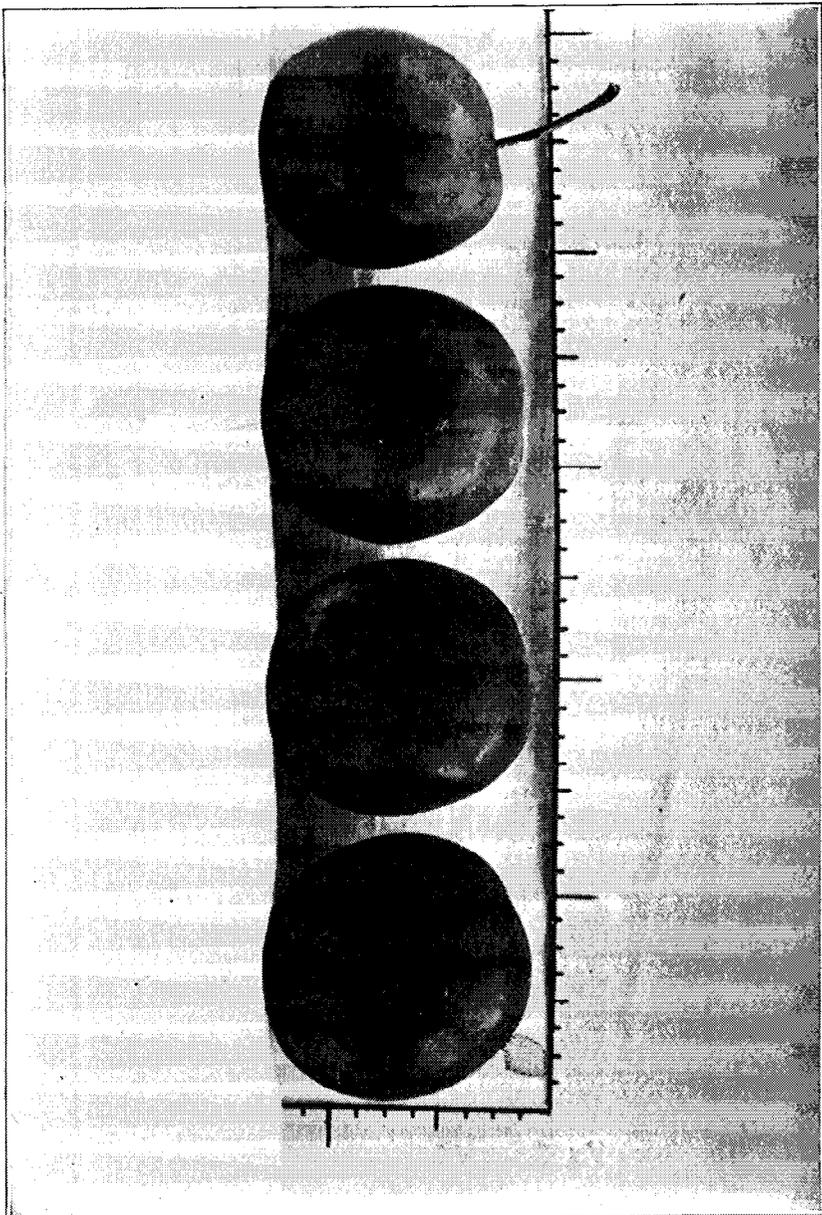


PLATE X.—CHARLES DOWNING.

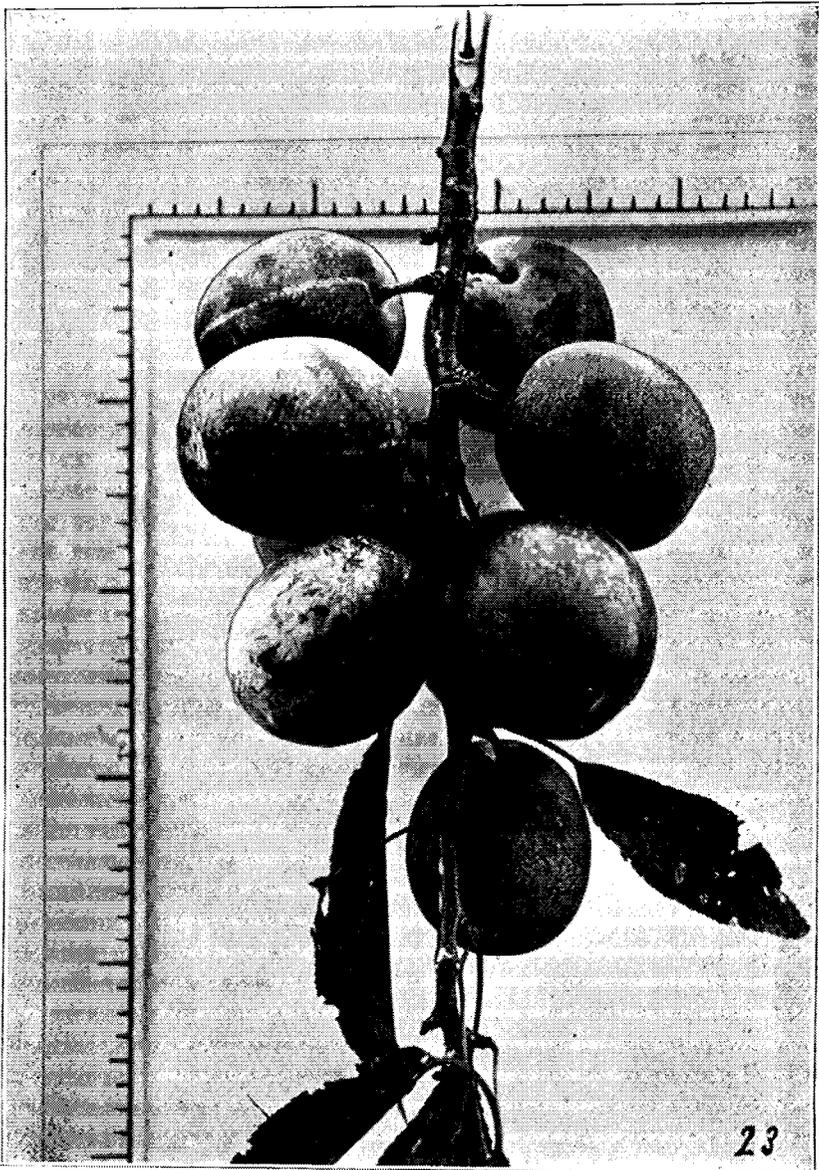


PLATE XI.—CLINTON.

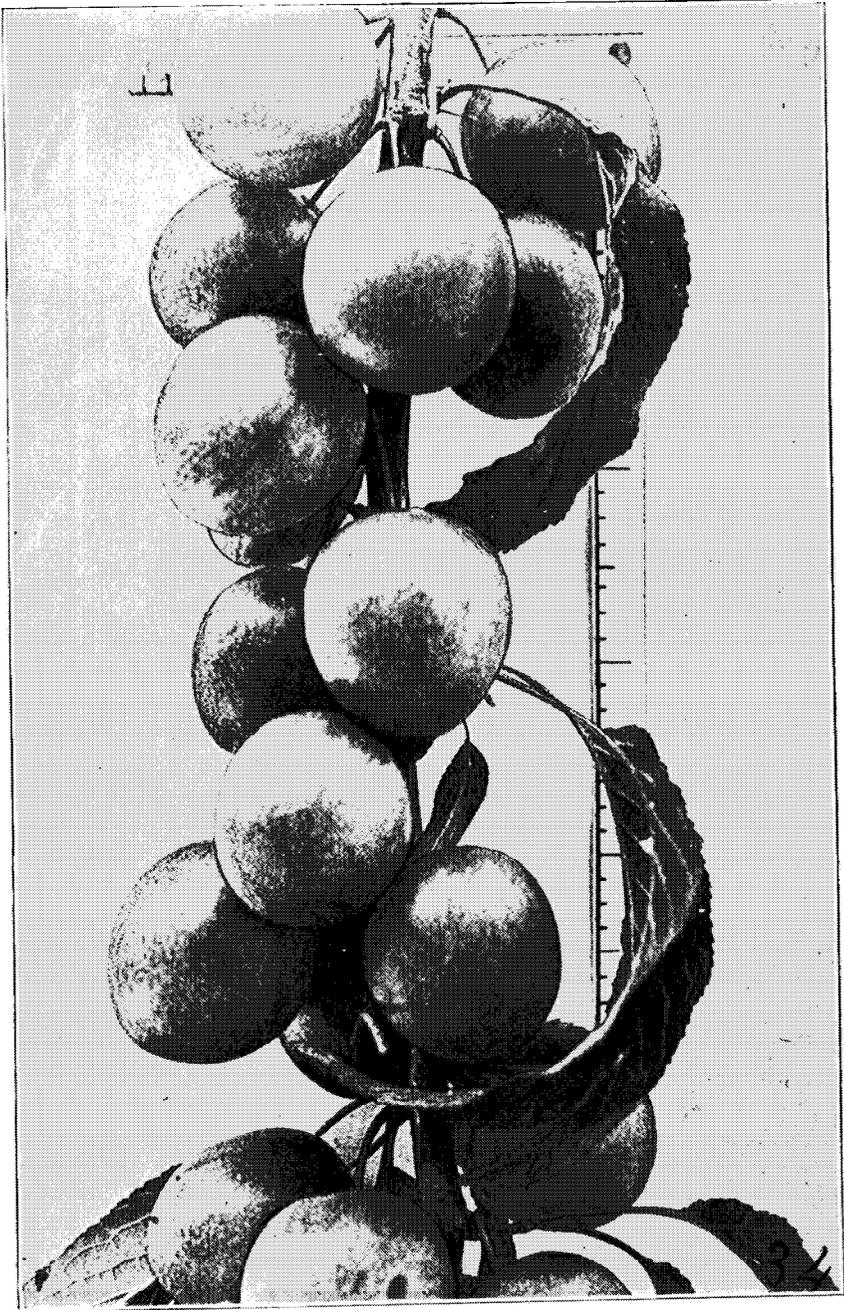


PLATE XII.—GOLDEN BEAUTY.

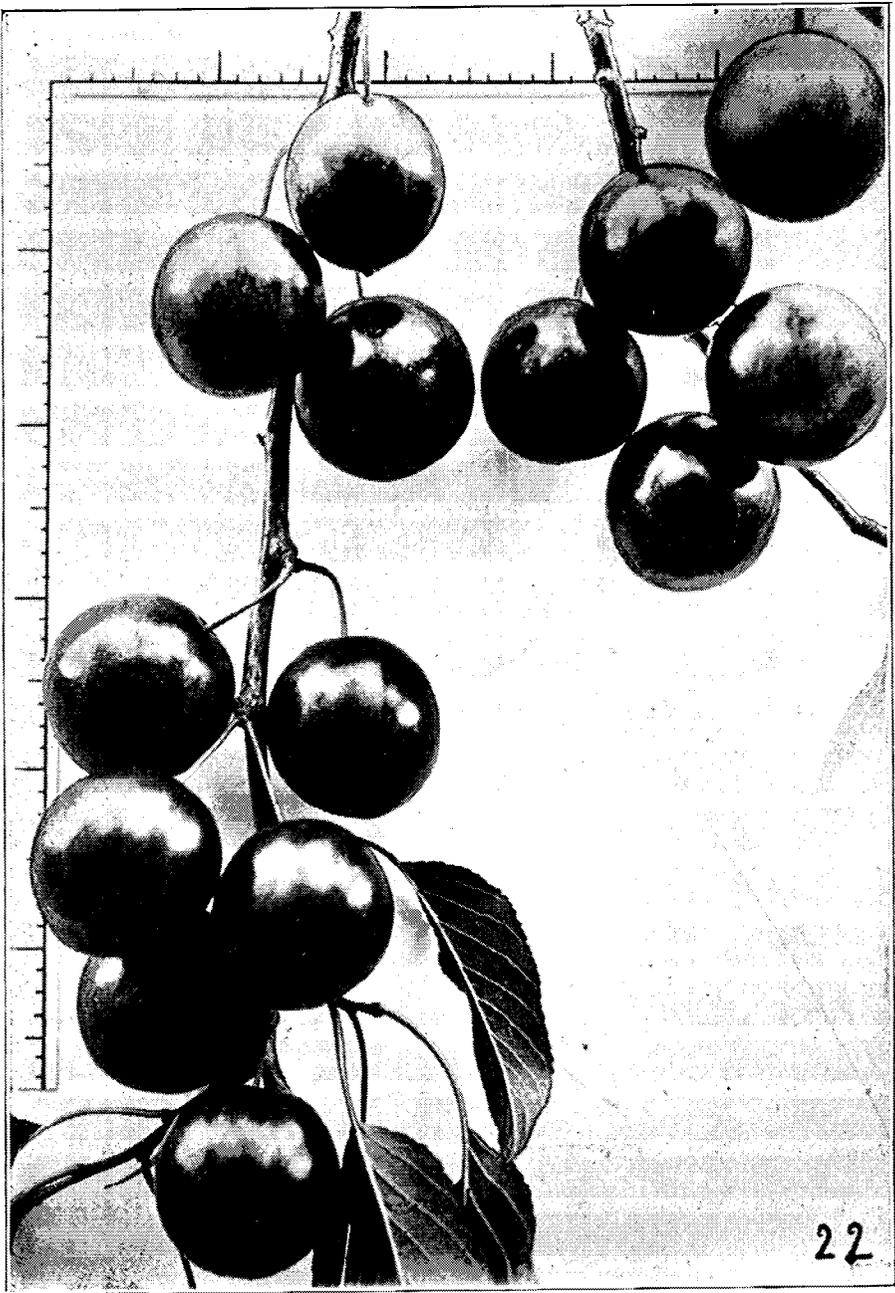


PLATE XIII.—MOREMAN.

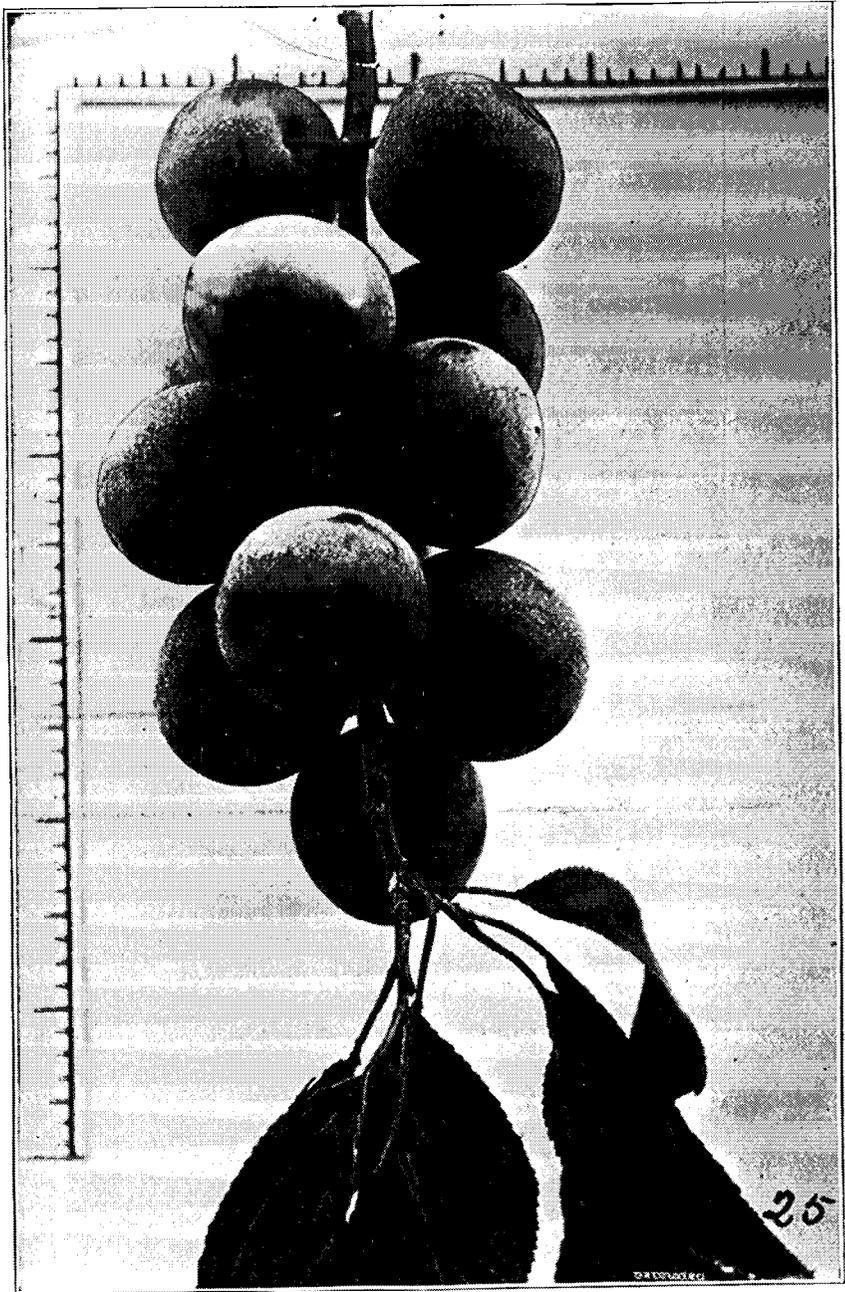


PLATE XIV.—BLUEMONT.

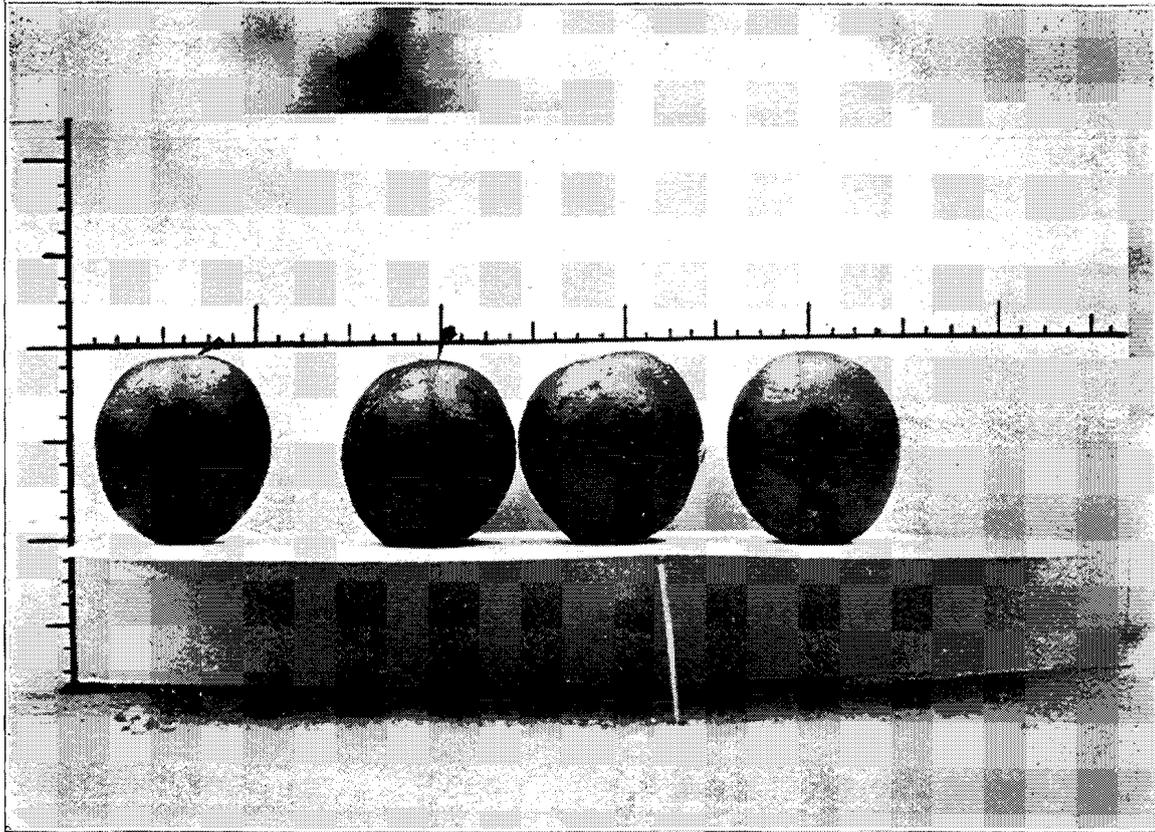


PLATE XV.—SAND PLUMS. *Prunus Watsoni*.