

bescence in *C. panamensis* is essentially lepidote, each trichome having a conspicuous, flat, brown centre. One of the panicles of the type specimen of *C. panamensis* bears two bractlike leaves about 2 cm. long at the apex of the peduncle.

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NOTES ON NORTH AMERICAN TREES. VII¹

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Prunus

THE last ten years have added little to our knowledge of the Plum-trees of North America, where in the Arkansas, Oklahoma and Texas region they are more numerous in species and probably in individuals than in any other part of the world. It is difficult to obtain good material for a complete study of these trees. They flower early when there is little else in bloom to occupy the collector, who is obliged to make long and expensive journeys to collect the flowers of one genus. In four years out of five the young fruit is destroyed by the severe frosts which in that region usually come later than the flowering of the Plum-trees. When the fruit escapes destruction by frost it is difficult to obtain, for it ripens at the season when heat and insects make plant collecting in the region where plums abound a difficult and disagreeable undertaking. The different specimens are often widely separated, and it is therefore impossible to make the comparative study of the living plants which is necessary in order properly to understand their similarities and differences. That there are natural hybrids between at least some of the shrubby species is probable, but it has not yet been possible with available material to work these out; and there is little prospect that American Plums can be properly understood until all or most of the species can be grown together in one garden until they flower and produce fruit. Such a collection will not be easy to establish and maintain, for some of the most interesting species are not hardy in the north, and, except in the north, it is not probable that such a collection will be attempted. A good beginning of such a collection has been made by the Park Department of the City of Rochester, New York, which has brought from Oklahoma and Texas a large number of living plants of several species, varieties and probable hybrids, and many seedlings have been raised from the fruit which has ripened in Rochester on these plants. There are, too, a number of American Plums in the Arnold Arboretum, although some of the Texas and Oklahoma species which are doing well in Rochester have not proved entirely hardy here.

Prunus americana Marsh. is usually described as spreading by suckers from the roots into large or small thickets. In the north this seems to be

¹ For part VI, see Vol. I, p. 245.

generally true, but in western Florida, in the neighborhood of Selma, Dallas County, Alabama, and of Starkville and Jackson, Mississippi, and near New Orleans, Louisiana, trees which I cannot otherwise distinguish from *Prunus americana* grow with a single stem and show no tendency to produce plants from the roots. When better known it is possible that these trees may prove distinct enough from the northern tree to make it possible to consider them specifically distinct. Unfortunately seedlings of the Florida and Alabama trees raised at the Arboretum have not proved hardy, and it will not be possible to give them here the sustained observations necessary for the proper understanding of any species of Plum-tree. One of the Florida Plum-trees, however, seems distinct enough to be considered a variety, for which I suggest the name of

Prunus americana var. *floridana*, n. var.

Differing from the type in its thinner finely serrate leaves and purple fruit.

Leaves oval to slightly obovate or rarely ovate, usually abruptly short-pointed, acute or acuminate at apex, gradually narrowed and cuneate or rounded at base, and finely often doubly serrate with short apiculate teeth, when they unfold tinged with red and slightly pubescent, and at maturity thin, dull dark green on the upper surface, paler on the lower surface, 6-8 cm. long and 3.5-5 cm. wide, with a slender midrib and primary veins sparingly villose on the lower side; petioles slender, pubescent or puberulous, eglandular, 7-12 mm. in length; stipules linear, puberulous, 6 or 7 mm. long, caducous. Flowers opening from the middle to the end of March, 2 cm. in diameter, on slender glabrous pedicels tinged with red and 1.7-2 cm. in length, in 2- or 3-flowered short-stalked umbels; calyx glabrous, red, the lobes narrow-acuminate, entire or glandular serrate toward the apex and usually ciliate on the margins, puberulous on the outer surface, villose-pubescent on the inner surface; petals oblong-obovate, rounded at apex, contracted below into a narrow claw, 7 or 8 mm. wide; filaments glabrous, longer than the petals; ovary and style glabrous. Fruit short-oblong, rounded at ends, 2.5 cm. long and 2-2.2 cm. in diameter, red becoming purple when fully ripe, with a thin skin, thick sweet flesh and an oblong flattened stone pointed at ends, acutely ridged on the ventral suture, obscurely grooved on the dorsal suture, 1.7-1.8 cm. long, 1.3-1.4 cm. wide, and 7 or 8 mm. thick.

A small tree without suckers from the roots, with pale gray bark and slender glabrous red-brown branchlets.

FLORIDA. Low rich woods in the neighborhood of St. Marks, Wakulla County, common; *T. G. Harbison* (No. 30 = 1427, type), March 30, 1914, September 17, 1919; No. 1207, September 25, 1913.

Prunus mexicana S. Wats. The common "Big-tree" Plum of Texas which I described as *Prunus arkansana* (*Trees and Shrubs*, II. 157, t. 165 [1911]) has been probably correctly referred to Sereno Watson's *P. mexicana* (in *Proc. Am. Acad.* XVII. 352 [1882]), based on a fragmentary speci-

men collected by Dr. Edward Palmer at Lerios, Coahuila. The Big-tree Plum has thick leaves usually broad and rounded at base with more or less prominent reticulate veinlets, villose-pubescent on the midrib and veins below, glabrous pedicels and globose or rarely short-oblong dark red fruit covered with a bluish bloom, the stone nearly round to obovoid, turgid, usually pointed at base and rounded at apex.

Prunus mexicana, which is distributed through Arkansas to southeastern Kansas, eastern Oklahoma, western Louisiana, and eastern and southeastern Texas into northwestern Mexico, and occurs in eastern Louisiana, never produces suckers from the roots, and is a tree up to 14 m. in height with a single trunk often 3 dm. in diameter, covered with dark, nearly black or light gray bark, exfoliating in plate-like scales on young stems and large branches, and becoming rough and furrowed on old trunks. With more knowledge of the Big-tree Plum than I had when I described it in 1911 it seems better to consider varieties of *P. mexicana* the related species which I described at that time as *P. reticulata*, *P. polyandra* and *P. fultonensis*. These three then become:

***Prunus mexicana* var. *reticulata*, n. var. — *Prunus reticulata* Sargent** in *Trees and Shrubs*, II. 151, t. 162 (1911).

Differing from the type in its thicker leaves more often narrowed at base, with more prominent reticulate veinlets, pubescent pedicels, smaller globose fruit ripening late in September or in October, with thin bitter astringent flesh, and dark deeply furrowed bark.

DISTRIBUTION. Uplands and along the margins of river-bottom lands; in the neighborhood of Dallas and of Sherman, Grayson County, northern Texas.

***Prunus mexicana* var. *polyandra*, n. var. — *Prunus polyandra* Sargent** in *Trees and Shrubs*, II. 155, t. 164 (1911).

Differing from the type in the narrower base of the leaves, the more numerous stamens (up to 36), in its earlier ripening fruit with an obovoid compressed stone pointed at apex, and gradually narrowed and acute at base.

DISTRIBUTION. Rich woods, Fulton, Hempstead County, Arkansas.

***Prunus mexicana* var. *fultonensis*, n. var. — *Prunus fultonensis* Sargent** in *Trees and Shrubs*, II. 248 (1913).

Differing from the type in its thinner leaves pubescent below over the whole surface, with more obscure reticulate veinlets, and in its smaller dark bluish purple fruit ripening in June, with thin flesh and a compressed stone pointed at apex and gradually narrowed and acute at base.

DISTRIBUTION. Rich woods near Fulton, Hempstead County, Arkansas.

***Prunus virginiana* L.** Attempts have been made by different authors to separate the Choke Cherry of North America into several species, but a careful examination of the large amount of material preserved in the herbarium of the Arboretum and a study of the trees growing in a considerable part of the region which the Choke Cherry inhabits and in cultivation fails to show characters in the different forms sufficiently stable to justify their

treatment as species. In all the forms the leaves are oval, oblong or obovate, abruptly pointed, sharply sometimes doubly serrate with slender spreading teeth, and green or pale on the lower surface. The flowers and the fruits of all the forms vary considerably in size, and in the west the fruit is often less astringent and is usually darker in color at maturity than in the east. If the different forms are considered varieties they may be arranged as follows:

Prunus virginiana L. Leaves cuneate or rounded or rarely slightly cordate at base, pale or green on the lower surface, glabrous or furnished below with axillary tufts of short hairs, and very rarely villose on the lower side of the midrib. Fruit red at first when fully grown, becoming at maturity bright red, dark crimson or nearly black, more or less astringent at maturity; in one form (var. *leucocarpa* S. Wats.) bright canary yellow.

Usually a small or large shrub; occasionally truly arborescent, especially the yellow-fruited variety, and from six to eight meters high.

The typical *Prunus virginiana* is distributed from Newfoundland to Labrador and the shores of Hudson Bay, and southward to the valley of the Potomac River, to Buncombe and Tridell Counties, North Carolina (*Cerasus virginiana* β *humilior* Michx.), and to northern Kentucky, and westward to Saskatchewan, and in the United States to eastern North Dakota, eastern Nebraska, northeastern Missouri and northeastern Kansas.

Prunus virginiana var. *demissa* Torr. This most distinct of the varieties of the Choke Cherry was discovered by Nuttall in western Oregon and was called by him *Cerasus demissa*. The leaves of this tree, which are usually cordate at the base and covered below with pale pubescence, certainly appear distinct from those of the eastern plant, but trees with leaves cuneate or rounded at base are also common in the Pacific coast region, leaves with a cordate and with a cuneate base often occurring on the same branch, and there is nothing but the pubescence of their lower surface by which this western tree can be distinguished from the eastern tree. *Prunus virginiana* var. *demissa*, which I know in the Pacific States only in western Washington and Oregon, and in Kern and Napa Counties, California, is not confined to the Pacific States if the pubescence on the lower surface of the leaves can be depended on to distinguish it. Fendler's New Mexican specimen (No. 1847 in Herb. Gray) has cordate leaves pubescent below. On a specimen collected by Professor Pammel near Ames, Iowa, in July, 1914, the leaves are cuneate, rounded or slightly cordate at base and pubescent on the lower surface. A specimen (No. 112) collected by V. H. Chase near Wady Petra, Stark County, Illinois, has the broad leaves rounded or subcordate at base of var. *demissa* although only slightly pubescent below; and the leaves of two specimens (Nos. 6643 and 13058) collected by C. C. Deam in LaPorte County, Indiana, are rounded or cuneate at base and slightly pubescent below, and with the Wady Petra specimen seem to connect the trees of the Atlantic and Pacific coast regions. More distinct with its pubescent branchlets is:

Prunus virginiana var. *demissa* f. *pachyrrhachis*, n. comb. — *Prunus demissa* var. *Nuttallii* f. *pachyrrhachis* Koehne in Mitt. Deutsch. Dendr. Gesell. xx. 236 (1911). — *Padus valida* Wooton & Standley in Contrib. U.S. Nat. Herb. xvi. 134 (1913).

Differing from var. *demissa* in the cuneate or rounded base of the leaves villose pubescent below on the midrib and veins, in the stouter pubescent rachis and pedicels, and in the pubescent branchlets usually becoming glabrous at the end of their first season.

Leaves oval or slightly obovate, acute or abruptly short-pointed at apex, rounded at base, finely serrate, thick, dark green and glabrous above, pale and villose below along the midrib and principal veins, 5–7 cm. long and 2.5–3.5 cm. wide; petioles stout, pubescent, glandular at apex, 1–1.5 cm. in length; leaves of a vigorous shoot 10–11 cm. long and 5–6 cm. wide. Flowers not seen. Mature rachis and pedicels stout, densely pubescent. Probably a shrub with usually stout branchlets finely pubescent during their first and second seasons, and stout acute winter-buds 8 mm. or 9 mm. long.

TYPE LOCALITY. Canyons, Kingston, Sierra County, New Mexico, at an altitude of 2200 m., August 24, 1904, O. B. Metcalfe (No. 1243 in Herb. Nat. Mus.).

The type of this form is well distinguished by its stout pubescent branchlets, large winter-buds, thick pubescent rachis and pubescent pedicels. Flowers of the type have not been seen, but the fruit and its stone are similar to those of *Prunus virginiana*. The other Choke Cherries from New Mexico, *Padus pumicea*, *P. calophylla* and *P. mescleria* Wooton & Standley (in Contrib. U.S. Nat. Herb. xvi. 133, 134 [1913]), varying somewhat in the shape of their leaves and in the amount of their pubescence, have branchlets more or less pubescent and afford no characters by which they can be satisfactorily separated. The type specimen of *Padus pumicea* (No. 563903 in Herb. Nat. Mus.) is a sterile branch with slightly pubescent leaves and branchlets. Another specimen (No. 737183 in Herb. Nat. Mus.) referred to this species from the same locality has more pubescent leaves and branchlets and a slender pubescent rachis, and so resembles forma *pachyrrhachis*. The type specimen of *Padus calophylla* (No. 562677 in Herb. Nat. Mus.) has narrow-elliptic pubescent leaves, a slender puberulous rachis and branchlets; another specimen referred to this species (No. 686679 in Herb. Nat. Mus.) has broad-oval leaves glabrous with the exception of small axillary tufts of pale hairs below, and a slender puberulous rachis and branchlets. The type specimen of *Padus mescleria* (No. 690233 in Herb. Nat. Mus.) has slightly pubescent leaves, a glabrous rachis and puberulous branchlets. Although perhaps most closely related to the form *pachyrrhachis*, the specimens of these three species in their slender branchlets show a transition to *Prunus virginiana* var. *melanocarpa*. Their connection with *P. virginiana* var. *demissa* is shown by a sterile specimen (No. 6042 in Herb. Arnold Arboretum) collected near Valentine, Cherry County, in northern Nebraska by the Reverend John Bates, with broad-oval or obovate leaves pubescent below and distinctly pubescent branchlets, and by a specimen

(in Herb. Arnold Arboretum) collected by C. L. Anderson near Santa Cruz, California, with narrow pubescent leaves, a glabrous rachis and puberulous branchlets, and referred by Koehne to his *P. demissa* var. *Nuttallii* f. *holotricha*.

Prunus virginiana var. *melanocarpa*, nov. comb. — *Cerasus demissa* var. *melanocarpa* A. Nelson in Bot. Gaz. xxxiv. 25 (1902). *Prunus melanocarpa* Rydberg in Bull. Torr. Bot. Club, xxxiii. 143 (1906).

This is the widely distributed Rocky Mountain form of the Choke Cherry, differing from the eastern typical form in its rather thicker leaves and usually darker fruit sometimes black or nearly black at maturity. This is a common usually shrubby plant often only 2° or 3° high, or occasionally a tree, distributed from western North and South Dakota and Nebraska to southern Colorado, New Mexico and southern Arizona to the Pacific coast where it ranges from British Columbia to San Diego County, California. In North Dakota the eastern and western forms "intergrade so completely that there is no way of distinguishing them except in extreme cases. The difference is apparently due to the conditions under which they grow, so that they are to be considered merely as forms of the same species."¹

A form with yellow fruit may be distinguished as forma *xanthocarpa*, n. forma. Near La Veta, Huerfano County, Colorado, C. S. Sargent, August, 1911.

Prunus virens Shreve.

This New Mexican and Arizona Cherry-tree, although very closely related to *Prunus serotina* Ehrhart, may be distinguished from that species by its smaller more finely serrate glabrous usually elliptic or oval to rarely oblong-obovate or ovate leaves acute or rounded, rarely acuminate, at apex and cuneate at base, by its eglandular petioles, by its shorter racemes and smaller flowers. In the typical form the leaves are glabrous, but on some trees the under side of the midrib of the leaves is furnished on the margins below the middle with a thick coat of rusty pubescence showing the connection of these trees with

Prunus virens var. *rufula*, n. var. — *Padus rufula* Wooton & Standley in Contrib. U.S. Nat. Herb. xvi. 132 (1913).

Differing from the type in the rusty brown persistent pubescence on the under side of the midrib of the leaves, the pubescent petioles, the pubescence on the lower part of the rachis, the puberulous ovary, and in the rusty brown pubescence of the young branchlets.

The type of *Padus rufula* (No. 563998 in U.S. Nat. Herb.) collected on the west fork of the Gila River, Arizona, August, 1900, has leaves only 4-4.5 cm. in length and branchlets thickly covered with matted rusty hairs. The specimens in the National Herbarium referred to *Padus rufula* vary in the amount of the pubescence on the branchlets, and those of No. 497841

¹ H. F. Bergman, Fl. North Dakota in Sixth Biennial Rep. North Dakota Soil and Geological Survey, 207 (1912).

collected in flower in 1904 on the Black Range, New Mexico, by O. B. Metcalfe are nearly glabrous.

DISTRIBUTION. With the species on many of the mountain ranges of southern New Mexico and Arizona usually at altitudes between 1800 and 2000 m.

The oldest specimens of this variety which I have seen were collected by J. G. Lemmon on the Chiricahua Mountains, Arizona, May, 1881. "Tree 40° high" (No. 156 in Herb. Gray), by Pringle in "rich cañons" of the Santa Rita Mountains, Arizona, in July, 1881, and by Rusby (No. 2159) on the Mogollon Mountains, New Mexico, in August, 1881.

Aesculus

Aesculus glabra Willd. The leaves of the type of this tree as described by Willdenow (Enum. Pl. 405 [1809]) are "glaberrima." The type was a tree cultivated at Berlin, and wild trees with entirely glabrous leaves occur, but appear to be extremely rare, and are found chiefly in the region east of the Mississippi River. Usually the leaflets are furnished below with conspicuous tufts of axillary hairs, and westward their lower surface is often covered in early spring with loose, floccose hairs which are most abundant on the midrib and veins, and usually disappear before the beginning of the summer. More distinct is a form with leaflets thickly covered below with close, dense pubescence, persistent during this season. What is evidently this form was described as *Aesculus pallida* by Willdenow (l. c. 406) who says of it "Folia subtus pubescentia et ut in *A. Pavia* atque *flava* in axillis venarum fasciculo pilorum instructa, quum praecedentis [*A. glabra*] folia semper glaberrima sint." This form, although it differs from the type only in the pubescence of the leaves and young branchlets, is probably best considered a variety, especially as it is found only in a comparatively restricted area. Treated as such it becomes:

Aesculus glabra var. **pallida** Kirchner in Petzold and Kirchner, Arb. Musc. 166 (1864).

The only specimens of this variety which I have seen are the following:

IOWA. Indianola, Warren County, and Moringona, Boone County, *L. H. Pammel*, August and September, 1912.

MISSOURI. Hannibal, Marion County, *J. Davis* (No. 2136), September, 1913; Galena, Stone County, *E. J. Palmer* (No. 5706) May, 1914; Eagle Rock, Barry County, *E. J. Palmer* (No. 6286) July, 1914.

ARKANSAS. Winslow, Washington County, *E. J. Palmer* (No. 8263) July, 1915.

It is interesting that the variety of *A. glabra* with usually seven leaflets (var. *Buckleyi* Sarg.) from Jackson County, Missouri, the type locality, is pubescent, that a specimen of this variety from eastern Kansas is nearly glabrous and that specimens from Ohio and Mississippi are glabrous.

Aesculus octandra Marsh. As long ago as 1856 Asa Gray in the third edition of his Manual described a var. *purpurascens* of this species. He referred to his variety *Aesculus discolor* of Pursh as a synonym and gave the range from W. Virginia southward and westward. The flowers (both

calyx and corolla) were described as tinged with flesh color or deep purple and the leaflets as commonly downy below. This description was probably based on specimens of *Aesculus discolor* of Pursh, for Gray had no specimen of a red-flowered *Aesculus octandra* in his herbarium. The confusion about a red-flowered Appalachian Buckeye was increased in the second volume of the *Silva* of North America in which I proposed the name *Aesculus octandra* var. *hybrida* for a tree said to be not rare on the Appalachian Mountains. The description, however, was that of *Aesculus discolor*, and *Aesculus hybrida* DC; a hybrid between *Aesculus octandra* and *A. Pavia* which appeared in Europe more than a century ago, was thought to be the Appalachian tree. Who started the story that a red-flowered Buckeye grew on the Mountains of Virginia, I do not know. For many years I have been looking for it in the field and in herbaria. I thought I had found it at Mount Vernon among the trees which Washington planted about 1785 and which were believed to have been raised from seeds which he had gathered near the mouth of Cheate River, West Virginia. I am now satisfied that these trees are hybrids between *Aesculus Pavia* or *Aesculus discolor* and some species with petals ciliate on the margins. They could not have come from seeds gathered in West Virginia. *Aesculus discolor* and *A. Pavia* do not, so far as I know, grow in West Virginia and *A. octandra* does not grow in any part of the country near *Aesculus Pavia* or *A. discolor*. *Aesculus discolor* does, however, grow with or near *Aesculus georgiana* in northern Georgia and it is possible that the elder Michaux or John Bartram whom Washington consulted about his trees may have given him nuts brought from South Carolina or Georgia which produced the Mount Vernon trees. This theory is possible, but hardly probable; and the Mount Vernon Buckeyes present a problem which I am unable to solve. That they are hybrids the mixture of hairs and glands on the margin of the petals seems to show.

That the story, whoever may have started it, of a red-flowered form of *Aesculus octandra* on the mountains of West Virginia is true is now shown by specimens in this herbarium collected on May 17, 1919, in the neighborhood of White Sulphur Springs, Greenbrier County, by Mr. John S. Ames, who went specially to West Virginia to look for this tree. He was fortunate in finding several trees with red flowers and others with pink and cream-colored flowers growing with the typical yellow-flowered trees. This red-flowered form of *Aesculus octandra* is without a name, for the var. *purpurascens* Gray is *Aesculus discolor* Pursh by description and synonymy and the var. *hybrida* Sarg. is a confusion of the hybrid *Aesculus hybrida* DC. and *Aesculus discolor* Pursh. and I suggest that it be called

Aesculus octandra var. *virginica*, n. var.

Differing from the type only in the red, pink or cream-colored flowers.

Aesculus georgiana Sarg. The type of this species was found in the neighborhood of Stone Mountain, DeKalb County, Georgia, where it is common as a broad shrub from 1-2 m. high. The flowers which are produced in short, compact clusters, have a red and yellow calyx and red pet-

als ciliate on the margin. This species which is easily distinguished from *Aesculus octandra* by the absence of glandular hairs on the calyx and pedicel is now known to be widely distributed in the Piedmont regions from North Carolina to northern Georgia, and to occur on the banks of the Savannah River near Augusta, Richmond County, Georgia, in northern Alabama (Madison, Etowah and Tuscaloosa Counties) and near Pensacola, Escambia County, Florida. It is sometimes a shrub but often a slender tree from 10 to 15 m. high. The flowers are sometimes red and yellow, often yellow and occasionally bright red. The inflorescence which is short, broad and densely flowered in the type, is sometimes narrow and more elongated with less crowded flowers. The calyx which is normally campanulate varies considerably in shape and is occasionally tubular, the two forms sometimes appearing in the same inflorescence. The var. *pubescens* Sarg. distinguished by the pubescence on the lower surface of the leaves, known first only from the neighborhood of Stone Mountain proves also to be widely distributed and occasionally arborescent in habit. This variety is common in the woods west of Augusta and occurs in Rabun and Floyd Counties, Georgia; in North Carolina it ascends on the Blue Ridge to altitudes of about 1000 meters and ranges northward in the Piedmont region to Orange County; southward it is not rare with the species in northern Alabama. A form with narrow leaflets may be distinguished as

Aesculus georgiana var. *lanceolata*, n. var.

Differing from the type in its narrow-lanceolate or slightly oblanceolate leaflets.

Leaves 5-foliolate with glabrous petioles 9–12 cm. in length; leaflets lanceolate to slightly oblanceolate long-acuminate at apex cuneate at base, finely serrate with incurved gland-tipped teeth, when the flowers open early in May thin, yellow-green above, pale below, glabrous with the exception of occasional hairs on the under side of the slender midrib and of minute axillary tufts, 13–18 cm. long and 3–4 cm. wide, their petiolules 5–8 mm. in length. Flowers bright red, otherwise as in the type, in a narrow panicle 15 cm. in length. Fruit not seen.

A tree 8–10 m. high with a short trunk 15–20 cm. in diameter, erect branches forming a narrow head and slender, glabrous branchlets.

GEORGIA. Rabun County, T. G. Harbison (No. 19 type) May 9, 1917.

× *Aesculus Bushii* Schneid. (*A. discolor* var. *mollis* Sarg. × *A. glabra* var. *leucodermis* Sarg.)

To this hybrid which was found several years ago near Fulton, Hempstead County, Arkansas, should probably be referred a tree found near Starkville, Oktibbeha County, Mississippi, by T. G. Harbison (No. 1055) April 7, 1913. From the type of *A. Bushii* the Mississippi tree differs in its rather more pubescent and less coarsely serrate leaflets, in its longer and narrower inflorescence, and in its narrower red calyx and darker red petals.

Aesculus discolor var. *mollis*, *A. Pavia* and the typical form of *A. glabra* are the only Buckeyes which grow in Oktibbeha County. The mixture of

hairs and glands on the margin of the petals indicate the hybrid origin of the Harbison plants and the pubescent under surface of its leaflets point to *A. discolor* var. *mollis* rather than to *A. Pavia* as one of the parents of this hybrid.

× *Aesculus mississippiensis* (*A. glabra* × *A. Pavia*), n. hybr.

Leaves 5-foliolate with petioles slightly pubescent toward the apex on the upper side and 8–10 cm. in length; leaflets elliptic to oblong-obovate, acuminate and often abruptly pointed at apex cuneate or rounded and often unsymmetric at base, finely often doubly serrate with incurved gland-tipped teeth, glabrous with the exception of short hairs scattered on the upper side of the lower part of the midrib and of small tufts of axillary hairs, 9–10 cm. long, 4–5 cm. wide, and sessile or raised on a short pubescent petiolule. Flowers appearing early in April in puberulous panicles 8–10 cm. in length on slender slightly pubescent pedicels, 6–8 mm. long; calyx narrow-campanulate, red, glabrous, the lobes ciliate on the margin; petals dark red or yellow, pubescent furnished on the margin with hairs and glands. Fruit slightly and irregularly tuberculate; seed 2–3 cm. in diameter, dark chestnut-brown with a small hilum.

A tree 6 to 7 m. high with a trunk 16 cm. in diameter and slender glabrous branchlets.

MISSISSIPPI. Low woods; near Brookville, Noxubee County, *T. G. Harbison* (Nos. 1061, type and 1061 A), April 8, and October, 1913.

The mixture of hairs and glands on the margin of the petals of this tree indicate that it is a hybrid of a species of the subsection Octandrae with one of the Eupaviae. Of the former subsection only *A. glabra* grows in southern Mississippi where both *A. Pavia* and *A. discolor* var. *mollis*, of the Eupaviae are common; and the general absence of pubescence from the leaflets of the hybrid point to *A. Pavia* as its other parent. Two specimens collected at Starkville, Oktibbeha County, Mississippi, by *T. G. Harbison* (Nos. 1054 and 1056) April 7, 1913, with rather larger flowers, probably represent the same hybrid.

NEW SPECIES, VARIETIES AND COMBINATIONS FROM THE HERBARIUM AND THE COLLECTIONS OF THE ARNOLD ARBORETUM ¹

ALFRED REHDER

ROSACEAE (*continued*)

Prunus L.

× *Prunus arnoldiana*, hybr. nov. (*P. cerasifera* × *triloba*).

Frutex 2-metralis v. ultra, ramosissimus, satis densus, ramis patentibus divaricatis; ramuli annotini glabri, plerumque virides, annotini fuscorubri; gemmae ovatae, parvae, pleraeque stipulis paucis praeditae. Folia

¹ Continued from p. 62.



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