

along rocky bluffs of the Ohio River, near Golconda, Pope County; *Ailanthus altissima* (Mill.) Swingle, not uncommonly associated with the last; *Rosa gallica* L., along open banks in White County; and in the Ozark Ridge region seedlings of the domestic Apple are frequent, and escapes of the Pear and Cherry were noted.

WEBB CITY, MISSOURI, December, 1920.

PHILADELPHUS VERRUCOSUS SCHRADER SPONTANEOUS IN ILLINOIS

ALFRED REHDER

IN June, 1919, Mr. E. J. Palmer collected a *Philadelphus* on the rocky bluffs of the Ohio River near Golconda, Illinois. When I saw these specimens I was at first inclined to think that they represent an escaped garden plant, as they did not agree with any of the now recognized native species. After Mr. Palmer had collected additional material in October, 1920, I examined the specimens again more closely and came to the conclusion that they are identical with *Philadelphus verrucosus* Schrader described in 1828 and credited to North America. I am unable to find any difference between the material from Illinois and the descriptions of Schrader and of subsequent authors and the plant now in cultivation as *P. verrucosus* Schrad. (*P. pubescens* Koehne, not Loisel.). Schrader's original description was based apparently on cultivated specimens, for in *Reliquiae Schraderianae* (*Linnaea*, XII. 393) "*Ph. grandiflorus* Loddig. Cat. non Willd." is given as synonym. This together with the fact that no spontaneous specimens were known have led many botanists to assume that *P. verrucosus* is a garden form or possibly a hybrid between *P. pubescens* Loisel. and *P. coronarius* L. or a related species, though Koehne always maintained that it was a native American species. The question became still more complicated by the identification of *P. verrucosus* with *P. pubescens* of Loiseleur, which seems to have been first made by Koehne. Schrader himself quotes *P. pubescens* Loiseleur (*Herb. Gén. Amat.* IV. t. 268 [1820]) as a synonym of his *P. latifolius*, but Koehne chiefly on the strength of the brown color of the one-year-old branchlets as shown in the colored plate considers it identical with Schrader's *P. verrucosus* which being the later name is made by him a synonym of *P. pubescens*. In its general appearance, however, the plant figured by Loiseleur, with its large flowers of a creamy white color and its very large leaves looks much more like *P. latifolius* and as Loiseleur himself describes the branches as "grisâtres" I consider the brown color of the branchlets a mistake of the artist who painted the plate; this view is strengthened by the fact that in the re-issue of this plate by Drapiez (*Herb. Amat. Fleurs*, VII. t. 501 (1834)) the one-year-old branch is painted dark gray and the young branchlet brown, as it often is the case in *P. latifolius*.

This points to the possibility that differently colored plates of the original issue exist and that Drapiez's plant was copied from one which had gray branches. I therefore consider *P. pubescens* Loisel. the oldest name for *P. latifolius* Schrad., particularly as the identity of these names is acknowledged by Schrader himself, and keep *P. verrucosus* as the name for the plant described below.

Since all the descriptions published so far are based on cultivated plants and are comparatively short, I give below a full description of this species based on Mr. Palmer's specimens:

Philadelphus verrucosus Schrader apud De Candolle, Prodr. III. 205 (1828), excl. synonym.; in Linnaea, XII. 392 (1838), excl. var. β . — K. Koch, Dendr. I. 342 (1869), pro synonym. — Rehder in Bailey, Cycl. Am. Hort. III. 1299 (1901). — A. H. Moore in Bailey, Stand. Cycl. Hort. v. 2581 (1916). — *Philadelphus grandiflorus* γ *floribunda* Torrey & Gray, Fl. N. Am. I. 595 (1840), quoad synonym. *P. verrucosus*. — *P. latifolius* b. *pubescens* Dippel, Handb. Laubholzk. III. 339 (1893) pro parte. — *P. latifolius* a. *verrucosus* Dippel, l. c. 340 (1893), quoad synonym. — *Philadelphus pubescens* Koehne, Deutsch. Dendr. 181 (1893; in Gartenfl. XLV. 542 (1896), not Loiseleur) — Schneider, Ill. Handb. Laubholzk. I. 369, fig. 235 f-m, 236 l-m, 237 i-l (1904). — Rydberg in N. Am. Fl. XXII. 174 (1905).

Upright shrub to 3 m. tall, with upright or somewhat recurved branches; young branchlets glabrous or sometimes very sparingly pilose, yellowish or reddish yellow at first, becoming red-brown at the end of the season, red-brown or grayish brown with close bark the second year, the bark tardily exfoliating the third year. Winter-buds minute, enclosed in the base of the petiole. Leaves of the flowering branchlets elliptic-ovate or elliptic to ovate-lanceolate, acute or acuminate, broadly cuneate or sometimes nearly rounded at the base, 4–7 cm. long, sparingly denticulate to entire or nearly so, bright green and glabrous above, lighter green and strigose pubescent beneath on the whole under surface or rather densely villose-strigose, the leaves of the shoots ovate or elliptic-ovate, 5–11 cm. long and 3–7 cm. broad, rounded at base, with 5–7 coarse triangular teeth on each side, 3-nerved, with the pair of prominent veins some distance above the base; petioles 2–5 mm. long, on the leaves of the shoots up to 7 mm. long, slightly hairy or nearly glabrous. Flowers white, about 2.5–3 cm. across, in 5–7-flowered racemes on short lateral shoots with usually two pairs of leaves below the racemes and the lowest or the two lower pairs of flowers in the axils of foliage leaves; internodes of the raceme 1–2.5 cm.; pedicels 3–5 mm. long, strigose-pubescent; calyx-lobes ovate-oblong, short-acuminate, 6–7 mm. long, inside villose near margin and apex, rather densely strigose-pubescent outside like the turbinate calyx-tube; petals oval, about 1.2 cm. long and 7–8 mm. wide; stamens 40–45, unequal, the longest about one-third shorter than the petals; anthers ovate, 1.5 mm. long, cordate at base, pointed at apex; style glabrous, about as long as stamens, divided at the apex $\frac{1}{4}$ or $\frac{1}{3}$ of its length; stigmas narrower than the anthers; ovary partly superior.

Capsule about 1 cm. long, with the margin of the calyx-tube somewhat above the middle.

ILLINOIS. Pope County: rocky bluffs of the Ohio River, near Golconda, June 7, 1919, *E. J. Palmer* (No. 1538); same locality, high rocky (sandstone and limestone) bluffs, October 28, 1920, *E. J. Palmer* (No. 19581).¹

CULTIVATED SPECIMENS. Bot. Gard. Berlin, July 2, 1887, and May 6, 1888, July 4 and August 20, 1892, *E. Koehne* (Nos. 3509, 3512, 9580, 9934). Bot. Gard. Goettingen, July 1 and 4, 1890, July 11, 1892, and September 28, 1893, *A. Rehder*. Goepperthain near Breslau, June 19 and August 21, 1905, June 11 and July 8, 1907, *C. Baenitz* (Herb. Dendrol.). Bot. Gard. Cambridge, Mass., June 25, 1898, *A. Rehder*.

The species appears to be most closely related to *P. pubescens* Loisel. (*P. latifolius* Schrad.) which differs chiefly in the gray color of its one-year-old branches and in the larger flowers and larger leaves. The description by Schrader of the pedicels, calyx and of the midrib and veins on the under side of the leaves as covered with "verrucis piligeris" is apparently exaggerated as far as it concerns the little warts, for K. Koch (*Dendr.* i. 342) says that he did not see such warts on Schrader's original specimens; neither are they mentioned by Koehne, who also had seen Schrader's types. Sometimes one finds, on some specimens more, on some less, particularly on the midrib of the leaves and on the petioles minute excrescences of the epidermis at the base of the hairs, but they are not at all prominent; the wartlets of the branchlets mentioned by Schrader (*Linnaea*, xii. 393) may be seen sparingly on a shoot of Palmer's No. 19581. *Philadelphus verrucosus* is probably not restricted to this one locality and will be found in Kentucky and possibly in Tennessee. It is apparently of rare and local occurrence like some other species of the genus, as for instance *P. laxus* Schrad., the habitat of which was considered uncertain for a long time, but which is, as I have pointed out recently,¹ a native of Tennessee and Georgia.

I may add here that the combination *P. verrucosus* var. *nivalis* I made on p. 199 of vol. I of this Journal, on the assumption that *P. verrucosus*

¹ In a recent letter Mr. Palmer states: "With reference to the *Philadelphus* from Southern Illinois, it had every appearance of being a native shrub long established in the place where I found it, although it is, of course, impossible to say just how these isolated things originated or that the seed may not have been transported in this case long ago by wind or animal agency from cultivated stock. However, there is nothing to suggest this in the surroundings or appearance of this *Philadelphus*. It is growing along the slope and rocky talus of a very high bluff, with east or northeast exposure close to the Ohio River. It is three or four miles from the town of Golconda and some distance from any dwelling or settlement, and the immediate surroundings are so rocky that no garden or habitation would have been possible close by. Indeed before the railroad, which has lately been cut along the base of the bluff, was constructed it would have been almost inaccessible. I made a thorough exploration in October and found a number (perhaps not less than ten or a dozen) clumps of the shrub growing along the steep rocky slope below the main bluff and some thirty or forty feet above the river. The bluff consists of alternating beds of limestone and sandstone of the Mississippian Series, and is well wooded with a variety of trees and shrubs and tangled vines. The tallest specimens of the *Philadelphus* were, I judge, 2½ to 3 metres tall, with many canes and upright or somewhat recurved slender branches. In its surroundings and habit it looks as much at home, and as certainly a native shrub, as any I ever saw, and with all due caution I would not hesitate to class it as such."

¹ Vol. I. 198 (1920) of this Journal.

is of hybrid origin, should be referred as a synonym to *P. nivalis* Jacques, which I take to represent a hybrid between *P. pubescens* and *P. coronarius* and which then would be the valid binomial for this hybrid.

AZALEA OR LOISELEURIA

ALFRED REHDER

EVEN if Azalea in the sense of Desvaux and modern authors is not considered a distinct genus, the correct application of the generic name Azalea of Linnaeus is a question to be decided, if the name of a subgenus or section of *Rhododendron* is to be based upon it. It was therefore necessary for me, when preparing an account of the American species of *Rhododendron* with deciduous leaves, to arrive at a definite conclusion as to the species which should be considered the type of the genus Azalea. If we follow up the history of the genus we find no change of the Linnaean conception of 1753 of Azalea until 1796, when Salisbury recognized the close affinity of most of the Linnaean species of Azalea with *Rhododendron*, restricted the genus Azalea to *A. procumbens* and referred the other species as far as he had to deal with them, including *Rhodora*¹ to the genus *Rhododendron*, thus using the genus *Rhododendron* in the same conception as proposed later apparently independently by D. Don and accepted by Torrey, G. Don, Maximowicz and others. In 1813, however, Desvaux had made another attempt to split up the genus Azalea by removing *A. procumbens* and making it the type of his new genus *Loiseleuria*. In doing this he paid no attention to Linnaeus' original description of the genus (Gen., 53 (1737), ed. 5, 75 (1754)) which applies exactly to *A. procumbens* except the description of the capsule, which Linnaeus apparently had not seen, as he did not describe or figure it in his *Flora Lapponica*, where he gives a description and figure of *A. procumbens* and also of *A. lapponica*. He took the description of the capsule probably from the figure of Tournefort's *Chamaerhododendron* (Inst. t. 373), which is cited as a synonym of Azalea in the first edition of *Genera plantarum*, but omitted in the second and which reappears in the fifth edition as a synonym of *Rhododendron*. He apparently had found when working out the species for his *Species plantarum* that *Rhododendron ferrugineum* had 10 stamens and not 5, as seems to be the case in Tournefort's figure. As the genus originally was based on *A. procumbens* and *A. lapponica* which were at that time the only species Linnaeus was well acquainted with, it is clear that one of them must be the type of the genus, and as the generic description in *Genera plantarum* fits *A. procumbens*, but not *A. lapponica*, the former must be considered the type of Azalea. The fruit was first correctly described and figured with three cells by Gaertner in 1788, but the erroneous impression that the fruit was

¹ This genus had been united already five years before with *Rhododendron* by F. S. Gmelin in the thirteenth edition of the *Systema naturae* (II. pt. 1, 694).



Rehder, Alfred. 1921. "Philadelphus verrucosus Schrader Spontaneous in Illinois." *Journal of the Arnold Arboretum* 2(3), 153–156.

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