The Silva of North America

Rosaceae - Saxifragaceae

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Amelanchier.

AMELANCHIER.

FLOWERS perfect, regular; calyx 5-lobed, the lobes imbricated in æstivation; petals 5, imbricated in æstivation; stamens usually 20; ovary inferior or partly superior, 5-celled, each cell incompletely divided by a false dissepiment; ovules 2 in each cell, ascending. Fruit a pome. Leaves simple, alternate, deciduous.

Amelanchier, Medicus, *Phil. Bot.* i. 135, 155. — Lindley, *Trans. Linn. Soc.* xiii. 100. — Meisner, *Gen.* 106. — Endlicher, *Gen.* 1237. — Bentham & Hooker, *Gen.* i. 628 (excl. *Peraphyllum*). — Baillon, *Hist. Pl.* i. 477 (excl. *Peraphyllum*).

Aronia, Persoon, *Syn.* ii. 39 (in part).

Trees or shrubs, with scaly bark, slender terete branchlets, acute buds with imbricated scales, those of the inner rows accrescent and bright colored, and fibrous roots. Leaves alternate, conduplicate in vernation, simple, entire or serrate, penniveined, often lanate, petiolate, deciduous; stipules subulate, elongated, caducous. Flowers in erect or nodding racemes, their pedicels slender, bibracteolate, developed from the axils of lanceolate acuminate deciduous bracts. Calyx-tube campanulate or urceolate, the lobes acute or subulate, recurved, persistent. Disk lining the tube of the calyx, green, entire or crenulate, nectariferous. Petals white, obovate-oblong, spatulate or ligulate, rounded, acute or truncate at the apex, gradually contracted below into short slender claws, inserted on the thickened margin of the disk, spreading. Stamens usually twenty, inserted with the petals in three rows, those of the outer row of ten parapetalous, those of the other rows alternate with them and with each other; filaments subulate, free, persistent on the fruit; anthers oblong, attached on the back near the middle, introrse, two-celled, the cells opening longitudinally. Ovary more or less adnate to the calyx-tube, glabrous or puberulous above, two to five-celled, each cell more or less divided after the fecundation of the ovules into two compartments by the development of a false partition from the back; styles two to five, connate below, spreading and dilated above into broad truncate stigmas; ovules two in each cell, erect, anatropous, the micropyle inferior. Fruit subglobose or pyriform, open at the summit, the cavity surrounded by the lobes of the calyx and the remnants of the filaments; mesocarp sweet, rather juicy, red or dark purple; endocarp membranaceous or cartilaginous, the carpels free or connate, glabrous or villose at the apex. Seeds ten or often five by the abortion of one of the ovules in each cell, ovate-elliptical, not rarely subuncinate at the base, destitute of albumen; testa coriaceous, dark chestnut-brown, mucilaginous. Embryo filling the cavity of the seed; cotyledons plano-convex, the radicle inferior.

Amelanchier is widely distributed through the boreal and temperate portions of eastern and the mountainous regions of western North America, and occurs in Japan and central China, in Asia Minor, the Caucasus, southern Europe, and northern Africa. Five or six species are distinguished; one is European,[1] north African, and Anatolian; a second inhabits the Orient;[2] and a third, perhaps not distinct from the arborescent species of eastern America, is found in the forests of Japan and of central

[1] *Amelanchier Amelanchier.*

Mespilus Amelanchier, Linnæus, *Spec.* 478.

Sorbus Amelanchier, Crantz, *Stirp. Austr.* ii. 53.

Pyrus Amelanchier, Linnæus f. *Syst.* ed. 13, Suppl. 256. — Willdenow, *Spec.* ii. pt. ii. 1014.

Cratægus rotundifolia, Lamarck, *Dict.* i. 84.

Amelanchier vulgaris, Moench, *Meth.* 682. — De Candolle, *Prodr.* ii. 632. — Boissier, *Fl. Orient.* ii. 667.

Amelanchier rotundifolia, Du Mont de Courset, *Bot. Cult.* ed. 2, v. 459.

Cratægus Amelanchier, De Candolle. *Fl. Franc.* iv. 432.

Aronia rotundifolia, Persoon, *Syn.* ii. 39.

Amelanchier rotundifolia, Decaisne, *Nouv. Arch. Mus.* x. 134.

[2] *Amelanchier parviflora*, Boissier, *Diag.* iii. 9; *Fl. Orient.* ii. 668.

China,[1] while two belong to the flora of eastern and one to that of western America. Two of the American species attain the size of small trees; the third[2] is a shrub of the northern and alpine parts of eastern America. The Old World species are shrubs.

The fruit of all the species is more or less succulent and edible, and the wood produced by the American arborescent species is strong, hard, and close-grained. The large white flowers, appearing before or coetaneous with the leaves, give the different species great beauty in very early spring, and make them desirable garden plants.

The American species of Amelanchier do not suffer seriously from the attacks of insects,[3] although they are subject to many of the fungal diseases which affect Pyrus and Cratægus.[4]

The generic name is derived from Amelancier, the popular name of the European species in Savoy.

[1] *Amelanchier Asiatica*, Walpers, *Rep.* ii. 55. — Roemer, *Fam. Nat. Syn.* iii. 144. — Koch, *Dendr.* i. 180.

Aronia Asiatica, Siebold & Zuccarini, *Fl. Jap.* i. 87, t. 42.

Amelanchier Canadensis, var. *Japonica*, Miquel, *Prol. Fl. Jap.* 229. — Franchet & Savatier, *Enum. Pl. Jap.* i. 142. — Maximowicz, *Bull. Acad. Sci. St. Pétersbourg*, xix. 175 (*Mél. Biol.* ix. 174).

[2] *Amelanchier oligocarpa*, Roemer, *Fam. Nat. Syn.* iii. 145. — Watson, *Garden and Forest*, i. 245, f. 41. — Watson & Coulter, *Gray's Man.* ed. 6, 167.

Mespilus Canadensis, var. *oligocarpa*, Michaux, *Fl. Bor.-Am.* i. 291.

Amelanchier? sanguinea, De Candolle, *Prodr.* ii. 633 (in part).

Amelanchier Canadensis, var. *oligocarpa*, Torrey & Gray, *Fl. N. Am.* i. 474. — Torrey, *Fl. N. Y.* i. 226. — Gray, *Man.* 131.

Amelanchier sanguinea, Decaisne, *Nouv. Arch. Mus.* x. 136 (not De Candolle nor Lindley).

[3] The same insects which injure Pyrus in North America are also found on the different species of Amelanchier; and Leaf-miners like *Nepticula amelanchierella*, Clemens, and *Ornix quadripunctella*, Clemens, may be peculiar to them.

[4] A striking fungus attacks the leaves and young branches of *Amelanchier Canadensis* in the east, and of *Amelanchier alnifolia* in the west, covering them at first with an olive-colored down which afterwards changes to a black crenulated surface. Many leaves on certain branches are attacked simultaneously, and the so-called bird's-nest distortions are produced. This fungus, which belongs to the order *Pyrenomycetes*, was first called *Sphœria Collinsii* by Schweinitz, and by other authors has been referred to Dimerosporium, Lasiosphæria, and Plowrightia.

CONSPECTUS OF THE NORTH AMERICAN ARBORESCENT SPECIES.

Leaves ovate to ovate-oblong or oblong to broadly elliptical or suborbicular, acute or rounded at the apex, cordate or rounded at the base . . . . . 1. A. CANADENSIS.

Leaves broadly orbicular, obtuse, or rarely acute . . . . . 2. A. ALNIFOLIA.

AMELANCHIER CANADENSIS.

Shad Bush. Service Berry.

LEAVES ovate to ovate-oblong, acute, cordate or rounded at the base.

Amelanchier Canadensis, Medicus, *Gesch. Bot.* 79. — Darlington, *Fl. Cestr.* ed. 3, 86. — Curtis, *Rep. Geolog. Surv. N. Car.* 1860, iii. 68. — Koch, *Dendr.* i. 180. — Maximowicz, *Bull. Acad. Sci. St. Pétersbourg*, xix. 176 (*Mél. Biol.* ix. 174). — Emerson, *Trees Mass.* ed. 2, ii. 503, t. — Sargent, *Forest Trees N. Am. 10th Census U. S.* ix. 84. — Watson & Coulter, *Gray's Man.* ed. 6, 166.

Mespilus Canadensis, Linnæus, *Spec.* 478. — Miller, *Dict.* ed. 8, No. 6. — Du Roi, *Harbk. Baumz.* i. 416. — Walter, *Fl. Car.* 148.

Pyrus Botryapium, Linnæus f. *Syst.* ed. 13, Suppl. 255. — Wangenheim, *Nordam. Holz.* 90, t. 28, f. 65. — Ehrhart, *Beitr.* i. 183; ii. 68. — Willdenow, *Berl. Baumz.* 258; *Spec.* ii. pt. ii. 1013; *Enum.* 525. — Aiton, *Hort. Kew.* ed. 2, iii. 207. — Pursh, *Fl. Am. Sept.* i. 339. — Bigelow, *Fl. Boston.* 120. — Hayne, *Dendr. Fl.* 83. — Guimpel, Otto & Hayne, *Abbild. Holz.* 100, t. 79. — Sprengel, *Syst.* ii. 509. — Audubon, *Birds*, t. 60.

Cratægus racemosa, Lamarck, *Dict.* i. 84. — Desfontaines, *Hist. Arb.* ii. 148. — *Nouveau Duhamel*, iv. 133. — Poiret, *Lam. Dict.* Suppl. i. 292.

Mespilus nivea, Marshall, *Arbust. Am.* 90.

Amelanchier Canadensis, var. **prunifolia**, Castiglioni, *Viag. negli Stati Uniti*, ii. 293.

Mespilus Amelanchier, Castiglioni, *Viag. negli Stati Uniti*, ii. 293 (not Linnæus).

Mespilus Canadensis, var. **cordata**, Michaux, *Fl. Bor.-Am.* i. 291.

Amelanchier Botryapium, Borkhausen, *Handb. Forstbot.* ii. 1260. — Du Mont de Courset, *Bot. Cult.* v. 458. — Lindley, *Trans. Linn. Soc.* xiii. 100. — De Candolle, *Prodr.* ii. 632. — Hooker, *Fl. Bor.-Am.* i. 202. — Don, *Gen. Syst.* ii. 604. — Spach, *Hist. Vég.* ii. 84. — Roemer, *Fam. Nat. Syn.* iii. 145. — Wenzig, *Linnæa*, xxxviii. 110. — Decaisne, *Nouv. Arch. Mus.* x. 135.

Aronia Botryapium, Persoon, *Syn.* ii. 39. — Nuttall, *Gen.* i. 306. — Elliott, *Sk.* i. 557. — Darlington, *Fl. Cestr.* 63.

Mespilus arborea, Michaux f. *Hist. Arb. Am.* iii. 68, t. 11. — W. P. C. Barton, *Fl. Phil. Prodr.* 55.

Aronia arborea, W. P. C. Barton, *Compend. Fl. Phil.* i. 228.

Amelanchier sanguinea, Lindley, *Bot. Reg.* t. 1171 (not De Candolle).

Aronia cordata, Rafinesque, *Med. Fl.* ii. 196.

Amelanchier ovalis, Hooker, *Fl. Bor.-Am.* i. 202 (in part).

Amelanchier Canadensis, var. **Botryapium**, Torrey & Gray, *Fl. N. Am.* i. 473. — Walpers, *Rep.* ii. 55. — Dietrich, *Syn.* iii. 158. — Torrey, *Fl. N. Y.* i. 225. — Chapman, *Fl.* 129.

Pyrus Bartramiana, Tausch, *Regensb. Flora*, 1838, pt. ii. 715.

Pyrus Wangenheimiana, Tausch, *Regensb. Flora*, 1838, pt. ii. 715.

Amelanchier Bartramiana, Roemer, *Fam. Nat. Syn.* iii. 145.

Amelanchier Wangenheimiana, Roemer, *Fam. Nat. Syn.* iii. 146.

A tree, sometimes forty to fifty feet in height, with a tall trunk twelve to eighteen inches in diameter, and small spreading branches which form a narrow oblong round-topped head. The bark of the trunk is from a quarter to half an inch in thickness, pale red-brown, and divided by shallow fissures into narrow longitudinal ridges, the surface of which is broken into small square persistent scales. The branchlets are slender and at first bright green and glabrous or slightly puberulous, but are dark red and marked with many minute pale lenticels in their first winter, and later become dark brown or red-brown. The winter-buds are a quarter of an inch long and covered with pale chestnut-brown ovate apiculate slightly pubescent scales, scarious on the margins and obscurely keeled on the back; the scales of the inner ranks are lanceolate, acute, bright red above the middle, ciliate with silky hairs, and sometimes an inch long when fully grown, and leave when falling narrow ring-like scars which mark the base of the branchlets during two or three years. The leaves are ovate to ovate-oblong, acute or often taper-pointed at the apex, cordate or rounded at the base, and finely serrate with straight or incurved rigid subulate teeth; when they unfold they are dark red-brown and pilose on both surfaces with scattered deciduous white hairs, and at maturity they are thick and firm in texture, glabrous,

dark green and dull on the upper surface, pale on the lower surface, three or four inches long and an inch to an inch and a half broad, with prominent midribs grooved on the upper side and slender veins, and are borne on slender channeled petioles which vary from half an inch to an inch in length. The stipules are narrowly lanceolate, membranaceous, pubescent, at first pink but ultimately brown, and early deciduous. The leaves turn bright clear yellow in the autumn before falling. The flowers, which appear from the end of March at the south to the end of May at the north when the leaves are grown to nearly one third of their size, are produced in erect or nodding glabrous racemes three or four inches long, and are borne on slender pedicels half an inch to an inch in length, furnished with two lanceolate pubescent pink caducous bractlets, and developed from the axils of lanceolate bright-colored bracts which fall before the expansion of the flowers. The calyx is campanulate, with lanceolate acute lobes, villose on the inner surface, twice the length of the tube, and rather longer than the stamens and styles. The petals are strap-shaped or slightly obovate, rounded or acute at the apex, gradually contracted at the base, thin, pure white, half an inch to nearly an inch in length, and from a quarter to half an inch in width. The ovaries are glabrous. The fruit, which ripens in early summer, is sweet and edible; it is depressed-globular, from a third to half an inch broad, and borne on elongated slender stems conspicuously marked by the scars left by the falling of the bractlets; when first fully grown it is bright red, but when ripe becomes dark purple and is covered with a slight glaucous bloom. The seeds are an eighth of an inch long, with a dark red-brown opaque coat.

Amelanchier Canadensis is distributed from Newfoundland through the maritime provinces of Canada, where it is common, and westward along the northern shores of the Great Lakes,[1] and in the United States ranges southward to northern Florida and westward to Minnesota, eastern Nebraska,[2] eastern Kansas, Louisiana, and southern Arkansas.

Amelanchier Canadensis grows in rich soil in upland woods with Oaks, Hickories, Sugar Maples, and Birches; it is abundant in all the northern parts of the country and on the Alleghany Mountains, where, in North Carolina and Tennessee, it reaches its greatest size. In the coast region of the Atlantic Gulf states it is represented only by a low shrubby form, while west of the Alleghany Mountains it is common in all the elevated regions but does not extend into the river-bottoms, and is more abundant at the north than at the south.

The wood of *Amelanchier Canadensis* is heavy, exceedingly hard, strong, and close-grained, with a satiny surface susceptible of receiving a good polish; it is dark brown often tinged with red, with thick lighter colored sapwood composed of forty or fifty layers of annual growth, and contains numerous obscure medullary rays. The specific gravity of the absolutely dry wood is 0.7838, a cubic foot weighing 48.85 pounds. It is occasionally used for the handles of tools and other small implements.

Amelanchier Canadensis varies considerably in the form of its leaves and in the character of the pubescence which sometimes covers them, in the size of its flowers and fruit, and in its habit and stature. The most distinct of these forms is *Amelanchier Canadensis*, var. *obovalis*.[3] This is a tree sometimes twenty-five or thirty feet in height, with a single straight stem or often with a cluster of spreading stems springing from the ground and forming a broad tall bush. The leaves are oblong or broadly elliptical, acute or rounded at the apex, rounded or subcordate at the base, remotely serrate

[1] Brunet, *Cat. Vég. Lig. Can.* 27. — Bell, *Rep. Geolog. Surv. Can.* 1867–69, Appendix 9 (*Pl. Manitoulin Islands*). — Macoun, *Cat. Can. Pl.* i. 148.

[2] Bessey, *Bull. Exper. Stat. Nebraska*, iv. art. iv. 20.

[3] *Amelanchier Canadensis*, var. *obovalis*.

Mespilus Canadensis, var. *oboralis*, Michaux, *Fl. Bor.-Am.* i. 291.

Pyrus sanguinea, Pursh, *Fl. Am. Sept.* i. 340 (in part). — Sprengel, *Syst.* ii. 509.

Pyrus ovalis, Bigelow, *Fl. Boston.* ed. 2, 195 (not Willdenow).

Aronia ovalis, Torrey, *Fl. U. S.* 479.

Amelanchier intermedia, Spach, *Hist. Vég.* ii. 85. — Wenzig, *Linnæa*, xxxviii. 112.

Amelanchier Canadensis, var. *oblongifolia*, Torrey & Gray, *Fl. N. Am.* i. 473. — Walpers, *Rep.* ii. 55. — Dietrich, *Syn.* iii. 158. — Torrey, *Fl. N. Y.* i. 225; *Nicollet's Rep.* 149. — Emerson, *Trees Mass.* ed. 2, ii. 504, t. — Sargent, *Forest Trees N. Am.* 10*th Census U. S.* ix. 84. — Watson & Coulter, *Gray's Man.* ed. 6, 167.

Amelanchier oblongifolia, Roemer, *Fam. Nat. Syn.* iii. 147.

Amelanchier spicata, Decaisne, *Nouv. Arch. Mus.* x. 135, t. 9, f. 5 (not Lamarck).

or sometimes nearly entire below the middle, coated at first on the lower surface with thick white tomentum, and at maturity pale and more or less pubescent on the lower surface. The flowers, which are produced in shorter racemes on hairy pedicels, are smaller, with pubescent calyces, their lobes being densely tomentose on the inner surface, and narrower strap-shaped petals usually less than half an inch long. This variety is found in Nova Scotia and New Brunswick, where, however, it is not common, and is abundant in Quebec and Ontario, extending northward to the valley of the Mackenzie River in latitude 65°;[1] it is common in the northeastern states, ranging southward along the Alleghany Mountains to Virginia and westward to Minnesota and Missouri, and occasionally occurs, much reduced in size, in the southern coast region from Bluffton, South Carolina, to the shores of the Bay of Mobile.

Amelanchier Canadensis, var. *obovalis*, grows usually on the borders of streams and swamps in low wet soil, and sometimes on high rocky slopes and ridges, where it is often a small shrub producing fruit when only a foot or two high. In the situations which it selects, and in the shape and covering of its leaves, it is usually very distinct from the upland form, but the two are connected by intermediate forms growing in intermediate situations which make it difficult to find constant characters upon which to establish a second species.

The fruit of the tomentose form is rather more juicy and of better flavor than that of the upland tree; and of late years American pomologists have paid some attention to the cultivation and improvement of a large-fruited variety originally obtained from Iowa, Minnesota, and Manitoba.[2]

Amelanchier Canadensis, var. *spicata*,[3] is a variety with broader obovate sometimes suborbicular leaves which is common in the northern states, where it usually grows as a low shrub, but occasionally rises to a height of fifteen or twenty feet.

The earliest account[4] of *Amelanchier Canadensis* is that of Clayton,[5] who also distinguished the tomentose variety.[6] It was first cultivated in Europe in 1746 by the Duke of Argyll.[7]

Amelanchier Canadensis is a beautiful object in early spring when its large white flowers unfold with the red or with the silvery white leaves of the different varieties, and its beauty at this time is heightened by its brilliant silky bud-scales and bracts. As a fruit-tree, although the birds devour the fruit as fast as it ripens, it deserves more attention than it has yet received.

[1] Richardson, *Arctic Searching Exped.* ii. 294. — Macoun, *Cat. Can. Pl.* i. 149.

[2] *Am. Agric.* xxx. 144. — *Rep. Iowa Hort. Soc.* xii. 203. — *Gardeners' Monthly*, xx. 141, 186, 306.

[3] *Amelanchier Canadensis*, var. *spicata*.

Cratægus spicata, Lamarck, *Dict.* i. 84. — Desfontaines, *Hist. Arb.* ii. 148. — *Nouveau Duhamel*, iv. 132. — Poiret, *Lam. Dict.* Suppl. i. 192.

Pyrus ovalis, Willdenow, *Berl. Baumz.* 259; *Spec.* ii. pt. ii. 1014. — Pursh, *Fl. Am. Sept.* i. 340.

Mespilus Canadensis, var. *rotundifolia*, Michaux, *Fl. Bor.-Am.* i. 291.

Amelanchier ovalis, Borkhausen, *Handb. Forstbot.* ii. 1259. — Du Mont de Courset, *Bot. Cult.* ed. 2, v. 459. — Lindley, *Trans. Linn. Soc.* xiii. 100. — De Candolle, *Prodr.* ii. 635. — Hooker, *Fl. Bor.-Am.* i. 202 (excl. var.). — Don, *Gen. Syst.* ii. 604 (excl. var.). — Spach, *Hist. Vég.* ii. 85. — Loudon, *Arb. Brit.* ii. 876, f. 632.

Aronia ovalis, Persoon, *Syn.* ii. 40. — Elliott. *Sk.* i. 558.

Amelanchier Canadensis, var. *rotundifolia*, Torrey & Gray, *Fl. N. Am.* i. 473. — Walpers, *Rep.* ii. 55. — Dietrich, *Syn.* 158. — Torrey, *Fl. N. Y.* i. 225. — Chapman, *Fl.* 129. — Watson & Coulter, *Gray's Man.* ed. 6, 167.

Amelanchier rotundifolia, Roemer, *Fam. Nat. Syn.* iii. 146 (not Du Mont de Courset).

[4] It was probably one of the forms of *Amelanchier Canadensis* which John Mason, writing of Newfoundland in 1620, calls a Peare in this passage: "The Countrie fruites wild, are cherries small, whole groaues of them, Filberds good, a small pleasant fruite, called a Peare, Damaske Roses single very sweet, excellēt Strawberries, and Hartleberries with aboundance of Rasberries, and Gooseberries somewhat better than ours in *England*, all which replanted would be much inlarged." (*A Brief Discourse of the Newfoundland* [*Royal Letters, Charters, and Tracts relating to the Colonization of New Scotland*, 1621–1638].)

[5] *Mespilus inermis, foliis subtus glabris obverse ovatis, Fl. Virgin.* 54. — Duhamel, *Traite des Arbres*, ii. 15.

[6] *Mespilus inermis, folio ovato oblongis, serratis, subtus tomentosis, Fl. Virgin.* 55.

[7] Aiton, *Hort. Kew.* ii. 173. — Loudon, *Arb. Brit.* ii. 874, f. 627–629, t.

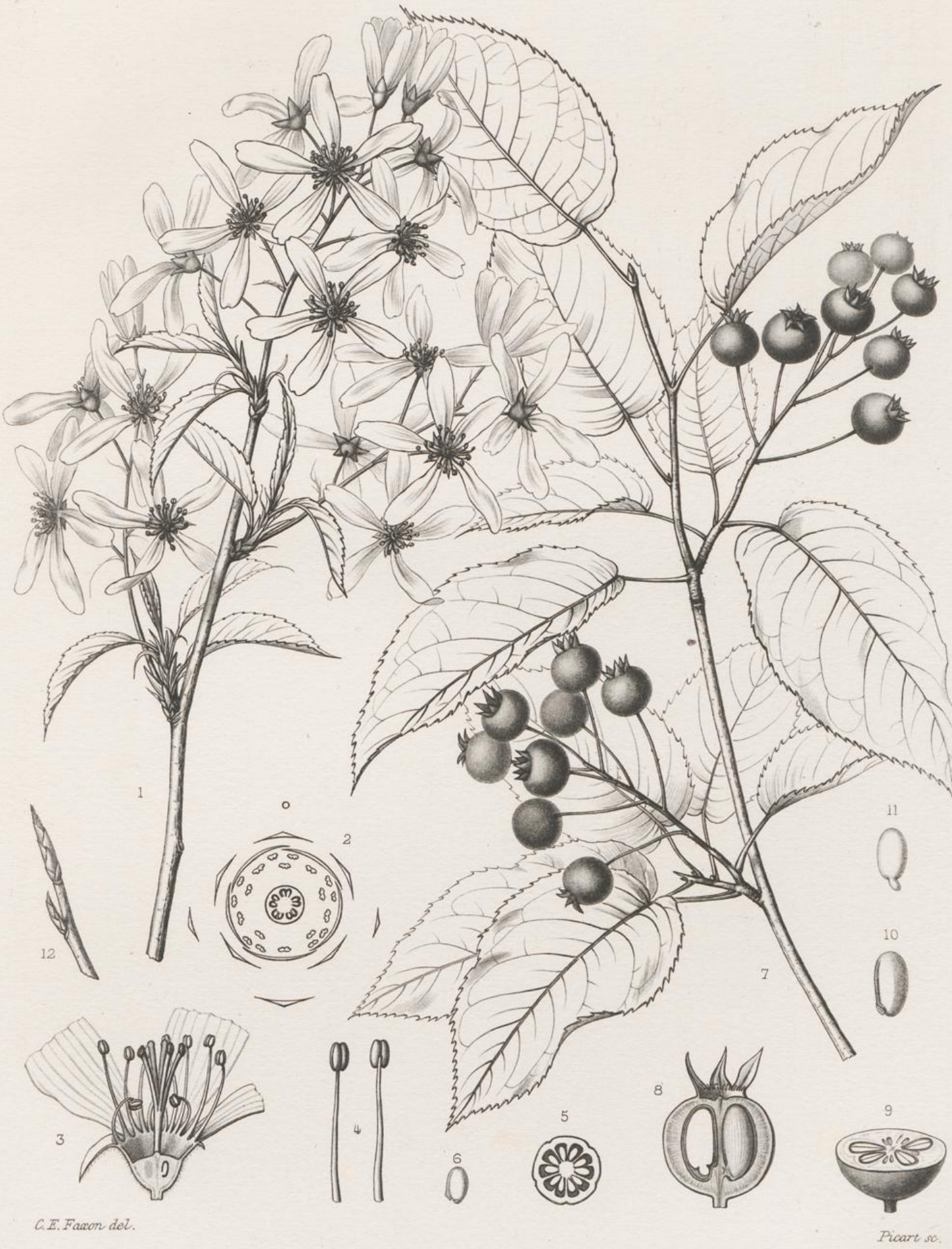
EXPLANATION OF THE PLATES.

PLATE CXCIV. AMELANCHIER CANADENSIS.

1. A flowering branch, natural size.
2. Diagram of a flower.
3. Vertical section of a flower, enlarged.
4. Front and rear views of a stamen, enlarged.
5. Cross section of an ovary, enlarged.
6. An ovule, much magnified.
7. A fruiting branch, natural size.
8. Vertical section of a fruit, enlarged.
9. Cross section of a fruit, enlarged.
10. A seed, enlarged.
11. An embryo, much magnified.
12. The end of a winter branchlet, natural size.

PLATE CXCV. AMELANCHIER CANADENSIS, *var.* OBOVALIS.

1. A flowering branch, natural size.
2. Vertical section of a flower, enlarged.
3. A fruiting branch, natural size.
4. A fruit divided transversely, enlarged.
5. A seed, enlarged.
6. An embryo, much magnified.



C.E. Faxon del.

Picart sc.

AMELANCHIER CANADENSIS, M E D.

A. Riocreux direx.t

Imp. R. Taneur, Paris.

C.E. Faxon del. Picart sc.

AMELANCHIER CANADENSIS, Var. OBOVALIS, Sarg.

A. Riocreux direx.t Imp. R. Taneur, Paris

AMELANCHIER ALNIFOLIA.

Service Berry.

LEAVES broadly ovate to orbicular, obtuse or rarely acute.

Amelanchier alnifolia, Nuttall, *Jour. Phil. Acad.* vii. 22. — Roemer, *Fam. Nat. Syn.* iii. 147. — Cooper, *Am. Nat.* iii. 407. — Wenzig, *Linnæa*, xxxviii. 113. — Decaisne, *Nouv. Arch. Mus.* x. 135. — Brewer & Watson, *Bot. Cal.* i. 190. — Watson & Coulter, *Gray's Man.* ed. 6, 167. — Greene, *Fl. Francis.* i. 52.

Pyrus sanguinea, Pursh, *Fl. Am. Sept.* i. 340 (in part).

Aronia alnifolia, Nuttall, *Gen.* i. 306.

Pyrus alnifolia, Sprengel, *Syst.* ii. 509.

Amelanchier ovalis, var. **semiintegrifolia**, Hooker, *Fl. Bor.-Am.* i. 202. — Don, *Gen. Syst.* ii. 604,

Amelanchier florida, Lindley, *Bot. Reg.* t. 1589. — Spach, *Hist. Vég.* ii. 86. — Walpers, *Rep.* ii. 55. — Loudon, *Arb. Brit.* ii. 876, f. 633, 634. — Roemer, *Fam. Nat. Syn.* iii. 144. — Decaisne, *Nouv. Arch. Mus.* x. 135.

Amelanchier Canadensis, var. **alnifolia**, Torrey & Gray, *Fl. N. Am.* i. 473. — Walpers, *Rep.* ii. 55. — Dietrich, *Syn.* iii. 158. — Torrey, *Pacific R. R. Rep.* iv. 85; *Bot. Mex. Bound. Surv.* 64; *Bot. Wilkes Explor. Exped.* 291. — Hooker, *Lond. Jour. Bot.* vi. 220. — Gray, *Man.* 130. — Newberry, *Pacific R. R. Rep.* vi. 73. — Cooper, *Pacific R. R. Rep.* xii. pt. ii. 30. — Watson, *King's Rep.* v. 92.

Amelanchier Canadensis, var. **pumila**, Torrey & Gray, *Fl. N. Am.* i. 474. — Walpers, *Rep.* ii. 55. — Dietrich, *Syn.* iii. 158.

Amelanchier pumila, Roemer, *Fam. Nat. Syn.* iii. 145.

Amelanchier Canadensis, var. **oblongifolia**, Bentham, *Pl. Hartweg.* 309 (not Torrey & Gray).

Amelanchier diversifolia, var. **alnifolia**, Torrey, *Frémont's Rep.* 89.

Amelanchier Canadensis, Anderson, *Cat. Pl. Nev.* 120 (not Medicus).

? **Amelanchier glabra**, Greene, *Fl. Francis.* i. 52.

? **Amelanchier pallida**, Greene, *Fl. Francis.* i. 53.

A tree, occasionally forty feet in height, with a single straight trunk six to ten inches in diameter, or more often with a cluster of slender stems rising from the ground; or usually a shrub only a foot or two in height. The bark of the trunk is an eighth of an inch thick, smooth or slightly fissured, and light brown somewhat tinged with red. The branches are green at first and glabrous, pilose with long pale hairs or coated with pubescence, and in their first winter are stout, bright red or plum-color, glabrous or rarely puberulous, and more or less marked by small pale lenticels. The winter-buds are acute, a quarter of an inch long, and covered with chestnut-brown glabrous or occasionally pilose scales; the scales of the inner ranks at maturity are ovate, acute, brightly colored, covered with pale silky hairs, and from a half to three quarters of an inch in length. The leaves are broadly ovate to orbicular or occasionally oblong-ovate, rounded or rarely acute at the apex, rounded or subcordate at the base, and sharply and coarsely serrate above the middle, with incurved rigid teeth; when they unfold they are coated on the lower surface with thick pale tomentum, and are often pilose on the upper surface; but they soon become glabrous, and at maturity are membranaceous to subcoriaceous, dark green above and pale or sometimes rufous below, or, when the plants grow in the dry climate of the interior, gray-green on both surfaces and often puberulous below; they are an inch to an inch and a half in length and in breadth, with slender midribs and veins, and are borne on slender petioles half an inch long. The stipules are linear, acute, red-brown, sometimes an inch in length, and caducous. The flowers, which appear from April on the shores of Puget Sound to the middle of June on the high mountains of Montana, are produced in erect glabrous or pubescent racemes an inch to an inch and a half in length on short pedicels furnished near the middle with linear acute colored bractlets which in falling leave conspicuous scars. The calyx is cup-shaped and glabrous, pilose or pubescent on the outer surface, with linear acute lobes glabrous or coated with pubescence on the inner surface. The petals are narrowly oblong to obovate, rounded or acute at the apex, and from a quarter of an inch to an inch in length. The ovaries are pubescent or puberulous. The fruit ripens from June to September, and is sweet and juicy; it is subglobose, dark blue or almost black, with a glaucous bloom, and from half an

inch to nearly an inch in diameter. The seeds are an eighth of an inch long, with a lustrous red-brown coat.[1]

Amelanchier alnifolia is distributed from the valley of the Yukon River in latitude 62° 45′ north,[2] southward through the coast ranges of northwestern America and on the mountain ranges of the western and interior parts of the continent, extending in California to the southern boundary of the state, and eastward through British Columbia, the Saskatchewan, and Manitoba, to the western shores of Lake Superior,[3] and to northern Michigan, Nebraska,[4] and the Rocky Mountains of Colorado[5] and New Mexico.[6]

The wood of *Amelanchier alnifolia* is heavy, hard, and close-grained; it is light brown and contains numerous obscure medullary rays. The specific gravity of the absolutely dry wood is 0.8262, a cubic foot weighing 51.55 pounds.

The nutritious and abundant fruit of the Service Berry is an important article of food with the Indians of western America, who gather and dry it in large quantities.[7]

Amelanchier alnifolia attains its largest size and occasionally assumes the habit of a tree on the islands and rich bottom-lands of the lower Columbia River and on the small prairies which occur in Washington in the neighborhood of Puget Sound, where it grows in gravelly soil near the borders of small ponds, and often forms thickets of considerable extent, or is associated with the Oregon Hawthorn, the Crab-apple, and the Choke Cherry. In the interior it is confined to high elevations, in California frequently ascending ten thousand feet above the level of the ocean, sometimes near the borders of streams or alpine meadows, or often on high hillsides where, as a low shrub, it forms thickets which cover areas several hundred acres in extent.

Amelanchier alnifolia was noticed early in this century by the party of explorers who, under the leadership of Lewis and Clark, first crossed North America;[8] and it was introduced into cultivation by David Douglas who, in 1826, sent seeds to the London Horticultural Society. In the Arnold Arboretum it produces fruit every year.

[1] In the different parts of the immense territory over which it is distributed *Amelanchier alnifolia* varies not only in size and habit, but in the texture and color of the leaves, in the amount and character of the pubescence of the calyx, and in the size of the flowers; at high elevations in the dry interior its foliage, like that of many plants in these regions, is pale green on both sides, and the bark of the branches and stems is much lighter than on plants which have grown in the more humid climate of the coast. The extreme forms of this species, however, are connected by intermediate forms, and it is not probable that western America contains more than a single species of Amelanchier, and this, at the extreme eastern limits of its range, is not always easily distinguished from some of the broad-leaved forms of *Amelanchier Canadensis* of the eastern states.

[2] Macoun, *Cat. Can. Pl.* i. 148.

[3] Macoun, *l. c.* 522.

[4] Bessey, *Bull. Agric. Exper. Stat. Nebraska*, iv. art. iv. 20.

[5] Coulter, *Man. Rocky Mt. Bot.* 89.

[6] Gray, *Mem. Am. Acad.* n. ser. iv. 42 (*Pl. Fendler.*).

[7] "In a great number of localities service-berries are stored for winter use by the Indians. They are gathered where most abundant, crushed and made into a paste which is spread out on bark or stones in the sun until it is thoroughly dried. It is then put in sacks, and during the winter serves to give variety to their diet which otherwise consists of flesh or dried fish." (Newberry, *Food and Fibre Plants of the North American Indians, Popular Science Monthly*, xxxii. 43. See, also, R. Brown (Campst.), *Trans. Bot. Soc. Edinburgh*, ix. 384.)

[8] *History of the Expedition under the Command of Captains Lewis and Clark to the Sources of the Missouri, thence across the Rocky Mountains and down the River Columbia to the Pacific Ocean*, ii. 505.

EXPLANATION OF THE PLATE.

Plate CXCVI. Amelanchier alnifolia.

1. A flowering branch, natural size.
2. Vertical section of a flower, the ends of the petals removed, enlarged.
3. A fruiting branch, natural size.
4. Vertical section of a fruit, enlarged.
5. A seed, natural size.
6. An embryo, much magnified.
7. A winter branchlet, natural size.

C.E. Faxon del. Himely sc.

AMELANCHIER ALNIFOLIA, Nutt.

A. Riocreux direx.t Imp. R. Taneur, Paris.