

chiefly radical 3-5-lobed or divided leaves, and small yellow flowers on bracted scapes. (Named in honor of *Francis von Waldstein*, a German botanist.)

1. *W. fragarioides*, Tratt. (BARREN STRAWBERRY.) Low; leaflets 3, broadly wedge-form, cut-toothed; scapes several-flowered; petals longer than the calyx. — Wooded hillsides, N. Eng. to Ga., west to Ind., Mich., and Minn.

9. FRAGARIA, Tournef. STRAWBERRY.

Flowers nearly as in *Potentilla*. Styles deeply lateral. Receptacle in fruit much enlarged and conical, becoming pulpy and scarlet, bearing the minute dry achenes scattered over its surface. — Stemless perennials, with runners, and with white cymose flowers on scapes. Leaves radical; leaflets 3, obovate-wedge-form, coarsely serrate; stipules cohering with the base of the petioles, which with the scapes are usually hairy. (Name from the fragrance of the fruit.) — Flowering in spring. (The species are indiscriminately called WILD STRAWBERRY.)

1. *F. Virginiana*, Mill. Achenes imbedded in the deeply pitted fruiting receptacle, which usually has a narrow neck; calyx becoming erect after flowering and connivent over the hairy receptacle when sterile or unfructified; leaflets of a firm or coriaceous texture; the hairs of the scapes, and especially of the pedicels, silky and appressed. — Moist or rich woodlands, fields, etc.; common.

Var. *Illinoensis*, Gray, is a coarser or larger plant, with flowers more inclined to be polygamo-dioecious, and the villous hairs of the scape and pedicels widely spreading. — Rich soil, western N. Y. to Minn., and westward.

2. *F. vesca*, L. Achenes superficial on the glabrous conical or hemispherical fruiting receptacle (not sunk in pits); calyx remaining spreading or reflexed; hairs on the scape mostly widely spreading, on the pedicels appressed; leaflets thin, even the upper face strongly marked by the veins. — Fields and rocky places; less common. (Eu.)

F. INDICA, L., differing from the true strawberries in having leafy runners, a calyx with incised leafy bractlets larger than the sepals, yellow petals, and insipid fruit, has become somewhat established near Philadelphia and in the S. States; an escape from cultivation. Flowers and fruit produced through the summer and autumn. (Adv. from India.)

10. POTENTILLA, L. CINQUE-FOIL. FIVE-FINGER.

Calyx flat, deeply 5-cleft, with as many bractlets at the sinuses, thus appearing 10-cleft. Petals 5, usually roundish. Stamens many. Achenes many, collected in a head on the dry mostly pubescent or hairy receptacle; styles lateral or terminal, deciduous. Radicle superior. — Herbs, or rarely shrubs, with compound leaves, and solitary or cymose flowers; their parts rarely in fours. (Name a diminutive from *potens*, powerful, originally applied to *P. Anserina*, from its once reputed medicinal powers.)

§ 1. *Styles thickened and glandular toward the base; achenes glabrous, numerous; inflorescence cymose.*

* *Style nearly basal; stamens 25-30; perennial glandular-villous herbs, with pinnate leaves, and rather large white or yellow flowers.*

1. *P. arguta*, Pursh. Stems erect, usually stout (1-4° high), brownish-hairy, clammy above; leaflets 7-11, oval or ovate, cut-serrate, downy beneath;

cyme strict and rather close; stamens mostly 30, on a thick glandular disk. — Rocky hills, N. Brunswick to N. J., Minn., Kan., and westward.

* *Style terminal; flowers small, yellow; leaves pinnate or ternate.*

+ *Annual or biennial; leaflets incisely serrate, not white-tomentose; stamens 5-20.*

2. *P. Norvégica*, L. Stout, erect, hirsute ($\frac{1}{2}$ -2° high); leaves ternate; leaflets obovate or oblong-lanceolate; cyme rather close, leafy; calyx large; stamens 15 (rarely 20). — Lab. to N. J., west to Minn. and Kan. (Eu.)

3. *P. rivàlis*, Nutt. More slender and branched, softly villous; leaves pinnate, with two pairs of closely approximate leaflets, or a single pair and the terminal leaflet 3-parted; leaflets cuneate-obovate or oblong; cyme loose, often diffuse, less leafy; calyx small; petals minute; stamens 10-20 (rarely 5). — Neb. to Mo. and N. Mex., and westward.

Var. *millegrana*, Watson. Leaves all ternate; stems erect, or weak and ascending; achenes often small and light-colored. — Minn. to Mo., N. Mex., and westward.

Var. *pentandra*, Watson. Leaves ternate, the lateral leaflets of the lower leaves parted nearly to the base; stamens 5, opposite to the sepals. — Iowa, Mo., and Ark.

4. *P. supina*, L. Stems decumbent at base or erect, often stout, leafy, subvillous; leaflets pinnately 5-11, obovate or oblong; cyme loose, leafy; stamens 20; achenes strongly gibbous on the ventral side. (*P. paradoxa*, Nutt.) — Minn. to Mo., and westward; also eastward along the Great Lakes. — Var. *NICOLLÉTH*, Watson. Slender; leaflets mostly but 3; inflorescence much elongated, leafy, and falsely racemose. — Devil's Lake, Minn.

+ *Herbaceous perennials, more or less white-tomentose; leaflets incisely pinnatifid; bractlets and sepals nearly equal; stamens 20-25.*

5. *P. Pennsylvànica*, L. Stems erect or decumbent at base ($\frac{1}{2}$ -2° high); leaflets 5-9, white-tomentose beneath, short-pubescent and greener above, oblong, obtuse, the linear segments slightly or not at all revolute; cyme fastigiate but rather open. — Coast of Maine, N. H., and the lower St. Lawrence, L. Superior, and westward. July, Aug. — Var. *STRIGOSA*, Lehm. Stems 6-12' high; silky-tomentose throughout; leaflets deeply pinnatifid, the margins of the narrow lobes revolute; cyme short and close. — Minn. and westward.

§ 2. *Styles filiform, not glandular at base; inflorescence cymose.*

* *Style terminal; achenes glabrous; stamens 20; herbaceous perennials, with rather large yellow flowers.*

+ *Leaves pinnate.*

6. *P. Hippiana*, Lehm. Densely white-tomentose and silky throughout, the upper surface of the leaves a little darker; stems ascending (1-1½° high), slender, branching above into a diffuse cyme; leaflets 5-11, cuneate-oblong, incisely toothed at least toward the apex, diminishing uniformly down the petiole; carpels 10-30. — N. W. Minn., and westward.

7. *P. effusa*, Dougl. Tomentose throughout, with scattered villous hairs; stems ascending (4-12' high), diffusely branched above; leaflets 5-11, interruptedly pinnate, the alternate ones smaller, cuneate-oblong, coarsely-incised-serrate or dentate; carpels 10. — W. Minn. to Mont. and Col.

— Leaves palmate, of 3 or 5 leaflets; tomentose or villous.

8. *P. argentea*, L. (SILVERY CINQUE-FOIL.) Stems ascending, paniculately branched at the summit, many-flowered, white-woolly; leaflets 5, wedge-oblong, almost pinnatifid, entire toward the base, with revolute margins, green above, white with silvery wool beneath. — Dry barren fields, etc., N. Scotia to N. J., west to Dak. and E. Kan. June–Sept. (Eu.)

9. *P. frigida*, Vill. Dwarf (1–3' high), tufted, villous when young; leaflets 3, broadly cuneate-obovate, deeply 3–5-toothed at summit, nearly glabrous above; flowers mostly solitary, small, on very slender stems; bractlets and sepals equal. — Alpine summits of the White Mts. (Eu.)

* * Style lateral; purple petals (shorter than the broad calyx) somewhat persistent; disk thick and hairy; achenes glabrous; hairy receptacle becoming large and spongy.

10. *P. palustris*, Scop. (MARSH FIVE-FINGER.) Stems stout, ascending from a decumbent rooting perennial base ($\frac{1}{2}$ –2° long), glabrous below; leaves pinnate; leaflets 5–7, oblong, serrate, lighter colored and more or less pubescent beneath; flowers few in an open cyme; calyx (1' broad) dark purple inside. — Cool bogs, N. J. to N. Ind., Ill., Minn., and northward. (Eu.)

* * * Style attached below the middle; achenes and receptacle densely villous; woody perennials.

11. *P. fruticosa*, L. (SHRUBBY CINQUE-FOIL.) Stem erect, shrubby (1–4° high), much branched; leaves pinnate; leaflets 5–7, crowded, oblong-lanceolate, entire, silky, usually whiter beneath and the margins revolute; petals yellow, orbicular. — Wet grounds, Lab. to N. J., west to Minn., northern Iowa, and north and westward. June–Sept. (Eu.)

12. *P. tridentata*, Ait. (THREE-TOOTHED C.) Stems low (1–10' high), rather woody at base, tufted, ascending, cymosely several-flowered; leaves palmate; leaflets 3, wedge-oblong, nearly smooth, thick, coarsely 3-toothed at the apex; petals white; achenes and receptacle very hairy. — Coast of N. Eng. from Cape Cod northward, Norfolk, Ct. (Barbour), and mountain-tops of the Alleghanies; also shores of the upper Great Lakes, and N. Iowa, Wisc., and Minn.

§ 3. Styles filiform, lateral; peduncles axillary, solitary, 1-flowered; achenes glabrous; receptacle very villous; herbaceous perennials, with yellow flowers.

13. *P. Anserina*, L. (SILVER-WEED.) Spreading by slender many-jointed runners, white-tomentose and silky-villous; leaves all radical, pinnate; leaflets 7–21, with smaller ones interposed, oblong, sharply serrate, silky tomentose at least beneath; bractlets and stipules often incisely cleft; peduncles elongated. — Brackish marshes, river-banks, etc., New Eng. to N. J., N. Ind., Minn., and northward. (Eu.)

✓ 14. *P. Canadensis*, L. (COMMON CINQUE-FOIL OR FIVE-FINGER.) Stems slender and decumbent or prostrate, or sometimes erect; pubescence villous, often scanty; leaves ternate, but apparently quinate by the parting of the lateral leaflets; leaflets cuneate-oblong or -obovate, incisely serrate, nearly glabrous above; bractlets entire. — Dry soil; common and variable. Apr.–July. — Often producing summer runners.

11. SIBBÁLDIA, L.

Calyx flattish, 5-cleft, with 5 bractlets. Petals 5, linear-oblong, minute. Stamens 5, inserted alternate with the petals into the margin of the woolly disk which lines the base of the calyx. Achenes 5–10; styles lateral. — Low and depressed mountain perennials; included by some in *Potentilla*. (Dedicated to Dr. Robert Sibbald, professor at Edinburgh at the close of the 17th century.)

1. *S. procumbens*, L. Leaflets 3, wedge-shaped, 3-toothed at the apex; petals yellow. — Alpine summits of the White Mts., and northward. (Eu.)

12. ALCHEMÍLLA, Tourn. LADY'S MANTLE.

Calyx-tube inversely conical, contracted at the throat; limb 4-parted with as many alternate accessory lobes. Petals none. Stamens 1–4. Pistils 1–4; the slender style arising from near the base; achenes included in the tube of the persistent calyx. — Low herbs, with palmately lobed or compound leaves, and small corymbed greenish flowers. (From *Alkemeljah*, the Arabic name, having reference to the silky pubescence of some species.)

A. arvensis, Scop. (PARSLEY PIERT.) Small annual (3–8' high), leafy; leaves 3-parted, with the wedge-shaped lobes 2–3-cleft, pubescent; flowers fascicled opposite the axils. — Va. and N. C. (Adv. from Eu.)

13. AGRIMONIA, Tourn. AGRIMONY.

Calyx-tube top-shaped, contracted at the throat, beset with hooked bristles above, indurated in fruit and enclosing the 2 achenes; the limb 5-cleft, closed after flowering. Petals 5. Stamens 5–15. Styles terminal. Seed suspended. — Perennial herbs, with interruptedly pinnate leaves, and yellow flowers in slender spiked racemes; bracts 3-cleft. (Name a corruption of *Argemone*, of the same derivation as *Argemone*, p. 59.)

1. *A. Eupatoria*, L. (COMMON AGRIMONY.) Leaflets 5–7 with minute ones intermixed, oblong-obovate, coarsely toothed; petals twice the length of the calyx. — Borders of woods, common. July–Sept. (Eu.)

2. *A. parviflora*, Ait. (SMALL-FLOWERED A.) Leaflets crowded, 11–19, with smaller ones intermixed, lanceolate, acute, deeply and regularly cut-serrate, as well as the stipules; petals small. — Woods and glades, N. Y. and N. J. to Ga., west to Mich., Kan., and La.

14. POTÈRIUM, L. BURNET.

Calyx with a top-shaped tube, constricted at the throat, persistent; the 4 broad petal-like spreading lobes imbricated in the bud, deciduous. Petals none. Stamens 4–12 or more, with flaccid filaments and short anthers. Pistils 1–3; the slender terminal style tipped with a tufted or brush-like stigma. Achene (commonly solitary) enclosed in the 4-angled dry and thickish closed calyx tube. Seed suspended. — Chiefly perennial herbs, with unequally pinnate leaves, stipules coherent with the petiole, and small, often polygamous or dioecious flowers crowded in a dense head or spike at the summit of a long and naked peduncle, each bracteate and 2-bracteolate. (Name *ποτήριον*, a drinking-cup, the foliage of Burnet having been used in the preparation of some medicinal drink.)

1. **P. Canadense**, Benth. & Hook. (CANADIAN BURNET.) Stamens 4, long-exserted, club-shaped, white, as is the whole of the elongated and cylindrical spike; stem 3-6° high; leaflets numerous, ovate or oblong-lanceolate, coarsely serrate, obtuse, heart-shaped at base, as if stipellate; stipules serrate. — Bogs and wet meadows, Newf. to mountains of Ga., west to Mich.

P. Sanguisorba, L. (GARDEN BURNET.) Stamens 12 or more in the lower flowers of the globular greenish head, with drooping capillary filaments, the upper flowers pistillate only; stems about 1° high; leaflets numerous, small, ovate, deeply cut. — Fields and rocks, N. Y. to Md. (Adv. from Eu.)

15. ROSA, Tourn. Rose.

Calyx-tube urn-shaped, contracted at the mouth, becoming fleshy in fruit. Petals 5, obovate or obcordate, inserted with the many stamens into the edge of the hollow thin disk that lines the calyx-tube and within bears the numerous pistils below. Ovaries hairy, becoming bony achenes in fruit. — Shrubby and usually spiny or prickly, with odd-pinnate leaves, and stipules cohering with the petiole; stalks, foliage, etc., often bearing aromatic glands. Many of the species are very variable in their characters, and are often indeterminable upon imperfect specimens. (The ancient Latin name.)

* *Styles cohering in a protruding column, as long as the stamens.*

1. **R. setigera**, Michx. (CLIMBING or PRAIRIE ROSE.) Stems climbing, armed with stout nearly straight scattered prickles, not bristly; leaflets 3-5, ovate, acute, sharply serrate, smooth or downy beneath; stalks and calyx glandular; flowers corymbose; sepals pointed; petals deep rose-color changing to white; fruit (hip) globular. — Borders of prairies and thickets, Ont. to Ohio, S. C., and Fla., west to Wisc., Neb., and Tex.; also cultivated. July. — The only American climbing rose, or with united protruding styles; strong shoots growing 10-20° in a season.

* * *Styles distinct; sepals connivent after flowering and persistent; pedicels and receptacles naked.*

+ *Fruit oblong-obovate to oblong; infrastipular spines usually none.*

2. **R. Engelmanni**, Watson. Stems usually 3-4° high or less; infrastipular spines, when present, straight and slender; prickles often abundant; leaflets 5-7, often somewhat resinous-puberulent beneath and the teeth serrulate; flowers solitary; sepals entire, naked or hispid; fruit 6-12" long. — Whisky Island, L. Huron, shores of L. Superior, and west to the Red River valley, and in the mountains from N. Mont. and N. Idaho to Col.

+ + *Fruit globose; infrastipular spines none; acicular prickles often present.*

3. **R. blanda**, Ait. Stems 1-3° high, wholly unarmed (occasionally with a few or very rarely numerous prickles); stipules dilated, naked and entire, or slightly glandular-toothed; leaflets 5-7, usually oblong-lanceolate, cuneate at base and petiolulate, simply serrate, not resinous; flowers usually large, corymbose or solitary; sepals hispid, entire. — On rocks and rocky shores, Newf. to N. Eng., central N. Y., Ill. (La Salle Co.), and the region of the Great Lakes.

4. **R. Sayi**, Schwein. Stems usually low (1-2° high), very prickly; stipules usually dilated, glandular-ciliate and resinous; leaflets 3-7, broadly elliptical to oblong-lanceolate, sessile and obtuse or subcordate at base, resinous-

puberulent and teeth serrulate; flowers large, solitary (very rarely 2 or 3); outer sepals usually with 1 or 2 narrow lateral lobes, not hispid. — N. Mich. and Wisc. to Minn. and Col.

5. **R. Arkansana**, Porter. Stems low, very prickly; stipules narrow, more or less glandular-toothed above (or even glandular-ciliate); leaflets 7-11, broadly elliptical to oblong-ob lanceolate, subcuneate at base, sessile or petiolulate, simply toothed, not resinous; flowers corymbose; sepals rarely hispid, the outer lobed. — Minn. to Mo. and W. Tex., west to Col.

+ + + *Fruit globose; infrastipular spines present.*

6. **R. Woodsii**, Lindl. Stems usually low (½-3° high), with slender straight or recurved spines, sometimes with scattered prickles, or wholly unarmed above; leaflets 5-7, obovate to oblong or lanceolate, more or less toothed; flowers corymbose or solitary; sepals naked or hispid, the outer usually lobed; fruit globose with a short neck. — Minn. to Mo., west to Col.

* * * *Styles distinct; sepals spreading after flowering and deciduous; infrastipular spines usually present, often with scattered prickles; sepals, globose receptacle, and pedicel usually hispid; teeth simple; pubescence not resinous.*

+ *Leaflets mostly finely many-toothed.*

7. **R. Carolina**, L. Stems usually tall (1-7° high), with stout straight or usually more or less curved spines; stipules long and very narrow; leaflets dull green, 5-9 (usually 7), usually narrowly oblong and acute at each end and petiolulate, but often broader, usually pubescent beneath. — Borders of swamps and streams, N. Scotia to Fla., west to Minn. and Miss.

+ + *Leaflets coarsely toothed.*

8. **R. lucida**, Ehrh. Stems often tall and stout (a few inches to 6° high), with at length stout and usually more or less hooked spines; stipules usually naked, more or less dilated; leaflets (mostly 7) dark green, rather thick, smooth and often shining above; flowers corymbose or solitary; outer sepals frequently with 1 or 2 small lobes. — Margins of swamps or moist places, Newf. to N. Eng., N. Y., and E. Penn.

9. **R. humilis**, Marsh. Stems usually low (1-3°) and more slender, less leafy, with straight slender spines, spreading or sometimes reflexed; stipules narrow, rarely somewhat dilated; leaflets as in the last, but usually thinner and paler; flowers very often solitary; outer sepals always more or less lobed. (R. lucida of most authors.) — Mostly in dry soil or on rocky slopes, Maine to Ga., west to Minn., Mo., Ind. Terr., and La.

10. **R. nitida**, Willd. Low, nearly or quite glabrous throughout, the straight slender spines often scarcely stouter than the prickles which usually thickly cover the stem and branches; stipules mostly dilated; leaflets bright green and shining, usually narrowly oblong and acute at each end; flowers solitary (rarely 2 or 3); sepals entire. — Margins of swamps, Newf. to N. Eng.

Naturalized species.

R. canina, L. (DOG ROSE.) Stems armed with stout recurved spines, without prickles, the branches sometimes unarmed; leaflets 5-7, elliptical or oblong-ovate, glabrous or somewhat pubescent, simply toothed, not resinous-puberulent; flowers solitary (or 2-4) on usually naked pedicels; sepals pin-

natifid, deciduous; fruit oblong-ovate to nearly globular. — Roadsides, E. Penn., Tenn., etc. (Int. from Eu.)

R. RUBIGINOSA, L. (SWEETBRIER. EGLANTINE.) Resembling the last, but of more compact habit, the leaflets densely resinous beneath and aromatic, and doubly serrate; the short pedicels and pinnatifid sepals hispid. (Incl. *R. micrantha*, Smith; less aromatic, with oblong fruit and glabrous styles.) — N. Scotia and Ont. to S. C. and Tenn. (Int. from Eu.)

16. PYRUS, L. PEAR. APPLE.

Calyx-tube urn-shaped, the limb 5-cleft. Petals roundish or obovate. Stamens numerous. Styles 2-5. Pome fleshy or berry-like; the 2-5 carpels or cells of a papery or cartilaginous texture, 2-seeded. — Trees or shrubs, with handsome flowers in corymbed cymes. (The classical name of the Pear-tree.)

§ 1. **MĀLUS** (APPLE). Leaves simple; cymes simple and umbel-like; pome fleshy, globular, sunk in at the attachment of the stalk.

1. **P. coronaria**, L. (AMERICAN CRAB-APPLE.) Leaves ovate, often rather heart-shaped, cut-serrate or lobed, soon glabrous; styles woolly and united at base. — Glades, Ont. and W. New York to N. C., west to Minn., Kan., and La. May. — Tree 20° high, somewhat thorny, with large rose-colored very fragrant blossoms, few in a corymb; fruit fragrant and greenish.

2. **P. angustifolia**, Ait. Resembling the last, but with leaves oblong or lanceolate, often acute at base, mostly toothed, glabrous; styles distinct. — Glades, Penn. to Fla., west to S. Ind., Kan., and La. April.

§ 2. **ADENORHACHIS**. Leaves simple, the midrib glandular along the upper side; cymes compound; styles united at base; fruit berry-like, small.

3. **P. arbutifolia**, L. f. (CHOKE-BERRY.) A shrub usually 1-3° high; leaves oblong or oblanceolate, mostly acute or acuminate, finely glandular-serrate, tomentose beneath; cyme tomentose; flowers white or reddish; fruit pear-shaped, or globose when ripe, small, red or purple, astringent. — Swamps and damp thickets; common, from N. Scotia to Fla., and west to Minn., Ill., Mo., and La.

Var. **melanocarpa**, Hook. Nearly smooth throughout, with larger black fruit; leaves usually less acute. — Of apparently the same range.

§ 3. **SÓRBUS**. Leaves odd-pinnate, with rather numerous leaflets; cymes compound; styles separate; pome berry-like, small.

4. **P. Americana**, DC. (AMERICAN MOUNTAIN-ASH.) Tree or tall shrub, nearly glabrous or soon becoming so; leaflets 13-15, lanceolate, taper-pointed, sharply serrate with pointed teeth, bright green; cymes large and flat; berries globose, bright red, not larger than peas; leaf-buds pointed, glabrous and somewhat glutinous. — Swamps and mountain-woods, Newf. to mountains of N. C., west to N. Mich. and Minn. Often cultivated.

5. **P. sambucifolia**, Cham. & Schlecht. Leaflets oblong, oval, or lance-ovate, mostly obtuse or abruptly short-pointed, serrate (mostly doubly) with more spreading teeth, often pale beneath; cymes smaller; flowers and berries larger, the latter (4" broad) when young ovoid, at length globose; leaf-buds sparingly hairy; otherwise nearly as the preceding. — Lab. to northern N. Eng. and Lake Superior, and westward.

17. CRATÆGUS, L. HAWTHORN. WHITE THORN.

Calyx-tube urn-shaped, the limb 5-cleft. Petals 5, roundish. Stamens many, or only 10-5. Styles 1-5. Pome drupe-like, containing 1-5 bony 1-seeded stones. — Thorny shrubs or small trees, with simple and mostly lobed leaves, and white (rarely rose-colored) blossoms. (Name from *κράτος*, strength, on account of the hardness of the wood.)

* *Corymbs many-flowered.*

+ Fruit small, depressed-globose (not larger than peas), bright red; flowers mostly small; calyx-teeth short and broad (except in n. 3); styles 5; glabrous (except *C. Pyracantha*) and glandless.

C. PYRACANTHA, Pers. (EVERGREEN THORN.) Leaves evergreen, shining (1' long), oblong or spatulate-lanceolate, crenulate; the short petioles and young branchlets pubescent; corymbs small. — Shrub, spontaneous near Washington and Philadelphia. (Adv. from Eu.)

1. **C. spathulata**, Michx. Shrub or tree, 10-25° high; leaves thickish, shining, deciduous, spatulate or oblanceolate, with a long tapering base, crenate above, rarely cut-lobed, nearly sessile. — Va. to Fla., west to Mo. and Tex.

2. **C. cordata**, Ait. (WASHINGTON THORN.) Trunk 15-25° high; leaves broadly ovate or triangular, mostly truncate or a little heart-shaped at the base, on a slender petiole, variously 3-5-cleft or cut, serrate. — Va. to Ga. in the mountains, west to Mo.

3. **C. viridis**, L. A small tree, often unarmed; leaves ovate to ovate-oblong or lanceolate, or oblong-ovate, mostly acute at both ends, on slender petioles, acutely serrate, often somewhat lobed, and often downy in the axils; flowers larger, numerous; fruit bright red or rarely orange. (*C. arborescens*, Ell.) — Mississippi bottoms from St. Louis to the Gulf, and from S. Car. to Tex.

+ + Fruit small ($\frac{1}{2}$ - $\frac{3}{4}$ long), ovoid, deep red; flowers rather large; styles 1-3.

C. OXYACANTHA, L. (ENGLISH HAWTHORN.) Smooth; leaves obovate, cut-lobed and toothed, wedge-form at the base; calyx not glandular. More or less spontaneous as well as cultivated. (Adv. from Eu.)

4. **C. apiifolia**, Michx. Softly pubescent when young; leaves roundish, with a broad truncate or slightly heart-shaped base, pinnately 5-7-cleft, the crowded divisions cut-lobed and sharply serrate; petioles slender; calyx-lobes glandular-toothed, slender. — S. Va. to Fla., west to Mo. and Tex.

+ + + Fruit large ($\frac{1}{2}$ -1' long), red; flowers large; styles and stones even in the same species 1-3 (when the fruit is ovoid or pear-shaped) or 4-5 (in globular fruit); stipules, calyx-teeth, bracts, etc., often beset with glands; shrubs or low trees. [Species as characterized by Prof. C. S. SARGENT.]

5. **C. coccinea**, L. Branches reddish; spines stout, chestnut-brown; villous-pubescent on the shoots, glandular peduncles, and calyx; leaves on slender petioles, thin, pubescent beneath or often glabrous, round-ovate, cuneate or subcordate at base, acutely glandular-toothed, sometimes cut-lobed; flowers $\frac{1}{2}$ broad; fruit coral-red, globose or obovate, $\frac{1}{4}$ broad. — Newf. to Minn. and southward. — Var. **MACRACANTHA**, Dudley; spines longer; leaves thicker, cuneate at base, on stout petioles, often deeply incised; cymes broader; flowers and fruit rather larger. — From the St. Lawrence and E. Mass. to Minn.

Var. **mollis**, Torr. & Gray. Shoots densely pubescent; leaves large, slender-petioled, cuneate, truncate or cordate at base, usually with acute narrow

lobes, often subsclabrous above, more or less densely pubescent beneath; flowers 1' broad, in broad cymes; fruit bright scarlet with a light bloom, 1' broad. (*C. tomentosa*, var. *mollis*, Gray. *C. subvillosa*, Schrad.) — E. Mass. to Mo. and Tex. Sometimes 20–30° high, blooming two weeks before the type.

6. *C. tomentosa*, L. Branches gray, rarely with stout gray spines; shoots, peduncles, and calyx villous-pubescent; glands none; leaves large, pale, prominently veined, densely pubescent beneath, ovate or ovate-oblong, sharply serrate, usually incisely lobed, contracted into a margined petiole; flowers small, ill-scented; fruit dull red, obovate, rarely globose ($\frac{1}{2}$ ' broad), upright. — Western N. Y. to Mich., Mo., and Ga. In flower 2–3 weeks after n. 5.

7. *C. punctata*, Jacq. Branches horizontal; glands none; leaves smaller, mostly wedge-obovate, attenuate and entire below, unequally toothed above, rarely lobed, villous-pubescent becoming smooth but dull, the many veins more impressed, prominent beneath; fruit globose (1' broad), red or bright yellow. (*C. tomentosa*, var. *punctata*, Gray.) — Quebec to Ont. and south to Ga.

8. *C. Crus-galli*, L. (COCKSPUR THORN.) Branches horizontal, with slender thorns often 4' long; glabrous; leaves thick, dark green, shining above, wedge-obovate and oblanceolate, tapering into a very short petiole, serrate above the middle; fruit globular, dull red ($\frac{3}{8}$ ' broad). — Thickets, common.

* * * *Corymbs* simple, few- (1–6-) flowered; calyx, bracts, etc., glandular.

9. *C. flava*, Ait. (SUMMER HAW.) Tree 15–20° high, somewhat pubescent or glabrous; leaves wedge-obovate or rhombic-obovate, narrowed into a glandular petiole, unequally toothed and somewhat cut above the middle, rather thin, the teeth glandular; styles 4–5; fruit somewhat pear-shaped, yellowish, greenish, or reddish ($\frac{1}{2}$ ' broad). — Sandy soil, Va. to Mo., and southward.

Var. *pubescens*, Gray. Downy or villous-pubescent when young; leaves thickish, usually obtuse or rounded at the summit; fruit larger ($\frac{3}{4}$ ' broad), scarlet or sometimes yellow. — Va. to Fla.

10. *C. parvifolia*, Ait. (DWARF THORN.) Shrub 3–6° high, downy; leaves thick, obovate-spatulate, crenate-toothed ($\frac{1}{2}$ – $\frac{1}{4}$ ' long), almost sessile, the upper surface at length shining; flowers solitary or 2–3 together on very short peduncles; calyx-lobes as long as the petals; styles 5; fruit globular or pear-shaped, yellowish. — Sandy soil, N. J. to Fla. and La.

18. AMELANCHIER, Medic. JUNE-BERRY.

Calyx 5-cleft; lobes downy within. Petals oblong, elongated. Stamens numerous, short. Styles 5, united below. Ovary 5-celled, each cell 2-ovuled, but a projection grows from the back of each and forms a false cartilaginous partition; the berry-like pome thus 10-celled, with one seed in each cell (when all ripen). — Small trees or shrubs, with simple sharply serrated leaves, and white racemose flowers. (*Amelancier* is the name of *A. vulgaris* in Savoy.)

1. *A. Canadensis*, Torr. & Gray. (SHAD-BUSH. SERVICE-BERRY.) A tree 10–30° high, nearly or soon glabrous; leaves ovate to ovate-oblong, usually somewhat cordate at base, pointed, very sharply serrate, 1– $3\frac{1}{2}$ ' long; bracts and stipules very long-silky-ciliate; flowers large, in drooping nearly glabrous racemes; petals oblong, 6–8" long; fruit on elongated pedicels, globose, crimson or purplish, sweet and edible. (Var. *Botryapium*, Torr. & Gray.) — Dry open woodlands; Newf. to Fla., west to Minn., E. Kan., and La. Fruit ripen-

ing in June. — Var. *rotundifolia*, Torr. & Gray, appears to be only a broad-leaved form.

Var. (?) *oblongifolia*, Torr. & Gray. A smaller tree or shrub (6–10° high), the young leaves and racemes densely white-tomentose; leaves oblong or sometimes rather broadly elliptical, acute, mostly rounded at base, finely serrate, 1–2' long; flowers in denser and shorter racemes; petals 3–4" long, oblong-spatulate; fruit similar but more juicy, on shorter pedicels. — Low moist grounds or swampy woods; N. Brunswick to Va., west to Minn. and Mo. — A form of this with broader leaves (broadly elliptical or rounded), often very obtuse at the summit, and rounded, subcordate or acute at base, and usually coarsely toothed, is common from Manitoba to Minn. and Iowa, and is sometimes cultivated for its fruit.

2. *A. oligocarpa*, Roem. A low shrub 2–4° high, soon glabrous; leaves thin, oblong, acute at both ends, finely serrate, 1–2' long; flowers few (1–4), rather long-pedicelled; petals oblong-obovate; fruit broad-pyriform, dark purple with a dense bloom. (*A. Canadensis*, var. *oligocarpa*, Torr. & Gray.) — Cold swamps and mountain bogs; Lab. to northern N. Eng. and N. Y., and the shores of Lake Superior.

3. *A. alnifolia*, Nutt. A shrub 3–8° high, usually glabrate or nearly so; leaves somewhat glaucous and thickish, broadly elliptical or roundish, very obtuse or rarely acute, often subcordate at base, coarsely toothed toward the summit, $\frac{1}{2}$ –2' long; raceme short and rather dense; petals cuneate-oblong, 3–8" long; fruit globose, purple. (*A. Canadensis*, var. *alnifolia*, Torr. & Gray.) — A western mountain species, which occurs in Minn. and N. Mich., and which the broad-leaved form of *A. Canadensis* sometimes closely simulates.

ORDER 34. CALYCANTHACEÆ. (CALYCANTHUS FAMILY.)

Shrubs with opposite entire leaves, no stipules, the sepals and petals similar and indefinite, the anthers adnate and extrorse, and the cotyledons convolute; the fruit like a rose-hip. Chiefly represented by the genus

1. CALYCANTHUS, L. CAROLINA ALLSPICE. SWEET-SCENTED SHRUB.

Calyx of many sepals, united below into a fleshy inversely conical cup (with some leaf-like bractlets growing from it); the lobes lanceolate, mostly colored like the petals, which are similar, in many rows, thickish, inserted on the top of the closed calyx-tube. Stamens numerous, inserted just within the petals, short; some of the inner ones sterile (destitute of anthers). Pistils several or many, enclosed in the calyx-tube, inserted on its base and inner face, resembling those of the Rose; but the enlarged hip dry when ripe, enclosing the achenes. — The lurid purple flowers terminating the leafy branches. Bark and foliage aromatic; the crushed flowers exhaling more or less the fragrance of strawberries. (Name composed of *κάλυξ*, a cup or calyx, and *άνθος*, flower, from the closed cup which contains the pistils.)

1. *C. flóridus*, L. Leaves oval, soft-downy underneath. — Virginia(?) and southward, on hillsides in rich soil. Common in gardens. April–Aug.