

* * Tall and often stout; leaves thick, not parallel-veined.

2. *E. Virginianum*, Lam. Slender (1-3° high); radical and lower stem-leaves linear- to oblong-lanceolate, on long (sometimes 1° long) fistulous petioles, entire or with small hooked teeth; upper leaves sessile, spiny-toothed or lacinate; heads ovate-oblong (6" long), with spiny-toothed or entire reflexed bracts, and bractlets with 3 spiny cusps (the middle one largest). — Margins of ponds and streams, N. J. to Fla. and Tex., near the coast. Aug., Sept.

3. *E. Leavenworthii*, Torr. & Gray. Stout (1-3° high); lowest stem-leaves broadly oblanceolate, spinosely toothed, the rest sessile and deeply palmately-parted into narrow incisely-pinnatifid spreading pungent segments; heads ovate-oblong (1-1½" long), with pinnatifid spinose bracts and 3-7-cuspidate bractlets, the terminal ones very prominent and resembling the bracts. — Dry soil, E. Kan., Ark., and Tex.

* * * Prostrate and slender, rooting at the joints, diffusely branched, with small thin unarmed leaves and very small heads.

4. *E. prostratum*, Nutt. Lower leaves oblong, entire, few-toothed, or lobed at base; upper leaves smaller, clustered at the rooting joints, ovate, few-toothed or entire (occasionally some additional trifid ones); reflexed bracts longer than the oblong heads (2-4" long). — Wet places, S. Mo. to Fla. and Tex.

36. SANÍCULA, Tourm. SANICLE. BLACK SNAKEROOT.

Calyx-teeth manifest, persistent. Fruit globular; the carpels not separating spontaneously, ribless, thickly clothed with hooked prickles, each with 5 oil-tubes. — Perennial rather tall glabrous herbs, with few palmately-lobed or parted leaves, those from the root long-petioled. Umbels irregular or compound, the flowers (greenish or yellowish) capitate in the umbellets, perfect, and with staminate ones intermixed. Involucre and involuclers few-leaved. (Name said to be from *sano*, to heal; or perhaps from *San Nicolas*.)

1. *S. Marylandica*, L. Stem 1-3° high; leaves 3-7-parted, the divisions mostly sharply cut and serrate; sterile flowers numerous and long-pedicelled; fruit 1½-2" long, the styles longer than the prickles. — Throughout our range, south to Ga. and Tenn., west to E. Kan. and Minn. May-Aug.

Var. *Canadensis*, Torr., has comparatively few and short-pedicelled sterile flowers, and styles shorter than the prickles. (*S. Canadensis*, L.) — With the last, but westward only to Minn. and E. Kan.

ORDER 49. ARALIACEÆ. (GINSENG FAMILY)

Herbs, shrubs, or trees, with much the same characters as Umbelliferæ, but with usually more than 2 styles, and the fruit a few-several-celled drupe. — Albumen mostly fleshy. Petals not inflexed.

1. ARALIA, Tourm. GINSENG. WILD SARSAPARILLA.

Flowers more or less polygamous. Calyx-tube coherent with the ovary, the teeth very short or almost obsolete. Petals 5, epigynous, oblong or obovate, lightly imbricated in the bud, deciduous. Stamens 5, epigynous, alternate with the petals. Styles 2-5, mostly distinct and slender, or in the sterile

flowers short and united. Ovary 2-5-celled, with a single anatropous ovule suspended from the top of each cell, ripening into a berry-like drupe, with as many seeds as cells. Embryo minute. — Leaves compound or decomposed. Flowers white or greenish, in umbels. Roots (perennial), bark, fruit, etc., warm and aromatic. (Derivation obscure.)

§ 1. ARALIA. Flowers monœciously polygamous or perfect, the umbels usually in corymbs or panicles; styles and cells of the (black or dark purple) fruit 5; stems herbaceous or woody; ultimate divisions of the leaves pinnate.

* Umbels numerous in a large compound panicle; leaves very large, decomposed.

1. *A. spinosa*, L. (ANGELICA-TREE. HERCULES' CLUB.) Shrub, or a low tree; the stout stem and stalks prickly; leaflets ovate, pointed, serrate, pale beneath. — River-banks, Penn. to Ind., and south to the Gulf. July, Aug.

2. *A. racemosa*, L. (SPIKENARD.) Herbaceous; stem widely branched; leaflets heart-ovate, pointed, doubly serrate, slightly downy; umbels racemose; styles united. — Rich woodlands, N. Brunswick to Minn., south to the mountains of Ga. July. Well known for its spicy-aromatic large roots.

* * Umbels 2-7, corymbed; stem short, somewhat woody.

3. *A. hispida*, Vent. (BRISTLY SARSAPARILLA. WILD ELDER.) Stem (1-2° high) bristly, leafy, terminating in a peduncle bearing several umbels; leaves twice pinnate; leaflets oblong-ovate, acute, cut-serrate. — Rocky and sandy places, Newf. to the Dakotas, south to the mountains of N. C. June.

4. *A. nudicaulis*, L. (WILD SARSAPARILLA.) Stem scarcely rising out of the ground, smooth, bearing a single long-stalked leaf (1° high) and a shorter naked scape, with 2-7 umbels; leaflets oblong-ovate or oval, pointed, serrate, 5 on each of the 3 divisions. — Moist woodlands; range of n. 3. May, June. The long horizontal aromatic roots a substitute for officinal Sarsaparilla.

§ 2. GINSENG. Flowers diœciously polygamous; styles and cells of the red or reddish fruit 2 or 3; stem herbaceous, low, simple, bearing a whorl of 3 palmately 3-7-foliolate leaves, and a simple umbel on a slender peduncle.

5. *A. quinquefolia*, Decsne. & Planch. (GINSENG.) Root large and spindle-shaped, often forked (4-9' long, aromatic); stem 1° high; leaflets long-stalked, mostly 5, large and thin, obovate-oblong, pointed; styles mostly 2; fruit bright red. — Rich and cool woods, Vt. and W. Conn. to Minn., south to the mountains of Ga. July.

6. *A. trifolia*, Decsne. & Planch. (DWARF GINSENG. GROUND-NUT.) Root or tuber globular, deep in the ground (pungent to the taste, not aromatic); stems 4-8' high; leaflets 3-5, sessile at the summit of the leafstalk, narrowly oblong, obtuse; styles usually 3; fruit yellowish. — Rich woods, N. Scotia to Minn., south to Ga. April, May.

ORDER 50. CORNACEÆ. (DOGWOOD FAMILY.)

Shrubs or trees (rarely herbaceous), with opposite or alternate simple leaves, the calyx-tube coherent with the 1-2-celled ovary, its limb minute, the petals (valvate in the bud) and as many stamens borne on the margin of an epigynous disk in the perfect flowers; style one; a single anatropous ovule hanging from the top of the cell; the fruit a 1-2-seeded drupe; embryo nearly

as long as the albumen, with large foliaceous cotyledons. — Including two genera, of which *Nyssa* is partly apetalous. Bark bitter and tonic.

1. *Cornus*. Flowers perfect, 4-merous. Leaves mostly opposite.
2. *Nyssa*. Flowers dioeciously polygamous, 5-merous. Leaves alternate.

1. *CORNUS*, Tourn. CORNEL. DOGWOOD.

Flowers perfect (or in some foreign species dioecious). Calyx minutely 4-toothed. Petals 4, oblong, spreading. Stamens 4; filaments slender. Style slender; stigma terminal, flat or capitate. Drupe small, with a 2-celled and 2-seeded stone. — Leaves opposite (except in one species), entire. Flowers small, in open naked cymes, or in close heads surrounded by a corolla-like involucre. (Name from *cornu*, a horn; alluding to the hardness of the wood.)

§ 1. Flowers greenish, in a head or close cluster, surrounded by a large and showy, 4-leaved, corolla-like, white or rarely pinkish involucre; fruit bright red.

1. *C. Canadensis*, L. (DWARF CORNEL. BUNCH-BERRY.) Stems low and simple (5-7' high) from a slender creeping and subterranean rather woody trunk; leaves scarcely petioled, the lower scale-like, the upper crowded into an apparent whorl in sixes or fours, ovate or oval, pointed; leaves of the involucre ovate; fruit globular. — Damp cold woods, N. J. to Ind. and Minn., and the far north and west. June.

2. *C. florida*, L. (FLOWERING DOGWOOD.) Tree 12-40' high; leaves ovate, pointed, acutish at the base; leaves of the involucre obcordate (1½' long); fruit oval. — Dry woods, from S. New Eng. to Ont. and S. Minn., south to Fla. and Tex. May, June. Very showy in flower, scarcely less so in fruit.

§ 2. Flowers white, in open flat spreading cymes; involucre none; fruit spherical; leaves all opposite (except in n. 9).

* Pubescence woolly and more or less spreading.

3. *C. circinata*, L'Her. (ROUND-LEAVED CORNEL OR DOGWOOD.) Shrub 6-10' high; branches greenish, warty-dotted; leaves round-oval, abruptly pointed, woolly beneath (2-5' broad); cymes flat; fruit light blue. — Copses, in rich or sandy soil, or on rocks, N. Scotia to the Dakotas, south to Va. and Mo. June.

4. *C. sericea*, L. (SILKY CORNEL. KINKIKINNIK.) Shrub 3-10' high; branches purplish; the branchlets, stalks, and lower surface of the narrowly ovate or elliptical pointed leaves silky-downy (often rusty), pale and dull; cymes flat, close; calyx-teeth lanceolate; fruit pale blue. — Wet places, Canada to the Dakotas, south to Fla. and La. June.

5. *C. asperifolia*, Michx. Branches brownish; the branchlets, etc., rough-pubescent; leaves oblong or ovate, on short petioles, pointed, rough with a harsh pubescence above, and downy beneath; calyx-teeth minute; fruit white. (*C. Drummondii*, Mey.) — Dry or sandy soil, N. shore of L. Erie to Minn. and the Gulf. May, June. A rather tall shrub.

** Pubescence closely appressed, straight and silky, or none.

6. *C. stolonifera*, Michx. (RED-OSIER DOGWOOD.) Branches, especially the osier-like shoots of the season, bright red-purple, smooth; leaves ovate, rounded at base, abruptly short-pointed, roughish with a minute close pubescence

on both sides, whitish underneath; cymes small and flat, rather few-flowered, smooth; fruit white or lead-color. — Wet places; common, especially northward. Multiplies freely by prostrate or subterranean suckers, and forms broad clumps, 3-6' high. June.

7. *C. stricta*, Lam. (STIFF CORNEL.) A shrub 8-15' high; branches brownish or reddish, smooth; leaves ovate or ovate-lanceolate, taper-pointed, acutish at base, glabrous, of nearly the same hue both sides; cymes loose, flattish; anthers and fruit pale blue. — Swamps, Va. to Ga. and Fla. April, May.

8. *C. paniculata*, L'Her. (PANICLED CORNEL.) Shrub 4-8' high, much branched; branches gray, smooth; leaves ovate-lanceolate, taper-pointed, acute at base, whitish beneath but not downy; cymes convex, loose, often panicled; fruit white, depressed-globose. — Thickets and river-banks. June.

9. *C. alternifolia*, L. f. Shrub or tree 8-25' high; branches greenish streaked with white, the alternate leaves clustered at the ends, ovate or oval, long-pointed, acute at base, whitish and minutely pubescent beneath; cymes very broad and open; fruit deep blue on reddish stalks. — Hillsides in copses, N. Brunswick to Minn., south to Ga. and Ala. May, June.

2. *NYSSA*, L. TUPELO. PEPPERIDGE. SOUR-GUM TREE.

Flowers dioeciously polygamous, clustered or rarely solitary at the summit of axillary peduncles. Stam. Fl. numerous in a simple or compound dense cluster of fascicles. Calyx small, 5-parted. Petals as in fertile flower or none. Stamens 5-12, oftener 10, inserted on the outside of a convex disk; filaments slender; anthers short. No pistil. Pist. Fl. solitary, or 2-8, sessile in a bracted cluster, much larger than the staminate flowers. Calyx with a very short repand-truncate or minutely 5-toothed limb. Petals very small and fleshy, deciduous, or often wanting. Stamens 5-10, with perfect or imperfect anthers. Style elongated, revolute, stigmatic down one side. Ovary 1-celled. Drupe ovoid or oblong, with a bony and grooved or striate 1-celled and 1-seeded stone. — Trees with entire or sometimes angulate-toothed leaves, which are alternate, but mostly crowded at the ends of the branchlets, and greenish flowers appearing with the leaves. (The name of a Nymph: "so called because it [the original species] grows in the water.")

1. *N. sylvatica*, Marsh. (TUPELO. PEPPERIDGE. BLACK OR SOUR GUM.) Middle-sized tree, with horizontal branches; leaves oval or obovate, commonly acuminate, glabrous or villous-pubescent when young, at least on the margins and midrib, shining above when old (2-5' long); fertile flowers 3-8, at the summit of a slender peduncle; fruit ovoid, acid, bluish-black (about ½' long). (*N. multiflora*, Wang.) — Rich soil, either moist or nearly dry, S. Maine and N. Vt. to Mich., south to Fla. and Tex. April, May. Leaves turning bright crimson in autumn. Wood firm, close-grained and very un-edgeable, on account of the oblique direction and crossing of its fibres.

2. *N. uniflora*, Wang. (LARGE TUPELO.) A large tree; leaves oblong or ovate, sometimes slightly cordate at base, long-petioled, entire or angulate-toothed, pale and downy-pubescent beneath, at least when young (4-12' long); fertile flower solitary on a slender peduncle; fruit oblong, blue (1' or more in length). — Deep swamps, S. Va. to S. Ill. and Mo., south to Fla. and Tex. April. Wood soft; that of the roots very light and spongy.

DIVISION II. GAMOPETALOUS DICOTYLEDONOUS PLANTS.

Floral envelopes consisting of both calyx and corolla, the latter composed of more or less united petals, that is, gamopetalous.*

ORDER 51. CAPRIFOLIACEÆ. (HONEYSUCKLE FAMILY.)

Shrubs, or rarely herbs, with opposite leaves, no (genuine) stipules, the calyx-tube coherent with the 2-5-celled ovary, the stamens as many as (one fewer in Linnaea, doubled in Adoxa) the lobes of the tubular or rotate corolla, and inserted on its tube. — Fruit a berry, drupe, or pod, 1-several-seeded. Seeds anatropous, with small embryo in fleshy albumen.

Tribe I. SAMBUCÆ. Corolla wheel-shaped or urn-shaped, regular, deeply 5-lobed. Stigmas 3-5, sessile or nearly so. Inflorescence terminal and cymose.

* Dwarf herb, with stamens doubled and flowers in a capitate cluster.

1. **Adoxa.** Fruit a dry greenish drupe, with 3-5 cartilaginous nutlets. Cauline leaves a single pair and ternate.

* Shrubs, with stamens as many as corolla-lobes and flowers in broad compound cymes.

2. **Sambucus.** Fruit berry-like, containing three small seed-like nutlets. Leaves pinnate.

3. **Viburnum.** Fruit a 1-celled 1-seeded drupe, with a compressed stone. Leaves simple.

Tribe II. LONICERÆ. Corolla tubular, often irregular, sometimes 2-lipped. Style slender; stigma capitate.

* Herbs, with axillary flowers.

4. **Triosteum.** Stamens 5. Corolla gibbous at the base. Fruit a 3-celled drupe. Erect; flowers sessile.

5. **Linnaea.** Stamens 4, one fewer than the lobes of the corolla. Fruit dry, 3-celled, but only 1-seeded. Creeping, with long-pedunculate twin flowers.

* Erect or climbing shrubs, with scaly winter-buds.

6. **Symphoricarpos.** Stamens 4 or 5, as many as the lobes of the bell-shaped regular corolla. Berry 4-celled, but only 2-seeded; two of the cells sterile.

7. **Lonicera.** Stamens 5, as many as the lobes of the tubular and more or less irregular corolla. Berry several-seeded; all the 2 or 3 cells fertile.

8. **Diervilla.** Stamens 5. Corolla funnel-form, nearly regular. Pod 2-celled, 2-valved, many-seeded, slender.

1. ADÓXA, L. MOSCHATEL.

Calyx-tube reaching not quite to the summit of the 3-5-celled ovary; limb of 3 or more teeth. Corolla wheel-shaped, 4-6-cleft, bearing at each sinus a pair of separate or partly united stamens with 1-celled anthers. Style 3-5-parted. Dry drupe greenish, with 3-5 cartilaginous nutlets. — A dwarf perennial herb with scaly rootstock and ternately divided leaves, the cauline a single pair. An anomalous genus. (From *ἄδοξος*, obscure or insignificant.)

* In certain families, as in Ericaceæ, etc., the petals in some genera are nearly or quite separate. In Compositæ and some others, the calyx is mostly reduced to a pappus, or a mere border, or even to nothing more than a covering of the surface of the ovary. The student might look for these in the first or the third division; but the artificial analysis prefixed to the volume provides for such anomalies, and will lead him to the proper order.

1. **A. Moschatellina**, L. Smooth, musk-scented; radical leaves 1-3-ternate, the cauline 3-cleft or 3-parted; leaflets obovate, 3-cleft; flowers several in a close cluster on a slender peduncle, greenish or yellowish. — N. Iowa, Wisc., and Minn., and northward. (Eu., Asia.)

2. SAMBŪCUS, Tourn. ELDER.

Calyx-lobes minute or obsolete. Corolla open urn-shaped, with a broadly spreading 5-cleft limb. Stamens 5. Stigmas 3. Fruit a berry-like juicy drupe, containing 3 small seed-like nutlets. — Shrubby plants, with a rank smell when bruised, pinnate leaves, serrate-pointed leaflets, and numerous small and white flowers in compound cymes. (The Latin name, perhaps from *σαμβύκη*, an ancient musical instrument.)

1. **S. Canadensis**, L. (COMMON ELDER.) Stems scarcely woody (5-10° high); leaflets 5-11, oblong, mostly smooth, the lower often 3-parted; cymes flat; fruit black-purple. — Rich soil, in open places, throughout our range, and south and west. June, July. — Pith white.

2. **S. racemosa**, L. (RED-BERRIED ELDER.) Stems woody (2-12° high), the bark warty; leaflets 5-7, ovate-lanceolate, downy underneath; cymes panicle, convex or pyramidal; fruit bright red (rarely white). (S. pubens, Michx.) — Rocky woods, N. Scotia to Ga., and westward across the continent. May; the fruit ripening in June. — Pith brown. Both species occur with the leaflets divided into 3-5 linear-lanceolate 2-3-cleft or lacinate segments.

3. VIBŪRNUM, L. ARROW-WOOD. LAURESTINUS.

Calyx 5-toothed. Corolla spreading, deeply 5-lobed. Stamens 5. Stigmas 1-3. Fruit a 1-celled, 1-seeded drupe, with soft pulp and a thin-crustaceous (flattened or tumid) stone. — Shrubs, with simple leaves, and white flowers in flat compound cymes. Petioles sometimes bearing little appendages which are evidently stipules. Leaf-buds naked, or with a pair of scales. (The classical Latin name, of unknown meaning.)

§ 1. *Cyme radiant, the marginal flowers neutral, with greatly enlarged flat corollas as in Hydrangea; drupes coral-red turning darker, not acid; stone sulcate; leaves pinnately veined; winter-buds naked.*

1. **V. lantanoides**, Michx. (HOBLE-BUSH. AMERICAN WATFARING-TREE.) Leaves (4-8' across) round-ovate, abruptly pointed, heart-shaped at the base, closely serrate, the veins and veinlets beneath with the stalks and branchlets very rusty-scurfy; cymes sessile, very broad and flat. — Cold moist woods, N. Brunswick to Ont. and Penn., and in the mountains to N. C. May. A straggling shrub; the reclining branches often taking root.

§ 2. *Cyme peduncled, radiant in n. 2; drupe light red, acid, globose; stone very flat, orbicular, not sulcate; leaves palmately veined; winter-buds scaly.*

2. **V. Opulus**, L. (CRANBERRY-TREE.) Nearly smooth, upright (4-10° high); leaves 3-5-ribbed, strongly 3-lobed, broadly wedge-shaped or truncate at base, the spreading lobes pointed, mostly toothed on the sides, entire in the sinuses; petioles bearing 2 glands at the apex. — Low ground, along streams, from N. Brunswick far westward, and south to Penn. June, July. — The acid fruit is a substitute for cranberries, whence the names *High Cranberry-bush*.

etc. The well-known SNOW-BALL TREE, or GUELDER-ROSE, is a cultivated state, with the whole cyme turned into showy sterile flowers. (Eu.)

3. *V. pauciflorum*, Pylaie. A low straggling shrub; leaves glabrous or loosely pubescent beneath, 5-ribbed at base, unequally serrate nearly all round, with 3 short lobes at the summit; cyme few-flowered; stamens shorter than the corolla. — Cold woods, Newf. and Lab. to the mountains of N. Eng., westward to N. Mich. and the Rocky Mts.

✓ § 3. Cyme never radiant; drupes blue, or dark-purple or black at maturity.

* Leaves 3-ribbed from the rounded or subcordate base, somewhat 3-lobed; stipules bristle-shaped.

✓ 4. *V. acerifolium*, L. (DOCKMACKIE. ARROW-WOOD.) Shrub 3-6° high; leaves soft-downy beneath, the pointed lobes diverging, unequally toothed; cymes small, slender-peduncled; stamens exserted; fruit crimson turning purple; stone lenticular, hardly sulcate. — Cool rocky woods, from N. Brunswick to N. C., and west to S. Minn.

* * Leaves (with base inclined to heart-shaped) coarsely toothed, prominently pinnately veined; stipules narrowly subulate; no rusty scurf; fruit ovoid, blue or purple; the stone grooved; cymes peduncled.

+ Stone flat; leaves all short-petioled or subsessile.

5. *V. pubescens*, Pursh. (DOWNY A.) A low, straggling shrub; leaves ovate or oblong-ovate, acute or taper-pointed, the veins and teeth fewer and less conspicuous than in the next, the lower surface and very short petioles soft-downy, at least when young; fruit dark-purple; the stone lightly 2-sulcate on the faces. — Rocks, etc., Lower Canada to the mountains of Ga., west to Iowa and Minn. June.

+ + Stone very deeply sulcate ventrally; leaves rather slender-petioled.

6. *V. dentatum*, L. (ARROW-WOOD.) Smooth, 5-15° high, with ash-colored bark; leaves broadly ovate, very numerous sharp-toothed and strongly veined; fruit 3" long; cross-section of stone between kidney- and horseshoe-shaped. — Wet places, N. Brunswick to N. Ga., and west to Minn. June. — The pale leaves often with hairy tufts in the axils of the straight veins.

7. *V. molle*, Michx. Leaves broadly oval, obovate or ovate, scarcely pointed, coarsely crenate or repand-toothed, the lower surface, branchlets and cymes soft-downy, the latter with stellate pubescence; fruit oily, larger and more pointed, the stone as in n. 6, but less deeply excavated. — Coast of N. Eng. (Martha's Vineyard), to Tex.

* * * Leaves finely serrate or entire, bright green; veins not prominent; stipules none; whole plant glabrous or with some minute rusty scurf; fruit black or with a blue bloom, sweet; stone very flat and even, broadly oval or orbicular.

+ Cymes peduncled, about 5-rayed; drupes globose-ovoid, 3" long; shrubs 5-12° high, in swamps.

8. *V. cassinoides*, L. (WITHE-ROD.) Shoots scurfy-punctate; leaves thickish and opaque or dull, ovate to oblong, mostly with obtuse acumination, obscurely veiny (1-3' long), with margins irregularly crenulate-denticulate or sometimes entire; peduncle shorter than the cyme. (*V. nudum*, var. *cassinoides*, Torr. & Gray.) — Newf. to N. J. and Minn. Flowers earlier than the next.

9. *V. nudum*, L. Obscurely scurfy-punctate; leaves more veiny, thickish, oval, oblong or lanceolate, entire or obsoletely denticulate, lucid above (2-4' long); peduncle usually equalling the cyme. — N. J. to Fla.

+ + Compound cymes sessile, 3-5-rayed; drupes oval, 5-7" long.

10. *V. Lentago*, L. (SWEET VIBURNUM. SHEEP-BERRY.) Leaves ovate, strongly pointed, closely and very sharply serrate; petioles long and margined; cyme large; fruit oval, ½ long or more, ripe in autumn, edible; tree 15-30° high. — Woods and banks of streams, from the Atlantic to Mo., Minn., and northward. Fl. in spring.

11. *V. prunifolium*, L. (BLACK HAW.) Leaves oval, obtuse or slightly pointed, finely and sharply serrate, smaller than in the preceding (1-2' long); fruit similar or rather smaller. — Dry or moist ground, N. Y. to Mich., Kan., and southward. Flowering early. — A tall shrub or small tree.

12. *V. obovatum*, Walt. Shrub 2-8° high; leaves obovate or spatulate, obtuse, entire or denticulate, thickish, small (1-1½ long), shining; cymes small; fruit 5" long, black. — River-banks and swamps, Va. to Fla. May.

4. TRIÓSTEUM, L. FEVER-WORT. HORSE-GENTIAN.

Calyx-lobes linear-lanceolate, leaf-like, persistent. Corolla tubular, gibbous at base, somewhat equally 5-lobed, scarcely longer than the calyx. Stamens 5. Ovary mostly 3-celled, in fruit forming a rather dry drupe, containing as many ribbed 1-seeded bony nutlets. — Coarse, hairy, perennial herbs, leafy to the top; the ample entire pointed leaves tapering to the base, but connate round the simple stem. Flowers sessile, solitary or clustered in the axils. (Name an abbreviation of *Triosteospermum*, alluding to the three bony nutlets.)

1. *T. perfoliatum*, L. Softly hairy (2-4° high); leaves oval, abruptly narrowed below, downy beneath; flowers brownish-purple, mostly clustered; fruit orange-color, ½ long. — Rich woodlands, Canada and N. Eng. to Minn., Iowa, and Ala. June. Also called TINKER'S-WEED, WILD COFFEE, etc.

2. *T. angustifolium*, L. Smaller, bristly-hairy; leaves lanceolate, tapering to the base; flowers greenish-cream-color, mostly single in the axils. — Shady grounds, Va. to Ill., Mo., and Ala. May.

5. LINNÆA, Gronov. TWIN-FLOWER.

Calyx-teeth 5, awl-shaped, deciduous. Corolla narrow bell-shaped, almost equally 5-lobed. Stamens 4, two of them shorter, inserted toward the base of the corolla. Ovary and the small dry pod 3-celled, but only 1-seeded, two of the cells having only abortive ovules. — A slender creeping and trailing little evergreen, somewhat hairy, with rounded-oval sparingly crenate leaves contracted at the base into short petioles, and thread-like upright peduncles forking into 2 pedicels at the top, each bearing a delicate and fragrant nodding flower. Corolla purple and whitish, hairy inside. (Dedicated to the immortal Linnaeus, who first pointed out its characters, and with whom this pretty little plant was a special favorite.)

1. *L. borealis*, Linnaeus. — Moist mossy woods and cold bogs, N. Eng. to N. J. and the mountains of Md., west to Minn.; also far north and west. June. (Eu.)

6. SYMPHORICARPOS, Dill. SNOWBERRY.

Calyx-teeth short, persistent. Corolla bell-shaped, regularly 4-5-lobed, with as many short stamens inserted into its throat. Ovary 4-celled, only 2 of the cells with a fertile ovule; the berry therefore 4-celled but only 2-seeded. Seeds bony. — Low and branching upright shrubs, with oval short-petioled leaves, which are downy underneath and entire, or wavy toothed or lobed on the young shoots. Flowers white tinged with rose-color, in close short spikes or clusters. (Name composed of *συμφορέω*, to bear together, and *καρπός*, fruit; from the clustered berries.)

* Style bearded; fruit red; flowers all in short dense axillary clusters.

1. *S. vulgaris*, Michx. (INDIAN CURRANT. CORAL-BERRY.) Flowers in the axils of nearly all the leaves; corolla sparingly bearded; berries small. — Rocky banks, western N. Y. and Penn. to the Dakotas, Neb., and Tex. July.

* * Style glabrous; fruit white; flowers in clusters or sometimes solitary.

2. *S. occidentalis*, Hook. (WOLFBERRY.) Flowers in dense terminal and axillary spikes; corolla much bearded within; stamens and style protruded. — Rocky ground, N. Mich. and Ill., west to the Rocky Mts. — Flowers larger and more funnel-form, and stamens longer, than in the next.

3. *S. racemosa*, Michx. (SNOWBERRY.) Flowers in a loose and somewhat leafy interrupted spike at the end of the branches; corolla bearded inside; berries large. — Rocky banks, N. New Eng. and Penn., to Minn. and westward; common in cultivation. June–Sept. Berries ripe in autumn. — Var. *PAUCIFLORUS*, Robbins. Low, diffusely branched and spreading; leaves smaller (about 1' long), the spike reduced to one or two flowers in the uppermost axils. — Mountains of Vt. and Penn. to Minn., the Dakotas, and westward.

7. LONICERA, L. HONEYSUCKLE. WOODBINE.

Calyx-teeth very short. Corolla tubular or funnel-form, often gibbous at the base, irregularly or almost regularly 5-lobed. Stamens 5. Ovary 2-3-celled. Berry several-seeded. — Leaves entire. Flowers often showy and fragrant. (Named in honor of Adam Lonitzer, latinized *Lonicerus*, a German herbalist of the 16th century.)

§ 1. XYLÓSTEON. Upright bushy shrubs; leaves all distinct; peduncles axillary, single, 2-flowered at the summit; the two berries sometimes united into one; calyx-teeth not persistent.

* Bracts (2 or sometimes 4) at the base of the ovaries minute.

1. *L. ciliata*, Muhl. (FLY-HONEYSUCKLE.) Branches straggling (3-5° high); leaves oblong-ovate, often heart-shaped, petioled, thin, downy beneath; filiform peduncles shorter than the leaves; corolla funnel-form, almost spurred at the base (greenish-yellow, $\frac{3}{4}$ ' long), the lobes nearly equal; berries separate (red). — Rocky woods, N. Brunswick to Penn. and Minn. May.

2. *L. cærulea*, L. (MOUNTAIN F.) Low (1-2° high); branches upright; leaves oval, downy when young; peduncles very short; bracts awl-shaped, longer than the ovaries, which are united into one (blue) berry; flowers yellowish. — Mountain woods and bogs, Lab. to R. I., Minn., and northward. May. (Eu.)

3. *L. oblongifolia*, Muhl. (SWAMP F.) Shrub 2-5° high, branches upright; leaves (2-3' long) oblong, downy when young, smooth when old; peduncles long and slender; bracts minute or deciduous; corolla deeply 2-lipped ($\frac{1}{2}$ ' long, yellowish-white); berries (purple) united or nearly distinct. — Bogs, N. New Eng. and N. Y., to Minn. June.

* * The two flowers involucre by 4 conspicuous and broad foliaceous bracts.

4. *L. involucrata*, Banks. Pubescent, or becoming glabrous; branches 4-angular; leaves (2-5' long) ovate-oblong, mostly pointed, petioled, and with a strong midrib, exceeding the peduncle; corolla yellowish, viscid-pubescent, cylindraceous (6-8" long); ovaries and globose dark-purple berries distinct. — Deep woods; shores of L. Superior, and north and westward.

§ 2. CAPRIFOLIUM. Twining shrubs, with the flowers in sessile whorled clusters from the axils of the (often connate) upper leaves, forming interrupted terminal spikes; calyx-teeth persistent on the (red or orange) berry.

* Corolla trumpet-shaped, almost regular; stamens and style little exerted.

5. *L. sempervirens*, Ait. (TRUMPET HONEYSUCKLE.) Flowers in somewhat distant whorls, scentless, nearly 2' long, deep red outside, yellowish within or rarely throughout; leaves oblong, smooth, the lower petioled, the uppermost pairs connate. — Copses, Conn. to Ind., and southward; common in cultivation. May–Oct. — Leaves deciduous at the north.

* * Corolla ringent; the lower lip narrow, the upper broad and 4-lobed; stamens and style conspicuously exerted.

+ Corolla-tube an inch long, glabrous inside; stamens and style glabrous.

6. *L. grata*, Ait. (AMERICAN WOODBINE.) Leaves smooth, glaucous beneath, obovate, the 2 or 3 upper pairs united; flowers whorled in the uppermost axils; corolla whitish with a purple tube, fading yellowish, not gibbous at base, fragrant. — Rocky woodlands, N. J. and Penn. to Mich. and Mo., and southward; also cultivated. May.

+ + Corolla hairy within, the tube 6" long or less.

7. *L. hirsuta*, Eaton. (HAIRY HONEYSUCKLE.) Twining and rather high-climbing; leaves deep green above, downy-hairy beneath, as well as the branches, veiny, dull, broadly oval, the uppermost united, the lower short-petioled; flowers in approximate whorls; tube of the (orange-yellow) clammy-pubescent corolla gibbous at base, slender. — Damp copses and rocks, Maine to Penn., Mich., and Minn. July. — A coarse large-leaved species.

8. *L. Sullivanii*, Gray. At length much whitened with glaucous bloom, 3-6° high, glabrous; leaves oval and obovate-oblong (2-4' long), sessile and mostly connate on the flowering stems, the uppermost into an orbicular disk; corolla pale yellow; filaments nearly glabrous. (L. flava of former edition, mainly.) — Ohio to Ill., Minn., and L. Winnipeg; also in Tenn. and N. C.

9. *L. glauca*, Hill. Glabrous, or lower leaf-surface sometimes puberulent, 3-5° high; leaves oblong (2-3' long), glaucous but less whitened than in the last, the 1-4 upper pairs connate; corolla greenish-yellow or purplish; tube only 3-4" long, within and also style and base of filaments hirsute. (L. parviflora, Lam., and part of var. *Douglasii*, Gray.) — Rocky grounds, N. Eng. and Penn. to Minn., and northward.

8. DIERVILLA, Tourn. BUSH-HONEYSUCKLE.

Calyx-tube tapering at the summit; the lobes slender, awl-shaped, persistent. Corolla funnel-form, 5-lobed, almost regular. Stamens 5. Pod ovoid-oblong, pointed, 2-celled, 2-valved, septical, many-seeded. — Low upright shrubs, with ovate or oblong pointed serrate leaves, and cymosely 3-several-flowered peduncles, from the upper axils or terminal. (Named in compliment to Dr. Dierville, who brought it from Canada to Tournefort.)

1. *D. trifida*, Moench. Leaves oblong-ovate, taper-pointed, petioled; peduncles mostly 3-flowered; pod long-beaked. — Rocks, Newf. to the mountains of N. C., west to Minn. June – Aug. — Flowers honey-color, not showy, as are the Japanese species cultivated under the name of WEIGELA.

✓ ORDER 52. RUBIACEÆ. (MADDER FAMILY.)

Shrubs or herbs, with opposite entire leaves connected by interposed stipules, or in whorls without apparent stipules, the calyx coherent with the 2-4-celled ovary, the stamens as many as the lobes of the regular corolla (4-5), and inserted on its tube. — Flowers perfect, but often dimorphous (as in *Mitchella* and *Houstonia*). Fruit various. Seeds anatropous or amphitropous. Embryo commonly pretty large, in copious hard albumen. — A very large family, the greater part, and all its most important plants (such as the Coffee and Peruvian-Bark trees), tropical.

I. CINCHONEÆ. Ovules numerous in each cell; leaves opposite.

- ✓ 1. *Houstonia*. Corolla salver-form or funnel-form, 4-lobed. Seeds rather few, thimble-shaped or saucer-shaped. Low herbs.
2. *Oidenlandia*. Corolla wheel-shaped in our species, 4-lobed. Seeds very numerous and minute, angular. Low herbs.

II. COFFEINEÆ. Ovules solitary in the cells; leaves mostly opposite.

- + Flowers in a close and globose long-peduncled head. Fruit dry. Shrubs.
3. *Cephalanthus*. Corolla tubular; lobes 4. Fruit inversely pyramidal, 2-4-seeded.
+ + Flowers twin; their ovaries united into one. Fruit a 2-eyed berry.
4. *Mitchella*. Corolla funnel-form; its lobes 4. A creeping herb.
+ + + Flowers axillary, separate. Fruit dry when ripe. Herbs.
5. *Spermacoce*. Corolla funnel-form or salver-form; lobes 4. Fruit separating when ripe into 2 carpels, one or both of them opening.

6. *Diodia*. Fruit separating into 2 or 3 closed and indehiscent carpels; otherwise as n. 5.

III. STELLATÆ. Ovules solitary; leaves in whorls, without stipules.

7. *Galium*. Corolla wheel-shaped, 4- (or rarely 3-) parted. Calyx-teeth obsolete. Fruit twin, separating into 2 indehiscent 1-seeded carpels.
8. *Sherardia*. Corolla funnel-form. Calyx-lobes lanceolate. Flowers subsessile, involucre.

✓ 1. HOUSTONIA, L.

Calyx 4-lobed, persistent; the lobes in fruit distant. Corolla salver-form or funnel-form, usually much longer than the calyx-lobes, 4-lobed, the lobes valvate in the bud. Stamens 4; anthers linear or oblong. Style 1; stigmas 2. Ovary 2-celled. Pod top-shaped, globular, or didymous, thin, its summit or upper half free from and projecting beyond the tube of the calyx, loculicidal across

the top. Seeds rather few (4-20 in each cell), peltate and saucer-shaped or globular-thimble-shaped, pitted. — Small herbs, with short entire stipules connecting the petioles or narrowed bases of the leaves, and cymose or solitary and peduncled flowers. These are dimorphous, in some individuals with exserted anthers and short included style; in others the anthers included and the style long, the stigmas therefore protruding. (Named for Dr. Wm. Houston, an English botanist who collected in Central America.)

* Small and delicate, vernal-flowering; peduncles 1-flowered; corolla salver-form; upper half of the broad and somewhat 2-lobed pod free; seeds globular, with a very deep round cavity occupying the inner face.

+ Perennial by delicate filiform creeping rootstocks or creeping stems; peduncles filiform, 1-2' long.

1. *H. cærulea*, L. (BLUETS. INNOCENCE.) Glabrous; stems erect, slender, sparingly branched from the base (3-5' high); leaves oblong-spatulate (3-4" long); peduncle filiform, erect; corolla light blue, pale lilac or nearly white with a yellowish eye, with tube much longer than its lobes or than those of the calyx. — Moist and grassy places, N. Eng. to Ga., west to Mich. and Ala.; producing from early spring to midsummer its delicate little flowers.

2. *H. serpyllifolia*, Michx. Like the last, but filiform stems prostrate, extensively creeping and rooting; leaves orbicular to ovate (2-4" long); corolla rather larger, and deep violet-blue. — Along streamlets and on mountain-tops, Va. to Tenn. and S. C.

+ + Winter-annuals, branching from the simple root; peduncles much shorter.

3. *H. patens*, Ell. An inch to at length a span high, with ascending branches and erect peduncles; leaves spatulate to ovate; corolla much smaller than that of n. 1, violet-blue or purplish without yellowish eye, the tube longer than its lobes, twice the length of the calyx-lobes. — Dry or sandy soil, S. Va. to Tex. and Ill. (?)

4. *H. minima*, Beck. More diffuse, commonly scabrous; stems at length much branched and spreading (1-4' high); lowest leaves ovate or spatulate, the upper oblong or nearly linear; earlier peduncles elongated and spreading in fruit, the later ones short; tube of the purplish corolla not longer than its lobes or the ample calyx-lobes (1½" long). — Dry hills, Mo. to Tex. March – May.

* * Erect, mostly perennial herbs (6-20' high), with stem-leaves sessile, and flowers in small terminal cymes or clusters; corolla funnel-form, purplish, often hairy inside; seeds meniscoidal, with a ridge across the hollowed inner face.

5. *H. purpurea*, L. Pubescent or smooth (8-15' high); leaves varying from roundish-ovate to lanceolate, 3-5-ribbed; calyx-lobes longer than the half-free globular pod. — Woodlands, Md. to Ark., and southward. May – July. — Varying wonderfully, as into: —

Var. *ciliolata*, Gray. A span high; leaves only ½' long, thickish; cauline oblong-spatulate; radical oval or oblong, rosulate, hirsute-ciliate; calyx-lobes a little longer than the pod. — Rocky banks, from the Great Lakes and Minn. to Ky.; passing into

Var. *longifolia*, Gray. A span or two high, mostly glabrous, thinner-leaved; leaves oblong-lanceolate to linear (6-20" long); radical oval or oblong,

less rosulate, not ciliate. — Rocky or gravelly ground, Maine to Minn., south to Ga. and Mo.; also northward.

Var. *tenuifolia*, Gray. Slender, lax, diffuse, 6–12' high, with loose inflorescence, and almost filiform branches and peduncles; cauline leaves all linear, hardly over 1" wide. — S. E. Ohio to Va., N. C., and Tenn.

Var. *calycosa*, Gray. Almost 1° high; leaves broadly lanceolate, thickish; calyx-lobes elongated (2–4" long), much surpassing the pod. — From Ill. (Hall) to Ark. and N. Ala.

6. *H. angustifolia*, Michx. Stems tufted from a hard or woody root; leaves narrowly linear, acute, 1-ribbed, many of them fascicled; flowers crowded, short-pedicelled; lobes of the corolla densely bearded inside; pod obovoid, acute at base, only its summit free, opening first across the top, at length through the partition. — Barrens, Ill. to Kan., south to Tex., Tenn., and Fla.

2. OLDENLANDIA, Plumier.

Calyx 4-lobed, persistent. Corolla short, in our species wheel-shaped; the limb 4-parted, valvate in the bud. Stamens 4; anthers short. Style 1 or none; stigmas 2. Pod thin, 2-celled, many-seeded, opening loculicidally across the summit. Seeds very numerous, minute and angular. — Low herbs, with small stipules united to the petioles. (Dedicated to the memory of Oldenland, a German physician and botanist, who died early at the Cape of Good Hope.)

1. *O. glomerata*, Michx. An inconspicuous, pubescent or smoothish, branched and spreading annual (2–12' high); leaves ovate to oblong; flowers in sessile axillary clusters; corolla nearly wheel-shaped (white), much shorter than the calyx. — Wet places, near the coast, N. Y. to Fla. and Tex.

3. CEPHALÁNTHUS, L. BUTTON-BUSH.

Calyx-tube inversely pyramidal, the limb 4-toothed. Corolla tubular, 4-toothed; the teeth imbricated in the bud. Style thread-form, much protruded. Stigma capitate. Fruit dry and hard, small, inversely pyramidal, 2–4-celled, at length splitting from the base upward into 2–4 closed 1-seeded portions. — Shrubs, with the white flowers densely aggregated in spherical peduncled heads. (Name composed of *κεφαλή*, a head, and *ἄνθος*, a flower.)

1. *C. occidentalis*, L. Smooth or pubescent; leaves petioled, ovate or lanceolate-oblong, pointed, opposite or whorled in threes, with short intervening stipules. — Swamps and along streams, throughout the continent. July, Aug.

4. MITCHELLA, L. PARTRIDGE-BERRY.

Flowers in pairs, with their ovaries united. Calyx 4-toothed. Corolla funnel-form, 4-lobed; the lobes spreading, densely bearded inside, valvate in the bud. Stamens 4. Style 1; stigmas 4, linear. Fruit a berry-like double drupe, crowned with the calyx-teeth of the two flowers, with 4 small seed-like bony nutlets to each flower. — A smooth and trailing small evergreen herb, with round-ovate and shining petioled leaves, minute stipules, white fragrant flowers often tinged with purple, and scarlet edible (but nearly tasteless) berries, which remain over winter. Flowers occasionally 3–6-merous, always dimorphous; all those of some individuals having exserted stamens and included stigmas; of others, included stamens and exserted style. (This very

pretty plant commemorates Dr. John Mitchell, an early correspondent of Linnaeus, and an excellent botanist, who resided in Virginia.)

1. *M. repens*, L. — Dry woods, creeping about the foot of trees, especially Coniferae, throughout our range and southward. June, July. — Leaves often variegated with whitish lines. Rarely the two flowers are completely confluent into one, with a 10-lobed corolla.

5. SPERMATOCÉE, Dill. BUTTON-WEED.

Calyx-tube short; the limb parted into 4 teeth. Corolla funnel-form or salver-form, valvate in the bud. Stamens 4. Stigma or style 2-cleft. Fruit small and dry, 2-celled, 2-seeded, splitting when ripe into 2 carpels, one of them usually carrying with it the partition, and therefore closed, the other open on the inner face. — Small herbs, the bases of the leaves or petioles connected by a bristle-bearing stipular membrane. Flowers small, whitish, crowded into sessile axillary whorled clusters or heads. (Name compounded of *σπέρμα*, seed, and *ακμή*, a point, probably from the pointed calyx-teeth on the fruit.)

1. *S. glabra*, Michx. Glabrous perennial; stems spreading (9–20' long); leaves oblong-lanceolate; heads many-flowered; corolla little exceeding the calyx, bearded in the throat, bearing the anthers at its base; filaments and style hardly any. — River-banks, S. Ohio to Ark., Tex., and Fla. Aug.

6. DIODIA, Gronov. BUTTON-WEED.

Calyx-teeth 2–5, often unequal. Fruit 2- (rarely 3-) celled; the crustaceous carpels into which it splits all closed and indehiscent. Flowers 1–3 in each axil. Otherwise resembling Spermacoce. Flowering all summer. (Name from *δίος*, a thoroughfare; the species often growing by the wayside.)

1. *D. Virginiana*, L. Smooth or hairy perennial; stems spreading (1–2° long); leaves lanceolate or oblong-lanceolate, sessile; corolla white ($\frac{1}{2}$ ' long), the slender tube abruptly expanded into the large limb; style 2-parted; fruit oblong, strongly furrowed, crowned mostly with 2 slender calyx-teeth. — Low grounds along streams, southern N. J. to Fla., west to Ark. and Tex.

2. *D. tères*, Walt. Hairy or minutely pubescent annual; stem spreading (3–9' long), nearly terete; leaves linear-lanceolate, closely sessile, rigid; corolla funnel-form (2–3" long, whitish), with short lobes, not exceeding the long bristles of the stipules; style undivided; fruit obovate-turbinate, not furrowed, crowned with 4 short calyx-teeth. — Sandy soil, N. J. to W. Ill., Fla., and Tex.

7. GALIUM, L. BEDSTRAW. CLEAVERS.

Calyx-teeth obsolete. Corolla 4-parted, rarely 3-parted, wheel-shaped, valvate in the bud. Stamens 4, rarely 3, short. Styles 2. Fruit dry or fleshy, globular, twin, separating when ripe into the 2 seed-like, indehiscent, 1-seeded carpels. — Slender herbs, with small cymose flowers (produced in summer), square stems, and whorled leaves, the roots often containing a red coloring matter. (Name from *γάλα*, milk, which some species are used to curdle.)

§ 1. *Naturalized species; fruit dry.*

G. verum, L. (YELLOW BEDSTRAW.) Perennial; stems smooth, erect; leaves 8 or sometimes 6 in the whorls, linear, roughish, soon deflexed; flowers

very numerous, paniculate, yellow; fruit usually smooth. — Dry fields, E. Mass. (Nat. from Eu.)

G. MOLLUGO, L. Perennial, smooth throughout; stems erect or diffuse, 2 or 3° long; leaves 8, or 6 on the branchlets, oblanceolate to nearly linear; flowers very numerous in ample almost leafless panicles; fruit smooth. — Roadsides and fields, N. Y. and Penn. (Nat. from Eu.)

G. ANGLICUM, Huds. Annual, slender, diffuse, seldom 1° high, glabrous; leaves 5–7, oblanceolate to nearly linear (3" long), their margins and the angles of the stem spinulose-scabrous; flowers rather few, cymulose on leafy branches, greenish-white, very small; fruit glabrous, more or less tuberculate. — Roadsides, Bedford Co., Va. (Curtiss). (Nat. from Eu.)

G. TRICORNE, With. Annual, resembling *G. Aparine*, rather stout, with simple branches; leaves 6 or 8, oblanceolate, cuspidate-mucronate, the margins and stem retrorsely prickly-hispid; flowers mostly in clusters of 3, dull white; fruits rather large, tuberculate-granulate, not hairy, pendulous. — Fields, eastward. (Nat. from Eu.)

§ 2. Indigenous species; fruit dry.

* Annual; leaves about 8 in a whorl; peduncles 1–3-flowered, axillary; fruit bristly with hooked prickles.

1. **G. Aparine**, L. (CLEAVERS. GOOSE-GRASS.) Stem weak and reclining, bristle-prickly backward, hairy at the joints; leaves lanceolate, tapering to the base, short-pointed, rough on the margins and midrib (1–2' long); flowers white. — Shaded grounds, throughout the continent; probably as an introduced plant eastward.

* * Perennials; leaves in 4's, comparatively large, and broad (narrower in n. 7 and 8), not cuspidate-pointed, more or less distinctly 3-nerved; fruit uncinately hispid (except in n. 6 and 7).

+ Peduncles loosely 3–several-flowered; flowers dull purple to yellowish-white.

2. **G. pilosum**, Ait. Hairy; leaves oval, dotted, hairy (1' long), the lateral nerves obscure; peduncles 2–3-forked, the flowers all pedicelled. — Dry copses, R. I. and Vt. to Ill., E. Kan., and southward.

Var. **puncticulosum**, Torr. & Gray. Almost glabrous; leaves varying to elliptical-oblong, hispidulous-ciliate. — Va. to Tex.

3. **G. Kamtschaticum**, Steller. Stems weak, mainly glabrous (1° high); leaves orbicular to oblong-ovate, thin ($\frac{1}{2}$ –1' long), slightly pilose; flowers slenderly pedicellate; corolla glabrous, yellowish-white, not turning dark, its lobes merely acute. (*G. circæans*, var. *montanum*, Torr. & Gray.) — Higher mountains of N. Eng., L. Canada, and far westward. (Asia.)

4. **G. circæans**, Michx. (WILD LIQUORICE.) Smooth or downy (1° high); leaves oval, varying to ovate-oblong, mostly obtuse, ciliate (1–1½' long); peduncles usually once forked, the branches elongated and widely diverging in fruit, bearing several remote flowers on very short lateral pedicels, reflexed in fruit; lobes of the greenish corolla hairy outside, acute or acuminate. — Rich woods, N. Eng. to Minn., south to Fla. and Tex.

5. **G. lanceolatum**, Torr. (WILD LIQUORICE.) Nearly glabrous; leaves (except the lowest) lanceolate or ovate-lanceolate, tapering to the apex (2' long); corolla glabrous, yellowish turning dull purple, lobes more acuminate; otherwise like the last. — Dry woods, N. Eng. to N. Mich. and Minn.

6. **G. latifolium**, Michx. Smooth (1–2° high); leaves lanceolate or ovate-lanceolate, acute (2' long), the midrib and margins rough; cymes paniced,

loosely many-flowered, the purple flowers on slender spreading pedicels; fruit smooth, rather fleshy. — Dry woods, mountains of Penn. to N. C. and Tenn.

7. **G. Arkansanum**, Gray. Similar but lower; leaves lanceolate to linear (1' long or less), the lateral nerves obscure or none. — S. Mo. and Ark.

+ + Leaves narrow; flowers bright white, numerous in a compact panicle.

8. **G. boreale**, L. (NORTHERN BEDSTRAW.) Smooth (1–2° high); leaves linear-lanceolate; fruit minutely bristly, sometimes smooth. — Rocky banks of streams, Maine to Penn., Iowa, Minn., and westward. (Eu., Asia.)

* * Leaves in 4's, 5's, or 6's, small, 1-nerved; flowers white; fruit smooth (flowers greenish and fruit hispid in n. 12.)

+ Leaves pointless.

9. **G. trifidum**, L. (SMALL BEDSTRAW.) Stems weak, ascending (5–20' high), branching, mostly roughened backwards on the angles; leaves in whorls of 4 to 6, linear or oblanceolate, the margins and midrib rough; peduncles scattered, 1–7-flowered; corolla-lobes and stamens often only 3. — Sphagnous bogs and wet ground, throughout the continent. Exceedingly variable. — Var. **pusillum**, Gray, the smallest form; leaves only in 4's, 3–4" long, narrow, in age often reflexed; peduncles 1-flowered. In cold bogs, northward. — Var. **latifolium**, Torr., the larger and broadest-leaved form; leaves 6 or 7" long, often 2" wide. From Canada, south and west. (Eu., Asia.)

10. **G. concinnum**, Torr. & Gray. Stems low and slender (6–12' high), with minutely roughened angles; leaves all in 6's, linear, slightly pointed, veinless, the margins upwardly roughened; peduncles 2–3 times forked, diffusely paniced; pedicels short. — Dry hills, Penn. to Va., west to Minn., Iowa, and Ark.

+ + Leaves cuspidately mucronate or acuminate.

11. **G. asprellum**, Michx. (ROUGH BEDSTRAW.) Stem much branched, rough backwards with hooked prickles, leaning on bushes (3–5° high); leaves in whorls of 6, or 4–5 on the branchlets, oval-lanceolate, with almost prickly margins and midrib; peduncles short, 2–3 times forked. — Alluvial ground, N. Eng. to N. C., west to Minn., Iowa, and Mo.

12. **G. triflorum**, Michx. (SWEET-SCENTED BEDSTRAW.) Stem (1–3° long) bristly-roughened backward on the angles; leaves elliptical-lanceolate, bristle-pointed, with slightly roughened margins (1–2' long); peduncles 3-flowered, the flowers all pedicelled, greenish; fruit beset with hooked bristles. — Rich woodlands, throughout the continent. Sweet-scented in drying. (Eu.)

§ 3. Perennial; fruit a berry; leaves in 4's, 1-nerved.

13. **G. hispidulum**, Michx. Hirsute-pubescent, scabrous, or sometimes nearly smooth, 1–2° high, diffusely branched; leaves oblong or oval, mucronate (3–6" long); pedicels solitary or commonly 2 or 3 from the small involucre whorl, all naked, or one of them bracteolate; flowers white; berry purple, glabrate. — Dry or sandy soil, southern N. J. to Fla., along the coast.

8. **SHERÁRDIA**, Dill.

Calyx-lobes lanceolate, persistent. Corolla funnel-form, the limb 4–5-lobed. Stamens 4–5. Style filiform, 2-cleft; stigmas capitate. Fruit dry, twin, of 2 indehiscent 1-seeded carpels. — A slender procumbent herb, with square stems,