

deltoid-ovate, slightly heart-shaped, tapering to a bristly point or rarely pointless; caruncle nearly as long as the seed. — Margin of swamps, Maine to Va. and southward near the coast, and west to Minn. and Neb.

11. *P. brevifolia*, Nutt. Rather slender, branched above; leaves scattered on the branches, narrower; spikes peduncled; wings lanceolate-ovate, pointless or barely mucronate. — Margin of sandy bogs, R. I., N. J., and southward.

— Spikes slender (about 2' thick), the bracts falling with the flowers, which are small, greenish-white or barely tinged with purple, the crest of the keel larger.

12. *P. verticillata*, L. Slender (6–10' high), much branched; stem-leaves all whorled, those of the (mostly opposite) branches scattered, linear, acute; spikes peduncled, usually short and dense, acute; wings round, clawed; the 2-lobed caruncle half the length of the seed. — Dry soil; common.

Var. *ambigua*. Leaves (and branches) all scattered or the lowest in fours; spikes long-peduncled, more slender, the flowers often purplish and scattered. (*P. ambigua*, Nutt.) — N. Y. to Mo., and southward.

*** Biennials or annuals, with alternate leaves, and yellow flowers, which are disposed to turn greenish in drying; crest small; flowering all summer.

13. *P. lutea*, L. Low; flowers (bright orange-yellow) in solitary ovate or oblong heads ($\frac{3}{4}$ ' thick) terminating the stem or simple branches; leaves (1–2' long) obovate or spatulate; lobes of the caruncle nearly as long as the seed. — Sandy swamps, N. J. and southward, near the coast.

14. *P. ramosa*, Ell. Flowers (citron-yellow) in numerous short and dense spike-like racemes collected in a flat-topped compound cyme; leaves oblong-linear, the lowest spatulate or obovate; seeds ovoid, minutely hairy, twice the length of the caruncle. — Damp pine-barrens, Del. and southward.

15. *P. cymosa*, Walt. Stem short, naked above, the numerous racemes in a usually nearly simple cyme; leaves narrow, acuminate; seeds globose, without caruncle. — Del. and southward.

ORDER 32. LEGUMINOSÆ. (PULSE FAMILY.)

Plants with papilionaceous or sometimes regular flowers, 10 (rarely 5 and sometimes many) monadelphous, diadelphous, or rarely distinct stamens, and a single simple free pistil, becoming a legume in fruit. Seeds mostly without albumen. Leaves alternate, with stipules, usually compound. One of the sepals inferior (i. e. next the bract); one of the petals superior (i. e. next the axis of the inflorescence). — A very large order (nearly free from noxious qualities), of which the principal representatives in northern temperate regions belong to the first of the three suborders it comprises.

SUBORDER I. *Papilionaceæ*. Calyx of 5 sepals, more or less united, often unequally so. Corolla inserted into the base of the calyx, of 5 irregular petals (or very rarely fewer), more or less distinctly papilionaceous, i. e. with the upper or odd petal (*vexillum* or *standard*) larger than the others and enclosing them in the bud, usually turned backward

or spreading; the two lateral ones (*wings*) oblique and exterior to the two lower, which last are connivent and commonly more or less coherent by their anterior edges, forming the *carina* or *keel*, which usually encloses the stamens and pistil. Stamens 10, very rarely 5, inserted with the corolla, monadelphous, diadelphous (mostly with 9 united into a tube which is cleft on the upper side, and the tenth or upper one separate), or occasionally distinct. Ovary 1-celled, sometimes 2-celled by an intrusion of one of the sutures, or transversely 2-many-celled by cross-division into joints; style simple; ovules amphitropous, rarely anatropous. Cotyledons large, thick or thickish; radicle incurved. — Leaves simple or simply compound, the earliest ones in germination usually opposite, the rest alternate; leaflets almost always quite entire. Flowers perfect, solitary and axillary, or in spikes, racemes, or panicles.

I. Stamens (10) distinct.

* Leaves palmately 3-foliolate or simple; calyx 4–5-lobed; herbs. (PORRIGÆ.)

1. *Baptisia*. Pod inflated.

2. *Thermopsis*. Pod flat, linear.

** Leaves pinnate; calyx-teeth short. (SOPHOREÆ.)

3. *Cladrastis*. Flowers panicled, white. Pod flat. A tree.

4. *Sophora*. Flowers racemose, white. Pod terete, moniliform. Herbaceous.

II. Stamens monadelphous, or diadelphous (9 and 1, rarely 5 and 5); nearly distinct in n. 14.

* Anthers of two forms; stamens monadelphous; leaves digitate or simple; leaflets entire. (GENISTEÆ.)

5. *Crotalaria*. Calyx 5-lobed. Pod inflated. Leaves simple.

6. *Genista*. Calyx 2-lipped. Pod flat. Seed estrophiolate. Leaves simple. Shrubby.

7. *Cytisus*. Calyx 2-lipped. Pod flat. Seed strophiliolate. Leaves 1–3-foliolate. Shrubby.

8. *Lupinus*. Calyx deeply 2-lipped. Pod flat. Leaves 7–11-foliolate.

** Anthers uniform (except in n. 13 and 29).

— Leaves digitately (rarely pinnately) 3-foliolate; leaflets denticulate or serrulate; stamens diadelphous; pods small, 1–few-seeded, often enclosed in the calyx or curved or coiled. (TRIFOLIÆ.)

9. *Trifolium*. Flowers capitate. Pods membranaceous, 1–6-seeded. Petals adherent to the stamen-tube.

10. *Medicago*. Flowers racemed. Pod coriaceous, wrinkled, 1–2-seeded.

11. *Medicago*. Flowers racemed or spiked. Pods curved or coiled, 1–few-seeded.

— Leaves unequally pinnate (or digitate in n. 13); pod not jointed; not twining nor climbing (except n. 20).

** Flowers umbellate (solitary in ours) on axillary peduncles. (LOTEÆ.)

12. *Hosackia*. Leaves 1–3-foliolate. Peduncle leafy-bracteate. Pod linear.

— Flowers in spikes, racemes, or heads. (GALEGEÆ.)

— Herbage glandular-dotted; stamens mostly monadelphous; pod small, indehiscent, mostly 1-seeded; leaves pinnate (except in n. 13).

13. *Psoralea*. Corolla truly papilionaceous. Stamens 10, half of the anthers often smaller or less perfect. Leaves mostly palmately 3–5-foliolate.

14. *Amorpha*. Corolla of one petal! Stamens 10, monadelphous at base.

15. *Dalea*. Corolla imperfectly papilionaceous. Stamens 9 or 10; the cleft tube of filaments bearing 4 of the petals about its middle.

16. *Petalostemon*. Corolla scarcely at all papilionaceous. Stamens 5; the cleft tube of filaments bearing 4 of the petals on its summit.

= = Herbage not glandular-dotted (except in n. 23); stamens mostly diadelphous; pod 2-valved, several-seeded; leaves pinnately several-foliate; flowers racemose.

a. Wings cohering with the keel; pod flat or 4-angled; hoary perennial herbs.

17. **Tephrosia**. Standard broad. Pod flat. Leaflets pinnately veined.

18. **Indigofera**. Calyx and standard small. Pod 4-angled. Leaflets obscurely veined.

b. Flowers large and showy; standard broad; wings free; woody; leaflets stipellate.

19. **Robinia**. Pod flat, thin, margined on one edge. Trees or shrubs.

20. **Wistaria**. Pod tumid, marginless. Woody twiners; leaflets obscurely stipellate.

c. Standard narrow, erect; pod turgid or inflated; perennial herbs.

21. **Astragalus**. Keel not tipped with a point or sharp appendage. Pod with one or both the sutures turned in, sometimes dividing the cell lengthwise into two.

22. **Oxytropis**. Keel tipped with an erect point; otherwise as *Astragalus*.

23. **Glycyrrhiza**. Flowers, etc., of *Astragalus*. Anther-cells confluent. Pod prickly or muricate, short, nearly indehiscent.

+ + + Herbs with pinnate or pinnately 1-3-foliate leaves; no tendrils; pod transversely 2-several-jointed, the reticulated 1-seeded joints indehiscent, or sometimes reduced to one such joint. (HEDYSARÆÆ.)

= Leaves pinnate, with several leaflets, not stipellate.

24. **Æschynomene**. Stamens equally diadelphous (5 and 5). Calyx 2-lipped. Pod several-jointed; joints square.

25. **Coronilla**. Stamens unequally diadelphous (9 and 1). Calyx 5-toothed. Joints oblong, 4-angled. Flowers umbellate.

26. **Hedysarum**. Stamens unequally diadelphous (9 and 1). Calyx 5-cleft. Pod several-jointed; joints roundish.

= = Leaves pinnately 3-foliate, rarely 1-foliate.

27. **Desmodium**. Stamens diadelphous (9 and 1) or monadelphous below. Calyx 2-lipped. Pod several-jointed. Flowers all of one sort and complete. Leaflets stipellate.

28. **Lespedeza**. Stamens diadelphous (9 and 1); anthers uniform. Pod 1-2-jointed. Flowers often of 2 sorts, the more fertile ones apetalous. Leaflets not stipellate.

29. **Stylosanthes**. Stamens monadelphous; anthers of 2 sorts. Pod 1-2-jointed. Calyx deciduous, the tube narrow and stalk-like. Leaflets not stipellate.

+ + + + Herbs with abruptly pinnate leaves, terminated by a tendril or bristle; stamens diadelphous; pod continuous, 2-valved, few-several-seeded. (VICIÆÆ.)

30. **Vicia**. Wings adherent to the keel. Style filiform, bearded with a tuft or ring of hairs at the apex.

31. **Lathyrus**. Wings nearly free. Style somewhat dilated and flattened upwards, bearded down the inner face.

+ + + + Twining (sometimes only trailing) herbs; leaves pinnately 3- (rarely 1- or 5-7-) foliate; no tendrils; peduncles or flowers axillary pod not jointed, 2-valved. (PHASEOLÆÆ.)

= Leaves pinnate.

32. **Apios**. Herbaceous twiner; leaflets 5-7. Keel slender and much incurved or coiled. = = Leaves 3-foliate. Ovules and seeds several. Flowers not yellow.

33. **Phaseolus**. Keel spirally coiled; standard recurved-spreading. Style bearded lengthwise. Flowers racemose. Seeds round-reniform.

34. **Strophostyles**. Keel long, strongly incurved. Style bearded lengthwise. Flowers sessile, capitate, few. Seeds oblong, mostly pubescent.

35. **Centrosema**. Calyx short, 5-cleft. Standard with a spur at the base; keel broad, merely incurved. Style minutely bearded next the stigma.

36. **Clitoria**. Calyx tubular, 5-lobed. Standard erect, spurless; keel scythe-shaped. Style bearded down the inner face.

37. **Amphicarpæa**. Calyx tubular, 4-5-toothed. Standard erect; keel almost straight. Style beardless. Some nearly apetalous fertile flowers next the ground.

38. **Galactia**. Calyx 4-cleft, the upper lobe broadest and entire. Style beardless. Bract and bractlets minute, mostly deciduous.

= = = Leaves 1-3-foliate. Ovules and seeds only one or two. Flowers yellow.

39. **Rhynchosia**. Keel scythe-shaped. Calyx 4-5-parted. Pod short.

✓ SUBORDER II. **Cæsalpinieæ**. (BRASILETTO FAMILY.) Corolla imperfectly or not at all papilionaceous, sometimes nearly regular, imbricated in the bud, the upper or odd petal inside and enclosed by the others, Stamens 10 or fewer, commonly distinct, inserted on the calyx. Seeds anatropous, often with albumen. Embryo straight.

* Flowers imperfectly papilionaceous, perfect. Trees.

✓ 40. **Cercis**. Calyx campanulate, 5-toothed. Pod flat, wing-margined. Leaves simple.

** Flowers not at all papilionaceous, perfect. Calyx 5-parted. Herbs.

41. **Cassia**. Leaves simply and abruptly pinnate, not glandular-punctate.

✓ 42. **Hoffmanseggia**. Leaves bipinnate, glandular-punctate.

*** Flowers not at all papilionaceous, polygamous or dioecious. Trees.

43. **Gymnocladus**. Leaves all doubly pinnate. Calyx-tube elongated, at its summit bearing 5 petals resembling the calyx-lobes. Stamens 10.

44. **Gleditschia**. Thorny; leaves simply and doubly pinnate. Calyx-tube short; its lobes, petals, and the stamens 3-5.

SUBORDER III. **Mimoseæ**. (MIMOSA FAMILY.) Flower regular, small. Corolla valvate in æstivation, often united into a 4-5-lobed cup, hypogynous, as are the (often very numerous) exserted stamens. Embryo straight. Leaves twice pinnate.

45. **Desmanthus**. Petals distinct. Stamens 5 or 10. Pod smooth.

46. **Schrankia**. Petals united below into a cup. Stamens 8 or 10. Pod covered with small prickles or rough projections.

1. BAPTÍSIA, Vent. FALSE INDIGO.

Calyx 4-5-toothed. Standard not longer than the wings, its sides reflexed; keel-petals nearly separate, and, like the wings, straight. Stamens 10, distinct. Pod stalked in the persistent calyx, roundish or oblong, inflated, pointed, many-seeded. — Perennial herbs, with palmately 3-foliate (rarely simple) leaves, which generally blacken in drying, and racemed flowers. (Named from βαπτίζω, to dye, from the economical use of some species, which yield a poor indigo.)

* Racemes many, short and loose, terminal, often leafy at base; flowers yellow.

1. **B. tinctoria**, R. Br. (WILD INDIGO.) Smooth and slender (2-3° high), rather glaucous; leaves almost sessile, leaflets rounded wedge-obovate (½-1½' long); stipules and bracts minute and deciduous; pods oval-globose, on a stalk longer than the calyx. — Sandy dry soil, N. Eng. to Fla., west to Minn. and La.

** Racemes fewer, opposite the leaves.

+ Flowers yellow.

2. **B. villosa**, Ell. Sometimes soft-hairy, usually minutely pubescent when young, erect (2-3° high) with divergent branches; leaves almost ses-

sile; leaflets wedge-lanceolate or obovate; lower stipules lanceolate and persistent, on the branchlets often small and subulate; racemes many-flowered; pedicels short; bracts subulate, mostly deciduous; pods ovoid-oblong and taper-pointed, minutely pubescent. — Va. to N. C. and Ark.

— Flowers white or cream-color.

3. *B. leucophæa*, Nutt. Hairy, low (1° high), with divergent branches; leaves almost sessile, leaflets narrowly oblong-obovate or spatulate; stipules and bracts large and leafy, persistent; racemes long (often 1°), reclined; flowers on elongated pedicels, cream-color; pods pointed at both ends, hoary. — Mich. to Minn., south to Tex. April, May.

4. *B. leucantha*, Torr. & Gray. Smooth; stems, leaves, and racemes as in n. 6; stipules early deciduous; flowers white; pods oval-oblong, raised on a stalk fully twice the length of the calyx. — Alluvial soil, Ont. and Ohio to Minn., south to Fla. and La.

5. *B. alba*, R. Br. Smooth (1–3° high), the branches slender and widely spreading; petioles slender; stipules and bracts minute and deciduous; leaflets oblong or oblanceolate; racemes slender on a long naked peduncle; pods linear-oblong (1–1½ long), short-stalked. — Dry soil, S. Ind. and Mo., to La., N. C., and Fla. July.

— Flowers indigo-blue.

6. *B. australis*, R. Br. (BLUE FALSE-INDIGO.) Smooth, tall and stout (4–5°); leaflets oblong-wedge-form, obtuse; stipules lanceolate, as long as the petioles, rather persistent; raceme elongated (1–2°) and many-flowered, erect; bracts deciduous; stalk of the oval-oblong pods about the length of the calyx. — Alluvial soil, Penn. to Ga., west to S. Ind., Mo., and Ark.

2. THERMÓPSIS, R. Br.

Pod sessile or shortly stipitate in the calyx, flat, linear, straight or curved. Otherwise nearly as Baptisia. — Perennial herbs, with palmately 3-foliolate leaves and foliaceous stipules, not blackening in drying, and yellow flowers in terminal racemes. (Name from *θέπος*, the lupine, and *ψις*, resemblance.)

1. *T. mollis*, M. A. Curtis. Finely appressed-pubescent, 2–3° high; leaflets rhombic-lanceolate, 1–3' long; stipules narrow, mostly shorter than the petiole; raceme elongated; pods narrow, short-stipitate, somewhat curved, 2–4' long. — Mountains of S. Va. and N. C.

2. *T. rhombifolia*, Nutt. Low, with smaller leaves and broad conspicuous stipules; racemes short, few-flowered; pods broadly linear, spreading, usually strongly curved. — Sask. to E. Col., near or in the mountains, reported from central Kan.

3. CLADRÁSTIS, Raf. YELLOW-WOOD.

Calyx 5-toothed. Standard large, roundish, reflexed; the distinct keel-petals and wings straight, oblong. Stamens 10, distinct; filaments slender, incurved above. Pod short-stalked above the calyx, linear, flat, thin, marginless, 4–6-seeded, at length 2-valved. — A handsome tree, with yellow wood, smooth bark, nearly smooth pinnate leaves of 7–11 oval or ovate leaflets, and ample panicle racemes (10–20' long) of showy white flowers drooping from the ends of

the branches. Stipules obsolete. Base of the petioles hollow, enclosing the leaf-buds of the next year. Bracts minute and fugacious. (Name from *κλάδος*, a branch, and *θραυστός*, brittle.)

1. *C. tinctoria*, Raf. Sometimes 50° high; pods 3–4' long. — Rich hill-sides, central Ky. and Tenn. to N. C. Also in cultivation. The wood yields a yellow dye.

4. SOPHORA, L.

Calyx bell-shaped, shortly 5-toothed. Standard rounded; keel nearly straight. Stamens distinct or nearly so. Pod coriaceous, stipitate, terete, more or less constricted between the seeds, indehiscent. Seeds subglobose. — Shrubby or ours an herbaceous perennial, the leaves pinnate with numerous leaflets, and flowers white or yellow in terminal racemes. (Said by Linnæus to be the ancient name of an allied plant.)

1. *S. sericea*, Nutt. Silky-canescens, erect, 1° high or less; leaflets oblong-obovate, 3–6" long; flowers white; pods few-seeded. — Central Kan. to Col., Tex., and Ariz.

5. CROTALÀRIA, L. RATTLE-BOX.

Calyx 5-cleft, scarcely 2-lipped. Standard large, heart-shaped; keel scythe-shaped. Sheath of the monadelphous stamens cleft on the upper side; 5 of the anthers smaller and roundish. Pod inflated, oblong, many-seeded. — Herbs with simple leaves. Flowers yellow. (Name from *κρόταλον*, a rattle; the loose seeds rattling in the coriaceous inflated pods.)

1. *C. sagittalis*, L. Annual, hairy (3–6' high); leaves oval or oblong-lanceolate, scarcely petioled; stipules united and decurrent on the stem, so as to be inversely arrow-shaped; peduncles few-flowered; corolla not longer than the calyx; pod blackish. — Sandy soil; Maine to Ill., Minn., Kan., and southward.

6. GENÍSTA, L. WOAD-WAXEN. WHIN.

Calyx 2-lipped. Standard oblong-oval, spreading; keel oblong, straight, deflexed. Stamens monadelphous, the sheath entire; 5 alternate anthers shorter. Pod mostly flat and several-seeded. — Shrubby plants, with simple leaves, and yellow flowers. (Name from the Celtic *gen*, a bush.)

G. tinctoria, L. (DYER'S GREEN-WEED.) Low, not thorny, with striate-angled erect branches; leaves lanceolate; flowers in spiked racemes. — Established on sterile hills, eastern N. Y. and Mass. (Adv. from Eu.)

7. CÝTISUS, Tourn. BROOM.

Calyx campanulate, with 2 short broad lips. Petals broad, the keel obtuse and slightly incurved. Stamens monadelphous. Pod flat, much longer than the calyx. Seeds several, with a strophole at the hilum. — Shrubs, with stiff green branches, leaves mostly digitately 3-foliolate, and large bright yellow flowers. (The ancient Roman name of a plant, probably a Medicago.)

C. scoparius, Link. (SCOTCH BROOM.) Glabrous or nearly so (3–5° high); leaflets small, obovate, often reduced to a single one; flowers solitary or in pairs, on slender pedicels, in the axils of the old leaves, forming leafy racemes along the upper branches; style very long and spirally incurved. — Va. and southward. (Nat. from Eu.)

8. LUPINUS, Tourn. LUPINE.

Calyx very deeply 2-lipped. Sides of the standard reflexed; keel scythe-shaped, pointed. Sheath of the monadelphous stamens entire; anthers alternately oblong and roundish. Pod oblong, flattened, often knotty by constrictions between the seeds. Cotyledons thick and fleshy.—Herbs, with palmately 1–15-foliolate leaves, stipules adnate to base of the petiole, and showy flowers in terminal racemes or spikes. (Name from *Lupus*, a wolf, because these plants were thought to devour the fertility of the soil.)

1. *L. perennis*, L. (WILD LUPINE.) Perennial, somewhat hairy; stem erect (1–2°); leaflets 7–11, oblanceolate; flowers in a long raceme, showy, purplish-blue (rarely pale); pods broad, very hairy, 5–6-seeded.—Sandy soil, N. Eng. to Minn., Mo., and south to the Gulf.—Var. *occidentalis*, Watson, has stems and petioles more villous.—Mich. and Wisc.

2. *L. pusillus*, Pursh. Annual, low, villous; leaflets usually 5; racemes short, sessile; flowers purple or rose-color; pods oval, hirsute, 2-seeded.—Central part of the Dakotas and Kan., and westward.

9. TRIFOLIUM, Tourn. CLOVER. TREFOIL.

Calyx persistent, 5-cleft, the teeth bristle-form. Corolla mostly withering or persistent; the claws of all the petals, or of all except the oblong or ovate standard, more or less united below with the stamen-tube; keel short and obtuse. Tenth stamen more or less separate. Pods small and membranous, often included in the calyx, 1–6-seeded, indehiscent, or opening by one of the sutures.—Tufted or diffuse herbs. Leaves mostly palmately, sometimes pinnately 3-foliolate; leaflets usually toothed. Stipules united with the petiole. Flowers in heads or spikes. (Name from *tres*, three, and *folium*, a leaf.)

* Flowers sessile in dense heads; corolla purple or purplish, withering away after flowering, tubular below, the petals more or less coherent with each other.

+ Calyx-teeth silky-plumose, longer than the whitish corolla; root annual.

T. arvense, L. (RABBIT-FOOT or STONE CLOVER.) Silky, branching (5–10' high); leaflets oblanceolate; heads becoming very soft-silky and grayish, oblong or cylindrical.—Old fields, etc. (Nat. from Eu.)

+ + Calyx scarcely hairy except a bearded ring in the throat, shorter than the rose-purple elongated-tubular corolla. (Short-lived perennials; flowers sweet-scented.)

T. pratense, L. (RED C.) Stems ascending, somewhat hairy; leaflets oval or obovate, often notched at the end and marked on the upper side with a pale spot; stipules broad, bristle-pointed; heads ovate, sessile.—Fields and meadows; largely cultivated. (Adv. from Eu.)

T. medium, L. (ZIGZAG C.) Stems zigzag, smoothish; leaflets oblong, entire, and spotless; heads mostly stalked; flowers deeper purple, otherwise too like the last.—Dry hills, N. Scotia to E. Mass. (Adv. from Eu.)

* * Flowers pedicelled in umbel-like round heads on a naked peduncle, their short pedicels reflexed when old; corolla white or rose-color, withering-persistent and turning brownish in fading; the tubular portion short.

1. *T. reflexum*, L. (BUFFALO C.) Annual or biennial; stems ascending, downy; leaflets obovate-oblong, finely toothed; stipules thin, ovate; standard rose-red, wings and keel whitish; calyx-teeth hairy; pods 3–5-seeded.—Western N. Y. and Ont. to Iowa, Kan., and southward.

2. *T. stoloniferum*, Muhl. (RUNNING BUFFALO-C.) Smooth, perennial; stems with long runners from the base; leaflets broadly obovate or obcordate, minutely toothed; heads loose; flowers white, tinged with purple; pods 2-seeded.—Open woodlands and prairies, Ohio and Ky., west to Iowa and Kan.

3. *T. repens*, L. (WHITE C.) Smooth, perennial; the slender stems spreading and creeping; leaflets inversely heart-shaped or merely notched, obscurely toothed; stipules scale-like, narrow; petioles and especially the peduncles very long; heads small and loose; calyx much shorter than the white corolla; pods about 4-seeded.—Fields and copses, everywhere. Indigenous only in the northern part of our range, if at all.

4. *T. carolinianum*, Michx. Somewhat pubescent small perennial, procumbent, in tufts; leaflets wedge-obovate and slightly notched; stipules ovate, foliaceous; heads small on slender peduncles; calyx-teeth lanceolate, nearly equalling the purplish corolla; standard pointed; pods 4-seeded.—Waste ground near Philadelphia, south to Va., Fla., and Tex.

T. hybridum, L. (ALSIKE C.) Resembling *T. repens*, but the stems erect or ascending, not rooting at the nodes; flowers rose-tinted.—Becoming common. (Nat. from Eu.)

* * * Flowers short-pedicelled in close heads, reflexed when old; corolla yellow, persistent, turning dry and chestnut-brown with age, the standard becoming hood-shaped; annuals, fl. in summer.

T. agrarium, L. (YELLOW or HOP-C.) Smoothish, somewhat upright (6–12' high); leaflets obovate-oblong, all three from the same point (palmate) and nearly sessile; stipules narrow, cohering with the petiole for more than half its length.—Sandy fields and roadsides; N. Scotia to Va.; also in western N. Y. (Nat. from Eu.)

T. procumbens, L. (LOW HOP-C.) Stems spreading or ascending, pubescent (3–6' high); leaflets wedge-obovate, notched at the end, the lateral at a small distance from the other (pinnately 3-foliolate); stipules ovate, short.—Sandy fields and roadsides, common.—Var. *minus*, Gray, has smaller heads, the standard not much striate with age. (Nat. from Eu.)

10. MELILOTUS, Tourn. MELILOT. SWEET CLOVER.

Flowers much as in *Trifolium*, but in spike-like racemes, small; corolla deciduous, free from the stamen-tube. Pod ovoid, coriaceous, wrinkled, longer than the calyx, scarcely dehiscent, 1–2-seeded.—Annual or biennial herbs, fragrant in drying, with pinnately 3-foliolate leaves; leaflets toothed. (Name from *μέλι*, honey, and *λωτός*, some leguminous plant.)

M. officinalis, Willd. (YELLOW MELILOT.) Upright (2–4° high); leaflets obovate-oblong, obtuse; corolla yellow; the petals nearly of equal length.—Waste or cultivated grounds. (Adv. from Eu.)

M. alba, Lam. (WHITE M.) Leaflets truncate; corolla white; the standard longer than the other petals.—In similar places. (Adv. from Eu.)

11. MEDICAGO, Tourn. MEDICK.

Flowers nearly as in *Melilotus*. Pod 1–several-seeded, scythe-shaped, incurved, or variously coiled.—Leaves pinnately 3-foliolate; leaflets toothed; stipules often cut. (*Μηδική*, the name of Lucerne, because it came to the Greeks from Media.)

M. sativa, L. (LUCERNE. ALFALFA.) Upright, smooth, perennial; leaflets obovate-oblong, toothed; flowers (purple) racemed; pods spirally twisted.—Cultivated for green fodder; spontaneous from Mass. to Minn. and Kan. (Adv. from Eu.)

M. LUPULINA, L. (BLACK MEDICK. NONESUCH.) Procumbent, pubescent, annual; leaflets wedge-obovate, toothed at the apex; flowers in short spikes (yellow); pods kidney-form, 1-seeded. — Waste places, N. Eng. to Fla., west to Mich., Iowa, and Mo. (Adv. from Eu.)

M. MACULATA, Willd. (SPOTTED MEDICK.) Spreading or procumbent annual, somewhat pubescent; leaflets obcordate, with a purple spot, minutely toothed; peduncles 3-5-flowered; flowers yellow; pods compactly spiral, of 2 or 3 turns, compressed, furrowed on the thick edge, and fringed with a double row of curved prickles. — N. Brunswick to Mass. (Adv. from Eu.)

M. DENTICULATA, Willd. Nearly glabrous; pods loosely spiral, deeply reticulated, and with a thin keeled edge; otherwise like the last, and with the same range. (Adv. from Eu.)

12. HOSACKIA, Douglas.

Calyx-teeth nearly equal. Petals free from the diadelphous stamens; standard ovate or roundish, its claw often remote from the others; wings obovate or oblong; keel incurved. Pod linear, compressed or somewhat terete, sessile, several-seeded. — Herbs, with pinnate leaves (in ours 1-3-foliolate, with gland-like stipules), and small yellow or reddish flowers in umbels (ours solitary) upon axillary leafy-bracteate peduncles. (Named for Dr. David Hosack, of New York.)

1. **H. Purshiana**, Benth. Annual, more or less silky-villous or glabrous, often 1° high or more; leaves nearly sessile, the 1-3 leaflets ovate to lanceolate (3-9" long); peduncles often short, bracteate with a single leaflet. — N. C.; S. W. Minn. to Ark., and west to the Pacific. Very variable.

13. PSORALEA, L.

Calyx 5-cleft, persistent, the lower lobe longest. Stamens diadelphous or sometimes monadelphous. Pod seldom longer than the calyx, thick, often wrinkled, indehiscent, 1-seeded. — Perennial herbs, usually sprinkled all over or roughened (especially the calyx, pods, etc.) with glandular dots or points. Leaves mostly 3-5-foliolate. Flowers spiked or racemed, white or mostly blue-purple. Root sometimes tuberous and farinaceous. (Name, *ψαράλεος*, scurfy, from the glands or dots.)

* Leaves pinnately 3-foliolate.

1. **P. Onóbrychis**, Nutt. Nearly smooth and free from glands, erect (3-5° high); leaflets lanceolate-ovate, taper-pointed (3' long); stipules and bracts awl-shaped; racemes elongated; peduncle shorter than the leaves; pods roughened and wrinkled. — River-banks, Ohio to Ill. and Mo.; also south and east to S. C. July.

2. **P. stipulata**, Torr. & Gray. Nearly smooth and glandless; stems diffuse; leaflets ovate-elliptical, reticulated; stipules ovate; flowers in heads on rather short peduncles; bracts broadly ovate, sharp-pointed. — Rocks, S. Ind. and Ky. June, July.

3. **P. melilotoides**, Michx. Somewhat pubescent, more or less glandular; stems erect (1-2° high), slender; leaflets lanceolate or narrowly oblong; spikes oblong, long-peduncled; stipules awl-shaped; bracts ovate or lanceolate, taper-pointed; pods strongly wrinkled transversely. — Dry soil, Fla. to Tenn., S. Ind. and Kan. June.

* * Leaves palmately 3-5-foliolate; roots not tuberous.

4. **P. tenuiflora**, Pursh. Slender, erect, much branched and bushy (2-4° high), minutely hoary-pubescent when young; leaflets varying from linear to obovate-oblong ($\frac{1}{2}$ -1 $\frac{1}{2}$ long), glandular-dotted; flowers (2-3" long) in loose racemes; lobes of the calyx and bracts ovate, acute; pod glandular. (*P. floribunda*, Nutt.) — Prairies, Minn. to Ill., Tex., and westward. June-Sept.

5. **P. argophylla**, Pursh. Silvery silky-white all over, erect, divergently branched (1-3° high); leaflets elliptical-lanceolate; spikes interrupted; lobes of the calyx and bracts lanceolate. — High plains, N. Wisc. to Iowa, Kan., and westward. June. — Flowers 4-5" long.

6. **P. digitata**, Nutt. More slender and less hoary, 1-2° high; leaflets linear-oblong; bracts of the interrupted spike obcordate; calyx-lobes oblong, acute. — Central Kan. to Col. and Tex.

7. **P. lanceolata**, Pursh. Glabrous or nearly so, yellowish green, densely punctate; leaflets 3, linear to oblanceolate; flowers small, in very short spikes; calyx 1" long, with short broad teeth. — Central Kan. to the Sask. and westward.

* * * Leaves palmately 5-foliolate; root tuberous; spike-like racemes dense.

8. **P. esculenta**, Pursh. Roughish hairy all over; stem stout (5-15' high) and erect from a tuberous or turnip-shaped farinaceous root; leaflets obovate- or lanceolate-oblong; spikes oblong, long-peduncled; lobes of the calyx and bracts lanceolate, nearly equalling the corolla ($\frac{1}{2}$ long). — High plains, Sask. to Wisc., Iowa, and Tex. June. The POMME BLANCHE, or POMME DE PRAIRIE, of the voyageurs.

9. **P. hypogæa**, Nutt. Tuber small; nearly acaulescent, hoary with appressed hairs; leaflets linear; spikes short-capitate, on peduncles $\frac{1}{2}$ -2' long; calyx narrow, 3-6" long. — Central Kan. to Col. and Tex.

10. **P. cuspidata**, Pursh. Stout, tall, from a deep-seated tuber, hoary with appressed hairs; leaflets usually broadly oblanceolate, obtuse; flowers large, the petals (6-8" long) exceeding the lanceolate-lobed calyx. — Central Kan. to Col. and Tex.

14. AMORPHA, L. FALSE INDIGO.

Calyx inversely conical, 5-toothed, persistent. Standard (the other petals entirely wanting!) wrapped around the stamens and style. Stamens 10, monadelphous at the very base, otherwise distinct. Pod oblong, longer than the calyx, 1-2-seeded, roughened, tardily dehiscent. — Shrubs, with odd-pinnate leaves; the leaflets marked with minute dots, usually stipellate, the midvein excurrent. Flowers violet or purple, crowded in clustered terminal spikes. (Name, *ἄμορφος*, deformed, from the absence of four of the petals.)

* Pods 1-seeded; leaflets small ($\frac{1}{2}$ long or less), crowded.

1. **A. canescens**, Nutt. (LEAD-PLANT.) Whitened with hoary down (1-3° high); leaflets 15-25 pairs, oblong-elliptical, becoming smoothish above; spikes usually clustered at the summit. — Sask. to Ind. and Tex., west to the Rocky Mts.; also eastward to Ga.

2. **A. microphylla**, Pursh. Nearly glabrous throughout, 1° high or less; leaflets rather rigid; spikes usually solitary. — Sask. to Minn. and Iowa, west to the Rocky Mts.

* * Pods 2-seeded; leaflets larger, scattered.

3. *A. fruticosa*, L. (FALSE INDIGO.) A tall shrub, rather pubescent or smoothish, leaflets 8-12 pairs, oblong to broadly elliptical. — River-banks, S. Penn. to Fla., west to Sask., Tex., and the Rocky Mts. Very variable.

15. DÀLEA, L.

Calyx 5-cleft or toothed. Corolla imperfectly papilionaceous; petals all on claws; the standard heart-shaped, inserted in the bottom of the calyx; the keel and wings borne on the middle of the monadelphous sheath of filaments, which is cleft down one side. Stamens 10, rarely 9. Pod membranaceous, 1-seeded, indehiscent, enclosed in the persistent calyx. — Mostly herbs, more or less glandular-dotted, with minute stipules; the small flowers in terminal spikes or heads. (Named for Samuel Dale, an English botanist.)

* Glabrous; flowers white or rose-color; leaflets 4-20 pairs; annuals.

1. *D. alopecuroides*, Willd. Erect (1-2° high); leaflets 10-20 pairs, linear-oblong; flowers light rose-color or whitish, in cylindrical spikes; bracts ovate-lanceolate, acuminate, deciduous; calyx very villous, with long slender teeth. — Alluvial soil, Minn. to Ill. and Ala., west to the Rocky Mts.

2. *D. laxiflora*, Pursh. Erect (1-4° high), branching; leaflets 3-5 pairs, linear, 2-3" long; spikes loosely-flowered; bracts conspicuous, persistent, almost orbicular and very obtuse; petals white; calyx densely villous, the long teeth beautifully plumose. — Iowa and Mo. to Tex., west to Col.

* * Pubescent; leaflets 3-4 pairs; perennial herbs.

3. *D. aurea*, Nutt. Stems erect and simple, 1-3° high; leaflets oblong-ovate to linear-oblong, more or less silky-pubescent; spikes solitary, oblong-ovate, very compact and densely silky; bracts short, rhombic-ovate; petals yellow. — On the plains, Mo. to Tex., and westward.

4. *D. lanata*, Spreng. Very pubescent throughout, 1-2° high, branching; leaflets obovate to oblong-obovate, 2-3" long; spikes slender, rather loose, the obovate acute bracts equalling the small short-toothed calyx; petals short, purple. — Central Kan. to Tex., and westward.

16. PETALOSTĒMON, Michx. PRAIRIE CLOVER.

Calyx 5-toothed. Corolla indistinctly papilionaceous; petals all on thread-shaped claws, 4 of them nearly similar and spreading, borne on the top of the monadelphous and cleft sheath of filaments, alternate with the 5 anthers; the fifth (standard) inserted in the bottom of the calyx, heart-shaped or oblong. Pod membranaceous, enclosed in the calyx, indehiscent, 1-2-seeded. — Chiefly perennial herbs, upright, glandular-dotted, with crowded odd-pinnate leaves, minute stipules, and small flowers in very dense terminal and peduncled heads or spikes. (Name combined of the two Greek words for petal and stamen, alluding to the peculiar union of these organs in this genus.)

1. *P. violaceus*, Michx. Smoothish; leaflets 5, narrowly linear; heads globose-ovate, or oblong-cylindrical when old; bracts pointed, not longer than the silky-hoary calyx; corolla rose-purple. — Dry prairies, Minn. to Ind. and Tex., west to the Rocky Mts. July.

2. *P. candidus*, Michx. Smooth; leaflets 7-9, lanceolate or linear-oblong; heads oblong, when old cylindrical; bracts awned, longer than the nearly glabrous calyx; corolla white. — With n. 1.

3. *P. villosus*, Nutt. Soft-downy or silky all over; leaflets 13-17, linear or oblong, small (4-5" long); spikes cylindrical (1-5' long), short-peduncled, soft-villous; corolla rose-color. — Wisc. to Mo., west to the Rocky Mts.

4. *P. foliosus*, Gray. Smooth, very leafy; leaflets 15-29, linear-oblong; spikes cylindrical, short-peduncled; bracts slender-awned from a lanceolate base, exceeding the glabrous calyx; petals rose-color. — River-banks, Ill. and Tenn.

5. *P. multiflorus*, Nutt. Glabrous throughout, erect, branching; leaflets 3-9, linear to oblong; spikes globose, the subulate-setaceous bracts much shorter than the acutely toothed calyx; petals white. — Kan. to Tex.

17. TEPHRÒSIA, Pers. HOARY PEA.

Calyx about equally 5-cleft. Standard roundish, usually silky outside, turned back, scarcely longer than the coherent wings and keel. Stamens monadelphous or diadelphous. Pod linear, flat, several-seeded, 2-valved. — Hoary perennial herbs, with odd-pinnate leaves, and white or purplish racemed flowers. Leaflets mucronate, veiny. (Name from *τεφρός*, ash-colored or hoary.)

1. *T. Virginiana*, Pers. (GOAT'S RUE. CATGUT.) Silky-villous with whitish hairs when young; stem erect and simple (1-2° high), leafy to the top; leaflets 17-29, linear-oblong; flowers large and numerous, clustered in a terminal oblong dense raceme or panicle, yellowish-white marked with purple. — Dry sandy soil. June, July. — Roots long and slender, very tough.

2. *T. spicata*, Torr. & Gray. Villous with rusty hairs; stems branched below, straggling or ascending (2° long), few-leaved; leaflets 9-15, obovate or oblong-wedge-shaped, often notched; flowers few, in a loose and interrupted very long-peduncled spike, reddish. — Dry soil, from Del. and Va. to Fla. and Miss. July.

3. *T. hispida*, Pers. Hairy with some long and rusty or only minute and appressed pubescence; stems slender (9-24' long), divergently branched, straggling; leaflets 5-15, oblong, varying to obovate-wedge-shaped and oblanceolate; peduncles longer than the leaves, 2-4-flowered; flowers reddish-purple. — Dry sandy soil, Va. to Fla. and Ala.

18. INDIGÒFERA, L. INDIGO.

Calyx small, equally 5-cleft. Standard roundish, silky outside; wings coherent; keel erect, gibbous or spurred at base. Stamens diadelphous; connective gland-like. Pod 1-several-seeded, septate within between the seeds. — Herbs or shrubs, mostly canescent with appressed hairs fixed by the middle, with odd-pinnate faintly-nerved leaves, and pink or purplish flowers in naked axillary spikes. (So named because some of the species yield the indigo of commerce.)

1. *I. leptosépala*, Nutt. A perennial herb, $\frac{1}{2}$ -2° high; leaflets 5-9, oblanceolate; spikes very loose; pods linear, 6-9-seeded, obtusely 4-angled, reflexed, 1' long. — Kan. to Tex. and Fla.