THE

GENERA

OF

NORTH AMERICAN PLANTS,

AND

A CATALOGUE

OF THE

SPECIES

TO THE YEAR 1817.

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OF PHILADELPHIA, &C.

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District of Pennsylvania, to wit:

SEAL. BE IT REMEMBERED, That on the third day of April, in the forty-second year of the Independence of the United States of America, A. D. 1818, Thomas Nuttall, of the said district, hath deposited in this office the title of a book, the right whereof he claims as author, in the words following, to wit:

"The Genera of North American Plants, and a Catalogue of the Species to the year 1817. By Thomas Nuttall, F. L. S. fellow of the American Philosophical Society, and of the Academy of Natural Sciences of Philadelphia, &c."

In conformity to the act of the congress of the United States, intitled, "an act for the encouragement of learning, by securing the copies of maps, charts and books, to the authors and proprietors of such copies during the times therein mentioned."—And also to the act, entitled, "an act supplementary to an act, entitled "an act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies during the times therein mentioned," and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints."

D. CALDWELL,
Clerk of the District of Pennsylvania.

MISSOURI BOTANICAL
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APR 15 1907

Class XII.—POLYANDRIA.

Order I.—MONOGYNIA.

353. BEFARIA. *L.*

Calix 7-cleft. *Petals* 7. *Stamina* 14. *Capsule* 7-celled, many-seeded.

Small and often glutinous shrubs with alternate entire leaves, and flowers in condensed or racemose panicles.

Species. 1. B. *racemosa.*—A small tropical American genus of 4 or 5 species.

354. TILIA. *L.* (Linden or Lime-tree.)

Calix inferior, 5-parted, deciduous. *Petals* 5. Immature *capsule* 5-celled, 5-valved, cells 1 or 2-seeded; mature capsule coriaceous, globose, 1-seeded, bursting at the base.

Trees with cordate leaves; peduncles axillary and solitary, cymose, each adnate to the centre of a membranaceous alated bracte or floral process unconnected towards its summit; flowers white.

Species. 1. T. *glabra.* Obs. Cymes twice trichotomous. Internal petals 5 attached to as many fascicles of stamina; stamina in each bundle about 10; immature capsule, 5-valved, 5-celled, cells 2-seeded. 2. *laxiflora.* 3. *pubescens.* 4. *heterophylla.*

An American genus with the exception of 2 species indigenous to Europe.

355. HELIANTHEMUM. *Tournefort. Jussieu.*

Segments of the *calix* mostly unequal, the 2 exterior smaller. *Petals* 5. *Capsule*, superior, 1-celled, 3-valved, valves septiferous in the centre.

Herbaceous, suffruticose or shrubby plants; leaves opposite or rarely alternate, stipulate or naked; flowers mostly terminal, racemose or subpaniculate, generally yellow, in a few species purple or white.

SPECIES. 1. H. *canadense*. 2. *ramuliflorum*. 3. *corymbosum*. 4. *rosmariniflorum*. 5. *carolinianum*.

A genus of more than 80 species almost exclusively indigenous to the south of Europe, extending also into the approximating parts of Africa.

356. HUDSONIA. *L.*

Calix inferior, unequally 5-parted, tubular and colored, 2 of the segments obsolete. *Petals* 5? (*Stamina* 15 to 30.) *Capsule* 1-celled, 3-valved, 1 to 3-seeded. *Seeds* granulated.

Natural Order CISTI.

Low suffruticose, pubescent and often cespitose plants with minute acerose alternate leaves more or less imbricated and destitute of stipules; flowers yellow resembling those of Cistus, subsessile or pedunculate; peduncles 1-flowered, solitary and terminal or laterally aggregated; calix more or less tubular, very unequally 5-parted, 2 of the segments filiform and external attached to the others, the inner side coloured.—(Stamina irregularly arranged, anthers roundish and small, 2-celled, opening longitudinally, destitute of awns, pores, or appendices. Style about the length of the stamina, simple, stigma indistinct. Germ about 3-seeded. Capsule smooth or pubescent, oblong or obovate, coriaceous, 1-celled, 3-valved, margins of the valves not inflected, the centre often partly septiferous, each suture or imperfect septum 1-seeded. Seeds pendulous from the sutures, each by an umbilical filament, 1 or 2 mostly abortive; solitary seed, cylindric-ovate, covered with a pale granulated integument: embryon immersed in a corneous perisperm.)

SPECIES. 1. H. *ericoides*. Equally pubescent; stem erect; leaves filiform, and subulate, subimbricate; peduncles laterally aggregated; calix cylindric, obtuse; capsule always 1-seeded, valves oblong, pubescent. (Figure Willd. Hort. Berol. 15.) HAB. Abundant over the barren sandy woods of New-Jersey, Delaware, Maryland, and Virginia, &c. OBS. Stem erect and much branched. Leaves about 2 lines long, subimbricated, but distinct from the stem, almost uniformly slender, acicular, and as in the rest of the genus persistent, enduring 2 or 3 years. Stamina about 15. Peduncles of the fruit from 5 to 8

lines long. Calix and leaves covered with an equal quantity of pubescence, segments, after the manner of the genus oblique and convolute, the 2 smaller laciniæ scarcely visible in the fruiting calix, sufficiently distinct in the unexpanded flowers. Capsule cylindric-oblong, externally pubescent, central suture of the valves obsolete.

2. **montana.* Adult plants partly smooth, and cespitose; leaves longer, filiform, and subulate, subimbricate; peduncles terminal, solitary; calix campanulate, lanuginous, segments acuminate, smaller ones longer and subulate; capsule villous, mostly 3-seeded, valves ovate, partly septiferous. HAB. On the highest summits of the mountains of North Carolina, forming extensive cespitose patches; abundant on the romantic summit of the Table-Rock, a singularly elevated and isolated portion of the Catawba ridge, in company with *Rhododendron Catawbiense*, &c. A very distinct species which I have carefully compared with the preceding. *v. v.* OBS. Stem 3 to 5 inches high, decumbent. Leaves about a line longer than those of the preceding species, and to the naked eye appearing almost smooth. Peduncles terminal, in fruit about an inch long. Flower more than twice the size of the preceding, with a lanuginous and campanulate calix, having its smaller segments conspicuously exserted and distinct. Stamina 25 to 30. Capsule 3 times the size of the preceding, and furnished with distinct central septiform sutures. Seeds granulated, partly angular.—This species approaches to *Helianthemum*, but still possesses closely the habit of the preceding.

3. **tomentosa.* Cespitose, and canescently tomentose; leaves minute, closely imbricated, ovate acute, shorter than the intervals of the stem; flowers aggregated, subsessile; calix subcylindric, segments obtuse; capsule 1-seeded, valves ovate, smooth. HAB. On the drift-sands of the ocean. New Jersey, Delaware, Maryland, &c. A very distinct species. OBS. Stems intricate and densely cespitose so as to arrest the motion of the sand in which they grow; the whole plant silvery grey and tomentose, young stems white with a dense tomentum. Leaves scarcely a line long and connectively imbricated so that the points are scarcely visible in profile; flowers sessile, conglomerated, brilliant yellow, and much more elegant than those of *H. ericoides*. Calix silky, the smaller segments obsolete. Stamina from 14 to 18. Capsule 3 sided, smooth and polished, 1-seeded; valves furnished with distinct medial sutures. Seed obsoletely granular.

A North American genus.

357. PORTULACA. *L.* (Purslane.)

Calix inferior, bifid. *Petals* 5. *Capsule* 1-celled, opening circularly. *Receptacle* unconnected, 5-lobed.

Succulent and herbaceous plants with thickish leaves, which are opposite or alternate, axils of the leaves naked or piliferous; flowers terminating the smaller branches, solitary or aggregated, partly involucrate. Stamina sometimes 8.

SPECIES. 1. P. *oleracea.* Indigenous on the saline and denudated plains of the Missouri. A plant common to every quarter of the world.

A tropical genus, excepting *P. oleracea*, consisting of about 6 species, indigenous to America, Egypt, and India.

358. TALINUM. *Adanson.*

Calix 2 to 5-leaved, inferior. *Petals* 5. *Capsule* 1-celled, 3-valved, many seeded. *Receptacle* globose. *Seeds* arillate.

Shrubby suffruticose or herbaceous plants, with alternate thickish, or succulent leaves, axills of the leaves sometimes piliferous; flowers terminal, paniculate, racemose or corymbose.

SPECIES. 1. T. *teretifolium.* Leaves terete, subulate, carnose; scape cymose, flowers pedunculate polyandrous, calix 2-leaved, Pluk. Phyt. t. 223. f. 2. "Sedum petræum teretifolium Virginianum." OBS. Root perennial, subcespitose, leaves crowded, radical; scapes elongated naked; flowers purple, peduncle subtended by opposite membranaceous bractes. HAB. In the mountains of Virginia, and in Louisiana near St. Louis. Found also several years ago by Dr. Darlington near Chester in the state of Delaware.

359. CHELIDONIUM. *L.* (Celandine.)

Calix 2-leaved, deciduous. *Petals* 4. *Stigma* small and bifid, sessile. *Silique* superior, 2-valved, 1-celled, linear. *Dissepiment* none. *Seeds* many, crested.

Herbaceous, leaves alternate, pinnatifidly lobed; peduncles umbellate many flowered, axillary and terminal; flowers yellow; stamina about 12; sap yellow and bitter.

SPECIES. 1. C. *majus.* Naturalized. An European genus containing probably but a single species.

360. **GLAUCIUM.** *L.* (Horned-Poppy.)

Calix 2-leaved, deciduous. *Petals* 4. *Stigma* capitate, sessile, 2-grooved, dilated. *Silique* superior, long, and linear, 2-celled, 2 or 3-valved. *Seeds* many, punctate.

Herbaceous; leaves alternate, simply or doubly pinnatifid; flowers solitary, axillary and terminal, yellow or red; stamina numerous; sap colourless. In *G. violaceum* the stigma is trifid, the capsule 3-valved, 1-celled, with 3 filiform receptacles affixed to the margins of the valves, hence it approaches to the following genus.

SPECIES. 1. G. *luteum.* I follow Mr. Pursh in introducing this plant into the America Flora, but I have never yet met with it.

An European genus.

361. * **STYLOPHORUM.**† CHELIDONIUM. *Michaux.*

Calix 2-leaved, deciduous. *Petals* 4. *Style* distinct; stigma capitate, 4-lobed. *Capsule* superior, elliptic, 1-celled, 3 or 4-valved, valves revolute. *Receptacle* filiform, 3 or 4-parted, marginal and persistent, united with the style. *Seeds* numerous, punctate and crested.

Herbaceous perennials, somewhat resembling *Chelidonium majus*, and also exuding on incision a yellow and bitter resinous sap; leaves pinnatifidly lobed, mostly a single opposite pair terminating the stem; flowers aggregated, dichotomal, peduncles very long and pendulous in fruit, sometimes proliferous and producing a secondary pair of opposite leaves, subtending 2 or 3 pedunculated flowers; flowers yellow.

SPECIES. 1. S. *diphyllum. Chelidonium diphyllum.* Mich. 1. p. 309. Leaves sessile, lobes rounded and obtuse, subundulated. HAB. In the shady woods of Kentucky and Tennessee, also on the banks of the Missouri;

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† From the distinct and conspicuous style which distinguishes this plant from all the rest of the *Papaveraceæ.*

flowering in March and April. *v. v.* A smaller species than the following, the whole plant somewhat glaucous, scattered with diaphanous hairs and the peduncles often proliferous.

2. **petiolatum.* Leaves ample, smooth, upon long petioles, pinnatifidly lobed, lobes 5 to 7, with large angular indentures. HAB. In very shady woods on the banks of the Ohio, abundant; flowering from the latter end of May to July. OBS. Root perennial. Stem subquadrangular 2-leaved, rarely 3; [illegible] 8 inches high. Petioles often nearly the length of the leaves. Leaves large, about 8 inches long and 6 wide; smooth and glaucous beneath; veins on the under side subpilose, sinuately pinnatifid, 5 to 7 lobed, lobes large, angularly and incisely toothed, terminal lobe partly confluent, often somewhat trifid. Peduncles aggregated, about 3 inches long, pilose, arising from the centre of the stem, subcymose, cyme closely sessile. Calix pilose, abruptly acuminate, 2-leaved. Petals 4, roundish, cuneate towards the base, deep yellow, nearly as large as those of *Glaucium luteum.* Style more than half the length of the germ, (about 2 lines), yellow, stigma capitate, 4-lobed. Capsule elliptic, or oblong-elliptic, turgid, and densely setose, containing many seeds, valves 4, thickish, bursting and becoming revolute. Receptacle similar to that of *Argemone*, applied to the margin of the valves and connected with the persistent style. Seeds excavately punctate, and longitudinally crested at the hilum, but not striated, brown and smooth; albumen of the seed white and oily, enveloping the minute embryon.—These 2 species possess no affinity which I can perceive to *Sanguinaria* more than to the rest of the order, but they are distinctly allied to *Chelidonium.*

A genus hitherto peculiar to the western parts of the United States. *Papaver cambricum* of Europe appears, however, to belong to this genus, with which it agrees almost exactly in habit, but the stem is branched, the stigma obsoletely 5-lobed, and the capsule smooth, but is it not valvular?

362. ARGEMONE. *L.* (Prickly Poppy.)

Calix 3-leaved, deciduous. *Petals* 6. *Stigma* sessile, capitate, lobed. *Capsule* superior, with 3 to 6 angles, semivalvular, valves 3 to 6. *Receptacle* filiform marginal, persistent. *Seeds* globose striated and punctured.

Herbaceous; leaves alternate, pinnatifid, and spiny; flowers yellow or white, solitary, axillary and terminal; capsule ovate, spiny. Sap, yellow.

Species. 1. A. *mexicana.* In Georgia there is said to be not merely a variety, but a second species of this genus with white flowers.

A. mexicana is also indigenous to the West Indies and Mexico, there is likewise a second species said to be native in America; a third indigenous to the Pyrenees; is supposed to be a Papaver.

363. PAPAVER. *L.* (Poppy.)

Calix 2-leaved, deciduous. *Petals* 4. *Stigma* radiate. *Capsule* superior, 1-celled, opening by several pores situated under the persistent stigma. *Seeds* very numerous and minute.

Herbaceous plants, generally annual; leaves alternate, mostly pinnatifid, rarely simply lobed or crenate; flowers terminal upon very long and naked peduncles, colour various shades of red or white, more rarely yellow, commonly double or filled with petals in the gardens, and then often particoloured. Sap lactescent, forming opium, yellow as in *Chelidonium* in *P. cambricum* which in several respects appears allied to *Stylophorum.*

Species. 1. P. *nudicaule.* In Labrador. It is singular to remark that the poppys so common amidst fields of grain throughout Europe have not yet made their appearance in this manner in America. The absence of the Daisy (*Bellis perennis*) is also equally remarkable, amidst so many fields, pastures and wastes overgrown with other European plants.

An European genus of about 12 species, with the exception of 2 in the Levant and 1 in Barbary.

364. SANGUINARIA. *L.* (Puccoon, Bloodwort.)

Calix 2-leaved, deciduous. *Petals* 8. *Stigma* sessile, 2-grooved. *Capsule* superior, oblong, 1-celled, 2-valved, apex attenuated. *Receptacles* 2, filiform, marginal.

Root tuberous, horizontal, giving out a reddish and very bitter lactescent sap. Leaves solitary, radical, reniform and lobed; scape naked, 1-flowered, sheathed at the base; petals variable in number.

SPECIES. 1. S. *canadensis.* The only species of the genus.

365. PODOPHYLLUM. *L.* (May-apple.)

Calix 3-leaved. *Petals* 9. *Stigma* crenate, sessile. *Capsule* superior, 1-celled, many-seeded, becoming an ovate berry. *Receptacle* unilateral, large and pulpy.

Roots créeping, horizontal; stems low, and 2-leaved; leaves peltate and lobed; flowers solitary, dichotomal, and pedunculate, white; petals connivent; fruit lemon yellow, at first nauseous, the internal pulp when mature agreeably subacid and edible, more or less cathartic in common with the whole plant, but more particularly the root. Sap limpid, not lactescent, but probably in part resinous or gummiferous, after the manner of the *Papaveraceæ*, to which it unquestionably belongs, together with Jeffersonia and Sanguinaria.

SPECIES. 1. P. *peltatum.* The only species of the genus.

366. ACTÆA. *L.* (Bane-berries. Herb Christopher, &c.)

Calix 4-leaved, deciduous. *Petals* 4, often wanting. *Style* none; stigma capitate. *Berry* superior, 1-celled, many-seeded. *Seeds* semiorbicular. *Receptacle* unilateral.

Herbaceous perennials, with twice or thrice ternately divided leaves, deeply serrated; flowers white in short terminal spikes; berries white, brown, and black; generally considered poisonous.

SPECIES. 1. A. *americana.* Berries white, another variety produces red fruit.—Of this small genus there is 1 species indigenous to Europe and another to Japan.

367. SARRACENIA. *L.* (Side-saddle-flower.)

Calix double, exterior smaller 3-leaved, interior, 5-leaved both persistent. *Petals* 5, deciduous, erect, spreading from about the middle. *Stigma* very large and persistent, clypeate, covering the stamina, margin pentangular. *Cap-*

sule 5-celled, 5-valved, many-seeded, valves septiferous in the centre.

Herbaceous plants growing in sphagnous marshes; leaves radical alternate, deformed, half-way sheathing at the base, tubular, tube open above, attenuated and imperforate below, the orifice partly covered by an inflected lamina or lid, upper part of the tube dorsally alated, inner surface of the lower part and operculum, retrorsely pilose, so as to entangle and prevent the escape of flies and other small insects which attempt to shelter within the tubes; scapes 1-flowered, flowers large, red or yellow; anthers oblong, adnate to the filaments; seeds rather large than minute; somewhat scabrous.

Species. 1. S. *purpurea*. Obs. The most northern species of the genus, extending to Canada. Leaves ventricose†.

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† The tubes of this species, as well as of all the following, are commonly crowded with dead flies and other insects, perishing in imprisonment by one of the wonderful but simple accidents of nature;—a lesson for the incautious!—but no proof of instinct or necessity in the passive *Sarracenia* which could probably well maintain its vegetation without the aid of dead insects, a remark equally applicable to many other plants which accidentally prove fatal to insects, such as the wonderful *Dionæa*, which in its native swamps as frequently catches straws as flies, and will equally enfold any thing, so subject is it in this respect to the blindness of accident. Of what intrinsic benefit are flies to a *few* of the flowers of *Asclepias Syriaca* and *A. incarnata*, for the accident here is far from being universal, and to the smaller flowered species impossible from the minuteness of the organ which proves occasionally an insect trap in the larger ones. The same remarks are also applicable to the flowers of the genus *Apocynum*, and to the ciliated glumes of *Leersia lenticularis*, a property, which if instinctively necessary to the support of this species ought surely to be common to all the others, but their structure, however similar, is not such as to produce the same effect.

These extraneous contingencies, like many others, admit no more of direct appeals to Nature, than that which permitted the leaves of the Aspen, and the flowers of the Briza forever to tremble in the breeze. Still in the ascidia of the Sarracenia there appears to exist no ordinary degree of ingenuity to accomplish a purpose apparently of such small importance to the plant itself. The tube often ventricose in its form, is attenuated downwards, and terminated above by a widening aper-

2. *variolaris.* 3. *flava.* Called *Trumpets* from the elongation and tubiform appearance of the leaves. 4. *rubra.* *S. psittacina?* Michaux 1. p. 311.

A North American genus, partly maritime, not extending beyond the Alleghany mountains. The opportunity of examining the seeds of this genus have escaped me for the present, but there can scarcely exist a doubt of the direct association of Sarracenia with any order which can include the genus *Nuphar*. The singular deformity in the leaves ought not to operate in any material respect against its admission amongst genera of so different an external aspect. In *Nepenthes* the ascidia or tubes are merely an appendage to the true leaves; and in the *Cephalotus* of New Holland we have an instance of leaves and ascidia produced separately, both plants of very distinct orders from the present, it is probable that other genera will also be discovered at some period in the vast and unexplored regions of the world, furnished with these singular appendages.

368. **NUPHAR.** *Smith.* (Yellow Pond-Lily.)

Calix 5 or 6-leaved. *Petals* many, minute, inserted with the stamina upon the receptacle, externally nectariferous. *Stigma* orbicular, radiated, sessile. *Capsule* carnose, many-celled, many-seeded, superior.

Herbaceous aquatic plants; with alternate floating and sometimes emerging leaves, more or less semiorbicularly cordate, at first involute towards the centre of the upper surface which resists the admission of water; petioles

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ture, surrounded more than half-way by a dilated and finely reticulated lobe, more or less connivent over the surface of the orifice; this operculoid lobe is covered with rigid hairs bent downwards like the teeth of a card; the entrance of the orifice for a few lines is very smooth and appears resplendent like velvet, but is not polished; the interior of the tube for about half its length is not only smooth but polished, the lower half then presents the same retrorse rigid hairs as the operculum but somewhat longer;—the insect descending thus far without meeting with any opposition, is now arrested on its return, and becomes entangled by the feet; if it should succeed to extricate itself in an exhausted state, it is again precipitated into the former abyss inevitably to perish!

long and solitary axillary; flowers large, emerging, yellow: petals scarcely distinguishable from the filaments; anthers internally adnate to the filaments. Capsule carnose, cells varying but corresponding with the number of rays in the stigma, at length spontaneously dividing, and so deviating from the character of a true berry.

Species. 1. N. *lutea*. 2. *alvena*. Calix unequal, pericarp grooved. 3. *Kalmiana*. Calix 5-leaved equal, margin of the stigma crenate. 4. *sagittæfolia*. Leaves upon long subspiral peduncles; flowers as large as those of *N. lutea*. *v. v.* Hab. Near Savannah, in Georgia.

An American genus with the exception of *N. lutea*, indigenous also to Europe.

369. NYMPHÆA. *Smith.* (Water-Lily.)

Calix 4 or 5-leaved. *Petals* many, inserted upon the germ beneath the stamina. *Stigma* orbicular, radiated, sessile, nectariferous in the centre. *Capsule* carnose, many-celled, many-seeded, superior.

Aquatic plants with the vegetation of the preceding genus; petals conspicuous, often antheriferous, never yellow, frequently white, rosaceous or red, in one species blue.

Species: 1. N. *alba*. Around Detroit, Michigan Territory. *v. v.* 2. *odorata*.

A splendid genus principally indigenous to India and Europe, there is also one species in Siberia, another in China, the elegant and odorous *N. cærulea* is the production of the Cape of Good Hope. *N. rubra* of India, which might be naturalized in the southern states, exceeds almost every other aquatic in magnificence.

370. LEWISIA. *Pursh.*

Calix 7 to 9-leaved. *Petals* 14 to 18. *Stamina* definite, 14 to 18. *Style* trifid? *Stigmas* bifid. *Capsule* 3-celled, many-seeded. *Seeds* lining.

A stemless succulent plant, with entire radical leaves; scapes few-flowered; flowers white. Considerably allied to the genus *Sempervivum* and appertaining apparently to the same natural order; are there not 6 or more styles in place of one? is the capsule 3-celled, and not 3 or more

parted?—Was it not of more importance to have given a figure of this very interesting plant than of *Monarda Kalmiana*, or *Lupinus villosus?*

Order II.—DI-PENTAGYNIA. (*2 to 5 styles.*)

371. DELPHINIUM. *L.* (Larkspur.)

Calix none. *Petals* 5. *Lepanthium* (nectary) bifid, cornutely produced behind. *Siliques* 3 or 1.

Herbaceous, lower leaves digitate or palmate, upper ones often undivided; flowers closely spiked or paniculate, blue, violaceous or yellowish.

Species. 1. D. *tricorne*. 2. *azureum*. 3. *exaltatum*. 4. *consolida*. Naturalized. 5. **virescens*. Perennial, pubescent; lepanthium 4-leaved, shorter than the 5 calicine petals, interior laminæ densely bearded; leaves 3-parted, segments linear, subtrifid, lower ones divaricate. Hab. On the plains of the Missouri. Obs. Stem simple about 8 to 12 inches, pubescent; leaves upon long petioles, partly digitate or 5-parted, 10 to 15 lines wide; spike few-flowered, flowers greenish white, petaloid calix, 5-leaved, leaves oblong, spur longer than the flower, nearly straight. Petals of the lepanthium 4; the 2 internal ones irregularly concave, small, the 2 lateral larger, flat, and unguiculate, bearded, claw sending out a short spur at the base; capsules 3. Flowering in June.

A genus almost equally divided betwixt Siberia and the south of Europe.

372. ACONITUM. *L.* (Wolf's-bane.)

Calix none. *Petals* 5, the uppermost one arched. *Lepanthia* 2, pedunculate, recurved. *Siliques* 3 or 5.

Leaves digitate or palmate; flowers paniculate or loosely spiked, terminal, violaceous or yellowish.

Species. 1. A. *uncinatum*. Probably poisonous in common with many other species of this genus. The flowers considerably resemble those of the common Monk's-hood, *A. Napellus*.

A genus of 16 species, almost equally divided betwixt the alpine regions of Europe and Siberia.

373. AQUILEGIA. *L.* (Columbine.)

Calix none. *Petals* 5. *Lepanthia* 5, corniculate, situated between the petals. *Capsules* 5, distinct.

Leaves once or twice ternately divided; flowers terminal, scattered, reddish or violaceous.

Species. 1. A. *canadensis.*—A genus of 6 species, partly indigenous to Siberia and Europe.

374. CIMICIFUGA. *L.* (Black Snake-root.)

Calix 4 or 5-leaved. *Petals* 4 to 8 deformed, thickish, sometimes wanting. *Capsules* 1 to 5, oblong, many-seeded. *Seeds* squamose.

Leaves large, usually biternately compounded; flowers spiked, terminal, white, spikes simple or paniculated; stamina subclavate, long and numerous, anthers small, adnate to the filaments.

Species. 1. C. *racemosa* (*Actæa racemosa. L.*) 2. *fœtida.* 3. *americana.* 4. *palmata.* Does this exceptionable plant belong indeed to *Cimicifuga*?—A North American genus.

375. ASCYRUM. *L.* (St. Peter's-wort.)

Calix 4-leaved; the 2 interior cordate and larger. *Petals* 4. *Filaments* disposed in 4 parcels. *Capsule* oblong, 1-celled, 2-valved, included in the calix. (*Styles* 2 or 3.)

Suffruticose or herbaceous plants, very similar to the following genus; leaves opposite, entire, marked with resinous punctures; flowers solitary and terminal or subcorymbose. Seeds punctate, attached to the margins of the valves.

Species. 1. A. *pumilum.* 2. * *pauciflorum.* Decumbent, diffuse, small, with many stems; leaves approximate, linear-oblong, obtuse, rather minute; flowers rare, solitary, pedicell reflected, bibracteate at the base; style 1. Hab. In the open forests of Georgia. Suffruticose; leaves little more than a line wide, often nearly of equal breadth, flowers very rare; style unusually long, simple; stems filif-

form, terete; larger leaves of the calix roundish. The peduncles of all the following species are bribracteate above the middle. 3. *Crux Andreæ.* β *angustifolia.* Leaves oblong-linear, crowded; flowers lateral and terminal, erect, bibracteate near the base; styles 1 or 2, connivent; larger calix leaves acute, elliptic-ovate. HAB. In Carolina. Probably a distinct species. 4. *hypericoides.* 5. *amplexicaule.*

An American genus.

376. HYPERICUM. *L.* (St. John's-wort.)

Calix 5-parted, segments equal. *Petals* 5. *Stamina* numerous, scarcely united at the base. *Capsule* roundish; cells equal with the number of styles; 1, 2, 3, and 5.

Herbaceous or shrubby; stems cylindric, ancipital, or quadrangular; leaves opposite, entire, often furnished with pellucid resinous punctures; flowers cymose, mostly corymbose, peduncles trichotomous, 3-flowered, terminal and axillary; flowers yellow.

SPECIES. 1. H. *Kalmianum.* 2. *pyramidatum.* 3. *ascyroides.* 4. *frondosum.* 5. *amænum.* PH. Nearly allied to *H. glaucum.* 6. *prolificum.* 7. *nudiflorum.* 8. *glaucum.* 9. *densiflorum.* 10. *galioides.* 11. *aspalathoides.* 12. *fasciculatum.* 13. *tenuifolium.* PH. Is this more than a variety of *H. galioides?* 14. *perfaratum.* Too abundantly naturalized in dry pastures, and considered very injurious to horses. 15. *corymbosum.* 16. *parviflorum.* 17. *triplinerve.* 18. *dolabriforme.* 19. *angulosum.* 20. *sphærocarpum?* OBS. Herbaceous, upper part of the stem ancipital; leaves oblong, or cuneate-oblong, obtuse, pellucidly punctate, nerves numerous, (seen between the light;) cyme naked, pedicellate, twice or thrice compounded; calix at length foliaceous, at first shorter than the petals, entire; styles 3, united or distinct; stamina shorter than the petals, not very numerous; capsule subglobose. HAB. In New Jersey, near Philadelphia sparingly. Z. Collins, Esq. and Dr. W. Barton. It may be distinct from Michaux's plant, yet makes a near approach to it. 21. *canadense.* 22. *simplex.* "Hypericum tomentosum *carolinianum*, erectum, foliolis binatis ad caulem strictissime appressis, et decussatim positis."—Pluk. Amalth. p. 120. tab. 421. fig. 3. mala. 23. *pilosum.* Pilose; Stem virgate, simple, leaves spreading, ovate, acute, somewhat attenuated at the base, very few flowered. Icon. Pluk. Alm. t. 245. f.

6. A species perfectly distinct from the *H. simplex* of Michaux, which produces oblong-ovate leaves, partly connate at the base, and always pressed close to the stem, the whole plant also, instead of being pilose, is covered with a short matted and somewhat scabrous pubescence. 24. *procumbens*.

This vast genus of at least 100 species, is very widely dispersed over the world, extending throughout Europe, we find species in Barbary, in the Levant, in Siberia, Japan, China, India, Guinea, Mexico, Peru, the islands of the Pacific, New Holland, and the southern promontory of Africa. The whole genus appears to possess active medical properties in common with *Vismia*, which affords indeed, much more abundantly a yellow and resinous gum, acting as a cathartic in doses of 7 or 8 grains. The *Vismia guttifera* of Surinam produces a kind of Gamboge.

377. **ELODEA.** *Adanson.*

Calix 5-parted, equal. *Petals* 5, claws nectariferous. *Filaments* 9 to 15, growing together in 3 parcels. *Glands* between the parcels. *Styles* 3, divergent. *Capsule* partly 3-celled, many-seeded.

Vegetation similar to that of the preceding genus, but the flowers generally red.

SPECIES. 1. E. *virginica*. Hypericum virginicum. Willd. sp. pl. 2. *tubulosa*. 3. *petiolata*.—A North American genus.

ORDER III.—POLYGYNIA.

378. **ILLICIUM.** *L.* (Aniseed Tree.)

Calix 6-leaved. *Petals* 27 in a triple order. *Capsules* many, disposed in a circle, 2-valved, 1-seeded. (Petals also 6.)

Small trees having the aspect of Laurus, bark aromatic, leaves alternate, sempervirent; flowers axillary, brown or yellowish; petals variable, 6, 8, and 27.

SPECIES. 1. I. *floridanum.* 2. *parviflorum.*—An American genus with the exception of *I. anisatum* of Japan and China.

379. MAGNOLIA. *L.*

Calix 3-leaved. *Petals* 6 to 9. *Capsules* 2-valved. 1-seeded, imbricated in a cone. *Seeds* pendulous, arillate.

Trees with a bark more or less camphorated and aromatic; leaves alternate, entire and large, partly ovate, in some species auriculate at the base, at first closely sheathed by the stipules; flowers large and terminal, fragrant, white, yellowish, or brown; seeds scarlet or fulvous.

SPECIES. 1. M. *grandiflora.* The most magnificent tree of the southern states, the trunk often presenting a living column of 80 or 90 feet elevation, almost unobstructed by branches, and terminated by a spreading top of the deepest perennial verdure. 2. *glauca.* 3. *macrophylla.* This small pyramidal tree produces the largest leaves and flowers of any other North American plant. The limits of this interesting species appear to be extremely local. I first observed it in Tennessee near the banks of Cumberland river, but of very small size. In the southern states it is not at present known to the most assiduous collectors in any other spot than a single narrow tract of about 2 miles in length, 12 miles south-east of Lincolnton (Lincoln county, North Carolina); these limits I have carefully examined and found them invariable. 4. *tripetala,* (Umbrella-tree.) 5. *acuminata.* (Cucumber-tree.) Flowers yellowish green. 6. *cordata.* Flowers yellow; appearing twice in the year in the garden of Mr. Landreth of Philadelphia. Leaves subcordate-oval, never truly cordate. 7. *auriculata.* Leaves rhomboid-lanceolate, auriculate at the base. Considerably allied to *M. macrophylla.* β. *pyramidata.* Nothing more than a variety of the preceding, having leaves a little broader and shorter.

A genus of about 15 species, almost exactly divided between China and the United States; there is also 1 species in tropical America.

380. LIRIODENDRON. *L.* (Tulip-tree.)

Calix 3-leaved. *Petals* 6. *Samaræ* sublanceolate, 1 or 2-seeded, imbricated in a cone.

Large trees; leaves in *L. Tulipifera*, 3-lobed, with the central lobe truncated; stipules similar to those of the preceding genus; flowers large, solitary, terminal, subcampanulate; stamina about 36 disposed in a simple series, bursting externally.

Species. 1. L. *Tulipifera*.—Of this genus there are 2 other species in China and 1 in the mountains of Amboina.

381. PORCELIA. *Persoon.* (Papaw.)

Calix 3-leaved. *Petals* 6. *Stigmas* sessile, obtuse. *Berries* (1 or more) large, cylindric or ovate, many-seeded. *Seeds* arillate, attached to the internal suture.

Low shrubs or small trees with alternate entire deciduous or rarely sempervirent leaves, destitute of stipules; flowers axillary, solitary, mostly brownish, arising from the axills of the leaves of the preceding year; germs numerous, rarely more than 2 or 3 fertile; fruit often saccharine and pulpy, oblong-cylindric, green before maturity; seeds large, elliptic, compressed.

Species. 1. P. *triloba*. (Common Papaw.) Obs. Exterior petals larger, interior scattered with rugose callosities. Stamina seated upon a spherical receptacle; filaments and anthers united, 2-celled, filaments terminated by a small glandulous clypeus. Stigmas sessile, round, about 8. 2. *parviflora*. 3. *pygmæa*. Obs. Younger stems brown and tomentose; leaves sempervirent, coriaceous and smooth, about a span long and scarcely an inch wide, every where conspicuously and reticulately veined; flowers large and brown, peduncles bibracteate, arising from the persistent leaves of the preceding year. Leaves longer than the whole stem. 4. *grandiflora*. Leaves deciduous, cuneate-obovate, obtuse, on either side as well as the younger branches ferruginously tomentose; exterior petals very large, obovate, interior oblong.—A very low shrub with whitish flowers equal to those of Magnolia glauca; older branches smooth.

A North American genus, with the exception of a single species in Peru.

382. ATRAGENE. *L.*

Calix none. *Corolla* double; petals numerous; exterior ones larger. *Seeds* caudate, cauda pilose.

Sarmentose shrubs, or creeping herbs; leaves opposite, conjugate cirrhose, or once or twice ternate; flowers in the shrubs ramuline, in the herbs at the summit of an involucrate scape as in Anemone.

Species. I. A. *americana*.—A small genus of 11 or 12 species widely dispersed, existing in Europe, Siberia, India, Japan, Barbary and the Cape of Good Hope, 1 also in America.

383. CLEMATIS. *L.* (Virgin's Bower.)

Calix none. *Petals* 4, more rarely 5. *Seeds* compressed, caudate, cauda mostly plumose.

Stems often shrubby, sarmentose or more rarely erect; leaves opposite, simple, ternate, or imperfectly pinnate; flowers axillary or more frequently terminal, solitary but mostly corymbose, in some species dioicous.

Species. 1. C. *virginica*. 2. *cordata*. Ph. 3. *holosericea*. Ph. 4. *Walteri*. Ph. 5. *crispa*. 6. *cylindrica*. 7. *reticulata*. 8. *Viorna*. 9. *sericea*.

A genus of about 30 species distributed over the world, from the north of Europe to the Levant; in Siberia, Japan, China, northern and tropical America, India, the islands of the Pacific, and New Zealand.

384. ANEMONE. *L.*

Calix none. *Petals* 5 to 9, or more. *Seeds* many.

Herbaceous; leaves mostly radical, once or twice pseudopinnate, digitate, or simply lobed; scape or stem, 1 or more flowered, often involucrate, leaves of the involucrum simple or parted; seeds various, in a few species caudate, in others smooth or lanuginous, and simply mucronate.

Species. 1. A. * *ludoviciana*. Scape 1-flowered, involucrate; involucrum softly lanuginous, subulately divided; leaves digitate, multifid, upper surface smooth, segments entire, linear, acute; petals 6, oblong-ovate, erect. Hab. Commencing near the confluence of the river Platte and Missouri; on gravelly hills; flowering about April. *Clematis hirsutissima*. Pursh 2. p. 385. Obs. A species related to *A. patens* and *A. Pulsatilla*, and much about the size of the latter. Root perennial, fibrous and premorse, not tuberous; every part of the plant except the upper surface of the leaves and inner side of the petals more or less covered with soft silky hair, (not the least hirsute)

stipules at the base of the leaves, and involucrum covered with a dense and soft silky pubescence. Leaves 4 or 5-parted, segments cuneate, once or twice cleft, ultimate divisions bifid or trifid, linear, acute, 1 or 2 lines wide, primary segments about 2 inches long. Involucrum cup-shaped, subulately dissected. Petals 6, (never 4,) externally silky, of a pale dull blue inclining to violet, about an inch long, expanding nearly flat about mid-day. Seeds caudate, and plumose, cauda near 2 inches. (*A. patens* is only about 4 inches high; with trifid leaves, segments 3-cleft, smooth with capillary acuminations; involucell approximating towards the flower; petals white, larger.) 2. *nemorosa.* 3. *lancifolia.* PH. Is this plant sufficiently distinct from the preceding? 4. *cuneifolia.* 5. *tenella.* PH. OBS. Root bulbous; scape 1-flowered, involucrate, 4 to 6 inches high. Leaves smooth, ternate, leaflets trifid, toothed. Involucrum 3-parted, segments cuneate, 3-lobed, entire. Petals linear-oblong, 12 to 14, white or blue, often elegantly maculate, seeds woolly, but not caudate.—Flowering in April. HAB. In elevated plains around the Maha village on the Missouri. Very nearly allied to *A. appenina.* 6. *thalictroides.* 7. *narcissiflora.* 8. *pensylvanica.* 9. *dichotoma.* 10. *virginiana.* Seeds remarkably lanuginous towards the base.

A genus of near 40 species, principally European, extending into Siberia, Barbary and the Levant; there are also species in Japan, Brasil, and as far as La Plata in South America.

385. THALICTRUM. *L.* (Meadow-Rue.)

Calix **none.** ***Petals*** **4 or 5.** ***Stamina*** **very long.** ***Seeds*** **ecaudate, striate, terete.**

Herbaceous; leaves twice or thrice ternate, leaflets mostly trifid or 3-lobed; flowers in terminal panicles; the American species are mostly dioicous, or polygamous.

SPECIES. 1. T. *Cornuti.* 2. *dioicum.* 3. *rugosum.* 4. *pubescens.* 5. *purpurascens.* 6. *ranunculinum.*

A genus of near 30 species, almost peculiarly indigenous to North America and Europe; there is also 1 species in Japan and 5 in Siberia.

386. HYDRASTIS. *L.*

Calix **none.** ***Petals*** **3.** ***Nectary*** **none.** ***Berry*** **compound, granulations 1-seeded.**

Stem alternately 2-leaved, leaves palmate; flower solitary, terminal. The fruit and habit is that of the herbaceous species of Rubus.

Species. 1. H. *canadensis*. The only species of the genus.

387. CALTHA. *L.* (Marsh Marygold.)

Calix none. *Petals* 5 to 9. *Nectary* none. *Capsules* several, many-seeded.

Herbaceous; leaves alternate, reniform, cordate, or rarely sagittate; flowers terminal, solitary or several, mostly subcorymbose and yellow, rarely white. The aspect of the genus similar to that of Ranunculus.

Species. 1. *C. parnassifolia*. Radical leaves upon long petioles, cordate and very obtuse, with many nerves; stem 1-leaved, 1-flowered, petals elliptic; styles 5 to 8. Hab. In New Jersey. Rafinesque in New York. Med. Reposit. H. p. 361. No. 28. in the year 1808. *C. ficariodes*. Ph. 2. p. 389. 2. *palustris*. 3. *flabellifolia*.

Of this small genus there are 2 species in Europe including *C. palustris*, 1 in Siberia, 1 in Falkland Island, and another of doubtful genus at the Straits of Magellan.

388. COPTIS. *Salisbury*. (Golden-thread.)

Calix none. *Petals* 5 or 6, caducous. *Lepanthia* (nectarys) 5 or 6. cuculiate. *Capsules* 5 to 8, stipitate, stellately diverging, and rostrate, many-seeded.

Root creeping, fibrous, yellow; leaves radical, ternate, sempervirent; scape 1-flowered; flowers white.

Species. 1. C. *trifolia*. (*Helleborus trifolius*.) The only species of the genus indigenous to North America, Northern Asia and Europe as far as Iceland.

389. TROLLIUS. *L.* (Globe Flower.)

Calix none. *Petals* 5 to 8, deciduous. *Lepanthia* 5 to 8, linear. *Capsules* numerous, ovate, sessile, many-seeded.

Herbaceous; leaves digitate; branchlets about 1-flowered, flowers terminal, usually globose, yellow. Resembling *Caltha*.

SPECIES. 1. T. *laxus*. Petals 5, deeper yellow, spreading.—Of this genus there are 2 other species, 1 European and the other indigenous to Siberia.

390. **HEPATICA.** *Willdenow.* (Noble Liverwort.)

Calix 3-leaved. *Petals* 6 to 9. *Seeds* naked.

Herbaceous; leaves partly sempervirent, radical, 3-lobed; scapes 1-flowered; flowers blue, white or red. ANEMONE. L.

SPECIES. 1. A. *triloba*. A genus of a single species indigenous to Europe and America.

391. **RANUNCULUS.** *L.* (Crow-foot.)

Calix 5-leaved. *Petals* 5; having the inner side of each claw furnished with a melliferous pore, often membranaceously margined or covered by a separate scale. *Seeds* naked, numerous.

Herbaceous; leaves alternate, undivided, or more commonly cleft, often multifid; flowers axillary but mostly terminal, yellow, rarely white.

SPECIES. 1. R. *Flammula*. 2. *Lingua*. 3. *pusillus*. 4. *filiformis*. *v. v.* On the shores of lake Huron. 5. *Cymbalaria*. PH. 6. *abortivus*. 7. *nitidus*. 8. *sceleratus*. A very noxious plant common in wet meadows. 9. *aurlcomus*. 10. *pygmæus*. 11. *pensylvanicus*. 12. *bulbosus*. 13. *Philonotis*. 14. *repens*. 15. *acris*. 16. *lanuginosus*. 17. *tomentosus*. 18. *marilandicus*. 19. *recurvatus*. 20. *septentrionalis*. 21. *hispidus*. 22. *aquatilis*. 23. *fluviatilis*. 24. *muricatus*. 25. *echinatus*. Many of these species common to Europe are merely naturalized.

An extensive genus of near 90 species, principally European, but extending into Barbary, the Levant and Siberia; there are also species in Japan and in South America as far as Paraguay.

392. **BRASENIA.** *Willd.* HYDROPELTIS. *Michaux.* (Water-shield.)

Calix 6-leaved, petaloid, persistent, the 3 interior longer. *Corolla* none. *Stamina* 18 to

36, about the length of the calix. *Utriculi* oblong, 6 to 9; 2-seeded.

An aquatic plant, with alternate, entire elliptic peltate floating leaves, at first as well as the flowers and younger shoots enveloped by a tenaceous and gellatinous fluid; peduncles solitary, 1-flowered, flower brown. Styles none. Stigma simple, lateral, linear, on the inner side (almost similar to that of *Sparganium*). Seeds pendulous from the dorsal suture.

Species. 1. B. *peltata*. Obs. Stem, petiole, and peduncle cylindric, covered with an inconspicuous flocculent pubescence immersed in a gellatinous substance, which at first envelopes the young leaves and flowers. Stem furnished with 2 sets of confluent central vessels, and also with external circles of filiform tubes, tubes in each circle 9 to 12; ganglions of central vessels about 4 in each set, each set separated by an empty tube; numerous longitudinal purple fibres are interspersed with the exterior circle of tubes, appearing at length to inosculate on the under side of the leaf giving it a purple colour, as well as the stem, petiole, peduncle, petals, stamina and styles, there being nothing in fact green in the whole plant except the upper surface of the leaf. The central vessels arrived in the leaf, from their *eccentricity* and *double* order, communicate to it an elegant and almost exactly elliptic form, and finally resolve into about 12 nerves. In the peduncle there are 3 ganglions of central vessels separated from each other by interrupted circles of aerial tubes.—2d. Obs. As the elliptic form of the leaf originates from the eccentricity and duplicature of the central vessels, expanding in an ellipse or 2 intersecting circles, so we may justly consider it as a species of double leaf, hence also the stamina and the fruit is in the same manner augmented. In its coordinate *Cabomba* which produces orbicular peltate leaves, we find only 6 stamina instead of 18, 2 or 3 styles and capsules in place of 6 or more, but containing the same number of seeds and of nearly the same form.—Hence we perceive the same type in its simple form! A proof of the small importance of mere number in the character of classes or of natural groupes.

There exists not the smallest affinity betwixt this very singular plant and *Caltha* it is equally removed from every other genus of the Ranunculaceæ, and its place in the natural system has been well defined by the ingenious and indefatigable Richard. V. Annales du Museum 17. t. 5. f. 22.

393. **CYAMUS.** *Salisbury.* (Water Chinquepin.)

Calix petaloid, 4 or 5-leaved. *Petals* many. *Fruit* turbinate, with a truncated disk excavated with numerous cells, each containing a single seed. *Seed* an ovate nut crowned with the persistent style.

The most magnificent of aquatic plants; leaves alternate, peltate, orbicular, ample; peduncles extremely long and axillary, rising considerably above the water, more or less scabrous; flowers very large, yellowish white or rosaceous. Petioles and peduncles giving out on incision a milky fluid.

Species. 1. C. *luteus.* (*Nelumbium luteum. Willd.*) Petioles and peduncles partly muricated, as well as in *C. indicus.* Flower larger than that produced, by any other plant in North America except *Magnolia macrophylla.* 2. *pentapetalus.* A very doubtful plant as well as the following. 3. *reniformis.*

Of this genus there is another species indigenous to the waters of India and Persia.

Class XIII.—DIDYNAMIA.

Order I.—GYMNOSPERMIA. (4 naked seeds.)

† *Calix subquinquefid.*

394. AJUGA. *L.* (Bugle. Ground Pine.)

Corolla with the upper lip minute and bidentate. *Stamina* longer than the upper lip. "*Anthers* all reniform, 1-celled." R. Brown.

Stem erect or repent, often stoloniferous; leaves ovate or narrow and trifid; flowers in terminal verticillate spikes or solitary and axillary.

Species. 1. A. *Chamæpithys.* A very doubtful native. A small genus principally European.

395. TEUCRIUM. *L.* (Germander.)

Upper lip of the corolla none, but a fissure in its place through which the *Stamina* are exserted.

Suffruticose, but mostly herbaceous; inflorescence various; flowers axillary or terminally racemose, spiked, capitate or corymbose.

Species. 1. T. *canadense.* 2. *virginicum.*

A genus of 70 species or upwards, chiefly indigenous to the warmest parts of Europe but extending more or less through both hemispheres.

396. MENTHA. *L.* (Mint.)

Corolla subequal, 4-cleft; having the broader segment emarginate. *Stamina* erect and distant.

Herbaceous, very odorous; flowers verticillate and axillary, verticillately spiked, or rarely subcapitate.

Species. 1. M. *canadensis.* 2. *borealis.* 3. *tenuis.*

A genus of about 25 species almost exclusively European, yet extending to India and the Cape of Good Hope.

397. ISANTHUS. *Michaux.*

Calix subcampanulate. *Corolla* 5-parted; tube straight and narrow; segments of the border ovate and equal. *Stamina* subequal. *Stigmas* linear, recurved.

Annual, covered with a viscid pubescence, leaves entire, longitudinally nerved, flowers axillary and pedunculate, greyish-blue, calix becoming æruginous.

Species. 1. T. *cæruleus. Trichostema brachiata.* L. Hab. In Pennsylvania, Maryland and Virginia, but more abundant west of the mountains, from whence it appears to have originally propagated along the Ohio and the Mississippi as well as part of the Missouri.—The only species. Seeds reticulately rugose as in *Trichostema* to which this genus is somewhat allied.

398. HYSSOPUS. *L.* (Hysop.)

Lower lip of the *Corolla* 3-parted, intermediate segment subcrenate. *Stamina* straight, and distant.

A very unnatural genus of about 5 or 6 species; flowers in *H. officinalis* axillary and verticillate; corolla in *H. Lophanthus* resupinate with the flowers partly cymose; the American species scarcely distinct from *Nepeta*, are tall plants with cordate-ovate toothed leaves, and dense terminal verticillated spikes, with white or pale blue flowers.

Species. 1. H. *nepetoides.* Bractes dilated; calix smooth, segments linear. 2. *scrophulariæfolius.* Bractes ovate acute; calix smooth, segments subovate. 3. * *anisatus.* Smooth; spikes verticillate interrupted; leaves cordate-ovate, angularly toothed, under side glaucous; calix equal, acute, pubescent, segments subovate, about one third the length of the calix; bractes scarcely as long as the pedicells. *Stachys Fæniculum*, Ph. Hab. On the plains of the Missouri near Fort Mandan, on the borders of thickets. Obs. 2 or 3 feet high, very smooth; leaves petiolate, about an inch long, acute, no where tomentose, but whitish or glaucous on the under side and covered with resinous punctures, which when bruised emit an agreeable aniseed odor; spikes short and interrupted; flowers

and lower verticilli shortly pedicellate; calix permanently blue and finely striated, tubular-campanulate; flowers pale blue; style and stamina exserted.

Of this genus there are besides the above, 1 species in China, and probably 2 in Europe.

399. NEPETA. *L.* (Cat-Mint.)

Calix arid, striated. Tube of the *Corolla* longish; intermediate segment of the lower lip crenate; margin of the orifice reflected. *Stamina* approximate.

Flowers verticillately spiked, rarely racemose or cymose, spikes terminal, in a few species paniculated, peduncles many-flowered.

Species. 1. N. *Cataria.* Abundantly naturalized.

A genus of more than 30 species dispersed through the south of Europe, and extending into Barbary in Africa, in Asia into the Levant, Persia and Siberia, there is also 1 species in Japan and 3 in India.

400. LAMIUM. (Dead Nettle. Archangel.)

Calix 5-cleft, segments subulate, spreading. Upper lip of the *Corolla* entire and vaulted: lower lip 2-lobed; the margin of the orifice toothed on either side.

Floral leaves mostly sessile; flowers axillary, sessile; subverticillate, bractes setaceous; corolla mostly pubescent, lobes of the corolla in a few species serrulate.

Species. 1. L. *amplexicaule.* Naturalized; introduced. 2. *hispidulum.*—A small genus principally European.

401. GALEOPSIS. *L.* (Hemp-Nettle.)

Calix 5-cleft, awned. Upper lip of the *Corolla* subcrenate, vaulted; lower lip unequally 3-lobed, producing also 2 teeth on its upper side near the margin of the orifice.

Chiefly annual plants with entire ovate or lanceolate leaves; calix often pungent, flowers verticillate, axillary, sometimes particoloured; bractes subulate; stem in some species tumid below the joints.

Species. 1. G. *Tetrahit.* Hab. In the western parts of the state of New York. Obs. Annual; hirsute; stem

retrorsely pilose, often scarcely a foot high; leaves remote, ovate-lanceolate, acute, with the nerves parallel to the indentions, scarcely more than an inch long and half an inch wide; calix very hispid, and pungently awned, about 1-third the length of the corolla; corolla uniformly whitish or reddish, externally covered with soft hairs, about an inch long, tube long and slender, funnelformly inflated above; upper lip arched and crenate; lower lip obtusely 3-lobed, lobes rounded, entire, and nearly all equal; palate furnished with 2 distinct teeth.

A genus of about 8 species, exclusively indigenous to Europe, with the exception of *G. hispida* of the Cape of Good Hope.

From the seed of the common species a very useful oil may be expressed.

402. *SYNANDRA.†

Calix 4-cleft! segments unequal, subulate, connivent to one side. Upper lip of the *corolla* entire and vaulted; the lower obtusely and unequally 3-lobed; orifice inflated, naked. Upper pair of anthers cohering, having the 2 attached cells empty; filaments tomentose.

Perennial? and herbaceous; leaves cordate-ovate, those of the stem sessile and amplexicaule; flowers without bractes, sessile, solitary; calix small, embracing the attenuated tube of the large corolla which partly resembles that of *Melittis Melissophyllum* as to size and lobing, while its real affinities are to the genus *Lamium*, though sufficiently distinct.

S. * *grandiflora.*

Descript. Stem usually simple, about a foot high, nearly smooth, irregularly grooved, and partly terete. Leaves a little hirsute on the upper surface, lower ones subpetiolate, those of the stem closely sessile and amplexicaule, cordate-ovate, acuminate, obtusely dentate, often dilated at the base, diminishing upwards. Flowers often commencing with the second or third pair of leaves, solitary and sessile. Calix about 2 lines long, densely and softly pilose, cleft about half-way down into 4 conni-

† In allusion to the adherence of the anthers of the 2 longer stamina which distinguishes this genus from *Lamium*, *Galeopsis*, and *Galeobdolon*.

vent and subulated semiovate segments, the 2 upper ones somewhat larger, and directed from the tube of the corolla. Corolla about an inch long, yellowish-white, often marcescent, not arising from the centre of the calix; tube widely inflated or rather funnelform and attenuated downwards, at the orifice more than double the breadth of the calix; upper lip entire, arounded and distinctly arched; lower lip 3-lobed, all the lobes entire and obtuse, the lateral ones oblong and somewhat shorter, central lobe rounded, elegantly striated longitudinally with about 8 purple lines. Stamina converging beneath the upper lip; filaments intricately tomentose on the inner side, anthers corneous, 2-celled, yellowish-white with acute blackish sloping points, the shorter pair perfect and unconnected, the longer pair firmly cohering by the margins of their upper cells which are barren or destitute of pollen, the lower cells only being perfect, so that the anthers are attached without appearing cruciate. Seeds smooth, pale, depressed triquetrous, rarely more than 2 becoming ripe.—Flowering time about June. HAB. On the shady banks of the Ohio; in rocky situations near Cincinnati. *v. v.*

403. STACHYS. *L.* (Woundwort. Hedge Nettle.)

Calix 5-cleft, awned. Upper lip of the *corolla* vaulted; the lower reflected at the sides, with the intermediate segment larger and emarginated. *Stamina* at length reflected to the sides.

More or less tomentose or hispid; flowers axillary or verticillately spiked, verticills bracteate, approximate or distant.

SPECIES. 1. S. *hyssopifolia.* 2. *aspera.* Stem nearly smooth, angles only somewhat retrorsely aculeate, leaves oblong-lanceolate, acuminate, serrate, shortly petiolate and very smooth; verticills about 6-flowered, calix divaricate, spinescent. 3. *hispida.* The whole plant hispidly pilose; leaves shortly petiolate, ovate-oblong, acuminate, angularly serrate; verticills about 8-flowered, calix subulately divaricated.—Nearly allied to the preceding though sufficiently distinct, but scarcely more than a variety of the following? 4. **sylvatica.* Verticills 6-flowered; leaves cordate-ovate, petiolate. HAB. On the banks of the Ohio, not uncommon, on the skirts of thickets, giving out the same foetid smell as the European species, the flowers are, however, paler. 5. *intermedia.*

A genus of near 40 species chiefly indigenous to Europe, extending also throughout Northern Asia, and into the southern hemisphere, there existing species in Chili, in the isle of France, and at the Cape of Good Hope.

404. LEONURUS. *L.* (Mother-wort.)

Calix pentangular, 5-toothed. Upper lip of the *corolla* villous, flat, entire; lower lip 3-parted, with the middle segment undivided. "Lobes of the *anthers* parallel." R. Brown.

Leaves more or less lobed; flowers axillary verticillate, sessile, bracies minute? anthers in some species scattered with shining spots.

Species. 1. L. *Cardiaca.* Now as commonly naturalized as in Europe.

A small genus of about 7 species, nearly allied to *Phlomis* and indigenous to Siberia, Tartary and China, with the exception of *L. Marrubiastrum*, with oblong toothed leaves and a corolla scarcely longer than the calix, which can scarcely be a congener; the *L. Cardiaca*, as has been suggested by Miller, originated probably in Tartary; and is only naturalized in Europe in the same manner as it is now in North America.

405. LEUCAS. *R. Brown.*

Calix 10-striate, 6 to 10-toothed. Upper lip of the *corolla* galeate (or in the form of a helmet,) *galea* bearded, entire; *lower lip* long and trifid; intermediate segment larger. Lobes of the *anthers* divaricate. *Stigma* shorter than the upper lip.

Herbaceous? often annual; leaves entire; verticills many flowered, subglobose or capitate.

Species. 1. L. *martinicensis.* Introduced probably from the West Indies, now naturalized as a weed in the gardens and suburbs of Savannah in Georgia.—Mr. Œmler.

A tropical genus indigenous to the East and West Indies.

406. GLECHOMA. *L.* (Ground Ivy. Gill. Alehoof.)

Calix 5-cleft, subequal. *Anthers* approaching each other in pairs, each pair producing the form of a cross.

Creeping herbaceous and aromatic plants; peduncles axillary about 3-flowered, flowers blue. Corolla double the length of the calix, upper lip bifid, lower trifid, middle segment larger and emarginate.

Species. 1. G. *hederacea*. Probably indigenous;—abundant along the banks of the Ohio, the Potomac, &c. remote from settlements, flowers larger and brighter than the European species.

Of this genus there is now a second species described as growing in the woods of Hungary.

407. MARRUBIUM. *L.* (White Horehound.)

Calix salverform, rigid, 10-striate. Upper lip of the *corolla* bifid, linear, straight.

Flowers verticillate, sessile; bractes numerous, linear. Leaves mostly whitish and rugosely veined. Calix in many species 10-toothed.

Species. 1. M. *vulgare*. Naturalized.—A small genus principally indigenous to the south of Europe and the Levant.

408. HYPTIS. *Jacquin.*

Calix 5-toothed. *Corolla* bilabiate: upper lip 2-lobed; lower 3-lobed: intermediate lobe calceiform, at first involving the style and stamina, afterwards reflected. *Stamina* declinate. Poiteau.

Herbaceous; flowers capitate, rarely subcymose paniculately spiked or axillary; capituli involucrate.

Species. 1. H. *capitata*. 2. *radiata*.—A tropical genus indigenous to America, with the exception of *H. persica*.

409. PYCNANTHEMUM. *Michaux.* (Mountain Mint.)

Capitulum surrounded by an involucrum of many bractes.—*Calix* tubular, striate 5-toothed. Upper lip of the *corolla* nearly entire; lower tri-

fid. "Middle segment longer. *Stamina* distant; cells of the anthers parallel." R. Brown.

Pungently aromatic herbs; flowers capitate, fastigiate, bractes numerous, often subimbricated; flowers small. Seeds more or less bearded at the summit.

Species. 1. P. *incanum*. Obs. Leaves shortly petiolate, oblong-ovate; flowers in dense cymes; bractes narrow and subulate, bearded at the points; tube and orifice of the corolla internally pubescent as in many other species. Pubescence on the under side of the leaves double, the lowest appearing in minute floccose spots and producing the canescence. 2. *aristatum*. Pubescence minute, universal; leaves nearly entire, capituli terminal; bractes and calix terminated by long awns; interior of the corolla smooth. Hab. In Ohio, Kentucky, Tennessee, and the mountains of North Carolina. The calix when bruised gives out the scent of Lavender.

3. *montanum*. Smooth; leaves ovate-lanceolate, serrate, subsessile; capituli proliferous; bractes ciliate, and acuminated; calix smooth, dentures awned, partly piliferous; corolla externally smooth. Obs. Stem purple, smooth, a little branched above, about 1 foot high; verticills 1 or 2 below the terminal one; orifice of the corolla pubescent; stamina exserted; corolla purplish, spotted; seed bearded at the summit. Hab. On the Catawba ridge, North Carolina. *v. v.* 4. *Monardella*.

5. *Linifolium*. Obs. Very smooth and much branched, branches trichotomous and fastigiate; leaves crowded, linear, sessile, very entire, longitudinally nerved, and acute; capituli terminal, hemispherical, compact, mostly simple; bractes imbricated, exterior ovate, and awned, margin ciliately-pubescent; flowers pilose, spotted internally; stamina about equal with the corolla; middle segment of the lower lip, oblong, incurved at the point. Margin of the leaves asperate seen through a lens. 6. *virginicum*. Obs. Stem erectly branched, pubescent; leaves subsessile, linear-lanceolate, entire, margin somewhat asperate; capituli cymose, sessile; bractes and awned calix pilosely pubescent; bractes linear-lanceolate, acuminate; stamina exserted; corolla externally pubescent, whitish and maculate, intermediate segment of the lower lip longer, oblong, incurved at the point. *Thymus virginicus*. L. *P. lanceolatum*. Ph. 7. *muticum*. 8. *verticillatum*. Apparently allied to *P. montanum*.

9. * *pilosum*. Stem and under side of the leaves more or less pilose, leaves lanceolate, nearly entire, sessile; ca-

pituli large and terminal; lanceolate bractes and calix canescently villous, both awnless; corolla pubescent; stamina exserted. Obs. A species more nearly allied to *P. virginicum* than *P. muticum*, but distinct apparently from both. Stem a little branched towards the summit; bractes shorter than the calix, acute, but not awned; dentures of the calix minute, orifice of the corolla and its external surface pubescent, immaculate; seeds unbearded. Taste and scent similar to *Mentha Pulegium*. Hab. In the glades of Kentucky and Tennessee.

10. * *nudum*. Very smooth; stem nearly simple; leaves oblong-ovate, entire, erect and sessile, margin partly revolute; capituli pedicellate, few-flowered, naked; flowers distinct; smooth lanceolate bractes and calix awnless, both conspicuously covered with resinous punctures, dentures bearded, minute. Obs. About 2 feet high; leaves very smooth, about an inch long, prominently veined, and opaque; capituli numerous and small, subtended by bractes about the same length; orifice and exterior of the corolla pubescent, lobes of the lower lip nearly equal; stamina exserted; seeds smooth. Hab. In the mountains of Carolina and Georgia. Aroma similar to that of *Satureja hortensis*.

A North American genus.

†† *Calix bilabiate.*

410. CLINOPODIUM. *L.* (Wild Basil.)

Verticill surrounded by a setaceous involucrum.—Upper lip of the *corolla* flat, obcordate and straight.

Flowers in a terminal capitulate cyme; segments of the calix and bractes setaceous, divaricately and conspicuously pilose; leaves ovate.

Species. 1. C. *vulgare*. Truly indigenous to North America as well as Europe.

411. ORIGANUM. *L.* (Marjoram.)

Flowers collected into a 4-sided strobilus or dense spike.—Upper lip of the *corolla* erect, flat; lower 3-parted; segments equal.

Peduncles axillary and terminal, each supporting several spikes; flowers separated from each other by broad bractes.

SPECIES. 1 O. *vulgare*. Indigenous.—A genus of about 17 species almost exclusively indigenous to the Levant; of these *O. Tournefortii* is one of the rarest and most local plants in the world.

412. DRACOCEPHALUM. *L.* (Dragon's head.)

Calix subequal, 5 cleft. Orifice of the *corolla* inflated; upper lip concave. *Stamina* unconnected.

Herbaceous or rarely suffruticose; flowers verticillately spiked and terminal, or axillary, peduncles one or many-flowered, bracteate; bractes broad, sometimes ciliate, in most of the American species very small.

SPECIES. 1. D. *variegatum*. 2. *virginianum*. 3. *denticulatum*. 4. * *cordatum*. Stoloniferous; stem and elongated petioles pubescent; leaves cordate, obtusely crenate, upper side a little hirsute; spike unilateral; pedicells bibracteolate; bractes of the rachis nearly as long as the calix, broad-ovate, entire. OBS. Root creeping, perennial, fibrous. Stem stoloniferous after flowering, scarcely a foot high, quadrangular, subpilose. Leaves about 3 or 4 pair, almost as broad as long, obtusely cordate, smooth beneath, petiole the length of the lamina (about an inch,) uppermost pair of leaves subsessile. Bractes unusually large, peduncles short and thick, mostly 1-flowered. Flowers secund. Calix submembranaceous, nearly equal, partly campanulate, segments acute, almost pungent. Corolla pale blue, about an inch long, and larger than that of *D. virginianum;* orifice much dilated; upper lip concave, obtuse, and emarginate, lateral teeth of the lower lip conspicuous; central segment rounded, pilose, and elegantly spotted. Receptacle of the seed large, many of the seeds abortive. HAB. On the shady islands of the Ohio, about 40 miles below Pittsburgh; flowering in June. The whole plant, but more particularly the flower, possesses an agreeable balsamic aroma, considerably like that of the Balm of Gilead (*D. canariense*) but in an inferior degree.

5. * *parviflorum*. Flowers verticillate, subcapitate; leaves ovate-lanceolate, deeply serrate, and petiolate, bractes foliaceous, ovate, ciliate, and serrate, serratures conspicuously mucronate; upper segment of the calix much larger than the rest; flower scarcely longer than the calix. HAB. Around Fort Mandan, on the Missouri; on the borders of thickets. OBS. Biennial; nearly smooth, stem and petiole a little pubescent; flowers al-

most imbricated in a leafy capitulum, very small, and nearly white; calix awned, arid and membranaceous, semiquinquefid; bractes divaricately awned; upper lip of the corolla emarginate, arched; lower 3-lobed, central lobe subcrenate. Flowering time, July. Apparently allied to *D. Moldavica*, but the leaves are entirely destitute of punctures: scarcely a congener with *D. virginianum*, and closely allied to *Melissa*.

Principally a Siberian genus.

413. MELISSA. *L.* (Balm.)

***Calix* arid, above nearly flat: upper lip subfastigiate. Upper lip of the *Corolla* partly vaulted, bifid; middle lobe of the lower lip cordate.**

Herbaceous, and aromatic; flowers axillary, shortly pedunculate.

Species. 1. M. *officinalis.* In many places commonly naturalized along road sides and lanes.

An European genus, at present including only 2 species.

414. *MACBRIDEA.† *Elliott.*

"*Calix* subturbinate, trifid; 2 of the segments larger and oval, the 3d linear-lanceolate. *Corolla* ringent; upper lip entire, the lower shorter and 3-parted."

Leaves opposite entire; "spike terminal, verticills mostly 4-flowered, flowers large and reddish, striped with white."

"*M. pulchra.*"

"*Thymbra caroliniana.* Walter, p. 162." Hab. "In the narrow swamps and Bay-galls in the central parts of South Carolina. Flowering from July to September." *Elliott*, mss. Apparently allied to *Melittis*.

415. PRUNELLA. *L.* (Self-heal.)

Upper lip of the calix dilated. *Filaments* of the stamina forked, only one of the points antheriferous. *Stigma* bifid.

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† So named by Stephen Elliott, Esq. in honour of his friend the late James Macbride, M. D. an assiduous botanist, whose assistance to many of the southern plants is gratefully acknowledged by that author.

Flowers verticillate, imbricately spiked, bractes of the verticilii large and ciliate.

Species. 1. P. *vulgaris*. β. *pennsylvanica*. A mere variety of the preceding, which is certainly an introduced plant, never appearing far beyond the precincts of habitations.

A small European genus.

416. SCUTELLARIA. *L.* (Skull-cap.)

Margin of the *Calix* entire, after flowering closed with a galeate lid. Tube of the *corolla* elongated.

Herbaceous; flowers solitary, axillary, naked, or in terminal or axillary bracteate racemes, bractes 1-flowered. (Seeds granularly tuberculate.)

† *Flowers axillary, solitary.*

Species. 1. S. *galericulata*. Branching; leaves cordate-lanceolate, crenate, under side pulverulently pubescent, paler; flowers axillary. Hab. On the margins of swamps. New Jersey, common. Exclude the synonym of Pursh. 2. p. 412. 2. *parvula*. 3. * *gracilis*. Stem mostly simple; leaves remote, broad-ovate, dentate, smooth and sessile, scabrous on the margin, upper ones smaller, entire; flowers axillary. Hab. In thickets on the margin of the Schuylkill, near Philadelphia. *S. galericulata?* Ph. Obs. Perennial. Stem 12 to 18 inches high, slender, erect, and seldom branched; leaves 10 to 12 lines long, and nearly the same in breadth, lower ones obtuse, dentures remote, under side prominently veined; flowers uncommonly small, pale blue. 4. * *ambigua*. Low, subdecumbent and divaricately branched; leaves sessile, ovate, remotely and rarely serrate, subhirsute above; flowers very small, axillary. Hab. In dry and open forests, Ohio. The habit of this small species is very different from that of the preceding, yet at the same time they are closely allied. Obs. Perennial. Stem 4 to 6 inches high, smooth, mostly purple. Leaves approximate, from 5 to 8 lines long, 3 or 4 wide, prominently veined and smooth beneath, mostly acute, upper ones entire, lower with very few serratures, asperate on the margin, the upper surface scattered with short hirsute hairs. Flowers very small, and pale. 5. *angustifolia*. Ph.

†† *Flowers racemose.*

6. *lateriflora*. 7. *caroliniana*. Is not this a variety of the following? 8. *integrifolia*. Obs. The whole plant in-

tensely bitter; flowers very conspicuous and of a fine blue, palate of the lower lip marked with a divided confluent yellow blotch. 9. *pilosa*. 10. *serrata*. Leaves oblong-ovate, crenate, smooth beneath.

11. * *canescens*. Tall and branching; leaves ovate, acute, acutely toothed and petiolate, under side with the bractes and flowers closely and canescently villous, lower leaves subcordate; racemes pedicellate, subpaniculate, axillary and terminal; bractes ovate-lanceolate, longer than the calix. HAB. In the plains and open forests of Ohio. *S. incana?* Muhlenberg's Catal. OBS. Perennial. Stems 2 or 3 feet high, canescent. Leaves conspicuously petiolate, truncate or subcordate at the base, whitish beneath, opaque. Racemes partly lateral and terminal, elegantly villous and canescent, pubescence very short. Flowers deep blue and of considerable size. Somewhat allied to *S. serrata* but distinct and a much finer species.

12. * *versicolor*. Robust and branching; the whole plant except the leaves covered with a soft and glandular pubescence; leaves broad-cordate, large, and obtusely toothed, nearly smooth; petioles very long; racemes ternate, terminal, bractes ovate; flowers smallish, particolored. HAB. With the above. OBS. The largest North American species, and very distinct. Root perennial. Stem 3 or 4 feet high. Leaves thin and diaphanous, a little hirsute above, 2 or 3 inches broad and 3 or 4 long, destitute of bitterness; peduncles 1 and a half to 2 inches long. Racemes partly secund, 6 to 8 inches in length: bractes broad-ovate, short and sessile, viscidly pubescent beneath as well as the rachis and calix. Corolla rather small, upper lip blue, the lower white, *S. cordifolia?* Muhl. Catal.

A considerable genus, of which there are 6 species in Europe, 2 in Siberia, 4 in the Levant, 1 in China, a shrubby species in Persia, 2 in tropical America, and 1 in Paraguay.

417. THYMUS. *L.* (Thyme.)

Calix subcampanulate, orifice closed with villous hairs. Upper lip of the *corolla* flat, emarginate.

Low herbaceous, and pungently aromatic plants; leaves small; flowers conglomerate axillary and often terminal.

SPECIES. 1. T. *Serpyllum*. Naturalized in some localities in Pennsylvania.

A considerable genus, chiefly indigenous to the south of Europe, but extending into Barbary and the Levant.

418. CALAMINTHA. *Tournefort.*

Calix after flowering closed with villous hairs. Orifice of the *corolla* somewhat inflated, upper lip emarginate; lower 3-parted, intermediate segment entire, subemarginate or crenulate.

Herbaceous or suffruticose; peduncles many flowered.

Species. 1. C. *Nepeta.* 2. *caroliniana. Thymus caroliniana.* Mich. 2. p. 9. Suffruticose: leaves lanceolate-ovate, entire, smooth and opaque; margin partly revolute; verticills many-flowered, subpedunculate; upper lip of the calix 3-toothed, obtuse.—*v. v.* A few miles from Augusta in Georgia. Bractes obsolete; calix closed with a tomentose villus; leaves sometimes partly oval. The *Thymbra caroliniana* of Walter, according to the observations of Mr. Elliott, constitutes a new and distinct genus.

A small genus almost exclusively indigenous to the south of Europe.

419. TRICHOSTEMA. *L.*

Calix resupinate. Upper lip of the *corolla* falcate. *Stamina* very long and incurved.

Annual; decussately branched; flowers solitary, each bibracteate, at length developed in dichotomous panicles, blue, sometimes white.—Seeds rugose. Aroma of the whole plant, balsamic, not pungent, very similar to that of Isanthus.

Species. 1. T. *dichotoma.* Leaves oblong-ovate, attenuated towards the base, pubescent; stamina very long. 2. **linearis.* Leaves linear, smooth, sessile, attenuated somewhat at either end, dentures of the calix conspicuously awned, stamina very long. Hab. With the above in the sandy fields of New Jersey, also in the vicinity of Philadelphia, in arid situations. After repeated comparisons I am perfectly satisfied of the specific distinction of this plant, considered as a variety of the preceding by Mr. Pursh; it is much rarer, and always smaller. The leaves are invariably smooth and rather thick, while the rest of the plant is covered with a viscid pubescence. 3. *brachiata.* See *Isanthus.*

Of this genus there is another species in Cochinchina.

Order II.—ANGIOSPERMIA.

† *Calix quinquifid.*

420. PHRYMA. *L.*

Calix cylindric, upper lip longer, trifid; lower bidentate. Upper lip of the *corolla* emarginate, lower much larger. *Seed* one.

Spikes slender, terminal; flowers opposite, each tribracteate; calix reflected downwards in fruit. (Perisperm none; embryon flat; radicle superior! cotyledones emarginate.)

Species. 1. P. *leptostachya.* The only known species.

421. VERBENA. *L.* (Vervain.)

Calix 5-cleft. *Corolla* funnelform, tube incurved, limb unequal, 5-lobed. *Stamina* 4, fertile. *Seeds* 4.

Generally herbaceous; flowers bracteate, alternate and slenderly spiked, or rarely subcorymbose.

Species. 1. V. *Aubletia.* Abundant in Louisiana. 3. *spuria.* Apparently a mere variety of *V. officinalis* and very common in the suburbs of Philadelphia and throughout the state of Delaware. 4. *hastata.* Flowers deep blue; leaves rarely if ever hastate. Of this species there appears to be a very distinct variety near Philadelphia which I shall distinguish by the name of β.* *oblongifolia,* having oblong-lanceolate deeply serrated leaves, merely acute, and not acuminated; spikes filiform, paniculate; flowers smaller, pale blue. May this be *V. paniculata* of Lamark? but the flowers are not imbricated, nor in the least corymbose, it appears to be equally remote from *V. diffusa* of the same, but assuredly intermediate, if not an hybrid betwixt *V. hastata* and *V. urticifolia.* It has only occurred to me twice on the banks of the Delaware. 5. *paniculata.* 6. *urticifolia.* 7. *diffusa.* 8. *rugosa.* 9. *caroliniana.* 10. *stricta.* Hirsute and canescent; stem erect, leaves subsessile, oblong-ovate, obtuse and serrate; spikes subcylindric, rigid. Hab. Abundant throughout the north western territories.

An American genus of about 20 species indigenous to both hemispheres, with the solitary exception of *V. officinalis.*

422. ZAPANIA. *Lamark.*

Flowers capitate.—*Calix* 5-toothed. *Corolla* 5-lobed. *Stamina* 4, fertile. *Stigma* peltately capitate, oblique. *Seeds* 2, at first covered by an evanescent utriculus.

Stem shrubby or herbaceous and creeping; capituli axillary, pedunculate; leaves opposite.

Species. 1. Z. *nodiflora.* Abundant on the gravelly banks of all the larger rivers of the United States from New York south and west. On river banks also near Cafsam in Barbary. *Desfontaines.* Flor. Atl. vol. i. p. 16. 2. *lanceolata.*

An American genus and partly tropical, with the exception of *Z. nodiflora.*

423. LANTANA. *L.*

Flowers capitate.—*Calix* obsoletely 4-toothed. Border of the *corolla* 4-lobed, unequal, orifice pervious. *Stamina* within the tube. *Stigma* uncinately refracted. *Drupes* aggregated; *nut* bilocular, even, 2-seeded.

Mostly shrubs; stems smooth or aculeate; leaves opposite and ternate; flowers yellow, fulvous, purple, red or white, collected in axillary pedunculated capituli, each flower bracteate.

Species. 1. L. *Camara?* In Florida. *Bartram's* Travels, p. 103.—A tropical genus.

424. CAPRARIA. *L.*

Calix 5-parted. *Corolla* subcampanulate, almost equally 5-cleft. *Capsule* 2-valved, 2-celled, many-seeded.

Shrubby or herbaceous; leaves opposite and ternately verticillate, flowers axillary or terminally racemose. Scarcely a natural genus?

Species. 1. C. *multifida.* Obs. Annual: leaves pinnatifid, opposite and ternate, ultimate lobe trifid; peduncles filiform, axillary; segments of the calix subulate; corolla small, tubular-campanulate, almost equally 5-lobed; capsule ovate, not acuminated, partly 4-valved. Hab. Along the banks of the Ohio and the other western rivers; common. 2. *biflora.* In Florida. Muhl. Catal.

A small genus of 7 species, 3 of them indigenous to northern and tropical America, 3 to the Cape of Good Hope, and 1 to the East Indies.

425. HERPESTIS. *Gærtner.* MONNIERA. *Michaux.*

Calix 5-cleft, unequal, bibracteate at the base. *Corolla* tubular, subbilabiate. *Stamina* included, all fertile. *Capsule* 2-valved, 2-celled, dissepiment parallel to the valves.

Small plants and mostly repent; peduncles axillary, 1-flowered.

SPECIES. 1. H. *rotundifolia.* 2. *amplexicaulis.* 3. *cuneifolia.* 4. *micrantha.* 5. **Brownei.* Around New Orleans.

Chiefly an American genus of about 7 species, with the exception of 1 in Africa and another in Java.

426. *HEMIANTHUS.

Calix tubular, border 4-toothed, cleft on the under side. Upper lip of the *corolla* obsolete; lower 3-parted; intermediate segment ligulate and truncate much longer, closely incurved. *Stamina* 2.† filaments bifid, lateral stipes antheriferous. *Style* bifid. *Capsule* 1-celled, 2-valved, many-seeded. *Seeds* ovate, even, and shining.

A very small creeping plant growing in marshes; leaves entire, opposite and verticillate; flowers solitary, alternate and pedicellate; minute.

SPECIES. 1. H. *Micranthemoides.* The only species yet known. Indigenous to the borders of the Delaware. For a figure and further description, see the Journal of the Academy of Natural Sciences of Philadelphia. I. p. 119. plate 6. fig. 2.

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† This genus ought to be referred to DIANDRIA, but having discovered it only during the progress of this work, I have thought proper to introduce it here rather than in the *Appendix.*

[LINDERNIA. *L.* See page 9 of the first vol. of this work.]

(SPECIES. L. * *grandiflora.* Perennial; leaves nearly round, thickish, entire and nerveless, subamplexicaule; peduncles very long, axillary and terminal; stamina 4, the 2 which are sterile and forked partly exserted; stem creeping. HAB. On the spongy margins of sandy springs and ponds in Georgia, (betwixt Savannah and Augusta in many places.) OBS. Stem profusely creeping, angular. Leaves opaque, crowded, nearly round and very smooth, only 3 or 4 lines in length. Peduncle 10 to 15 lines long. Calix divided to the base, segments linear and subulate. Corolla large, of a violet blue, lower lip paler, 3-lobed, lobes rounded, upper lip very short, bidentate. The 2 fertile stamina situated near the base of the tube, simple; the 2 infertile stamina, partly exserted, and forked, ending obtusely, the lateral stipe very slender, producing an imperfect 1-celled anther. Stigma bilammellate. Capsule ovate, 2-celled, 2-valved, valves not inflected or septiferous; the alated margin of the seminal receptacle producing a parallel dissepiment, which is rarely visible before the ripening of the seed, hence I have been led into an error in asserting the capsule to be 1-celled. To introduce this interesting and beautiful species, as well as to correct an error, has been my motive for the second insertion of this genus, which from its affinity to *Herpestis* rather than to *Gratiola* ought still to be retained in this class, rather than DIANDRIA.)

427. LIMOSELLA. *L.* (Mudwort.)

Calix 5-cleft. *Corolla* 4 and 5-lobed, equal. *Stamina* approximating by pairs. *Capsule* 2-valved, subbilocular, many-seeded.

Small marsh plants sending out creeping shoots; leaves and solitary flowers radical, peduncles axillary.

SPECIES. 1. L. *tenuifolia.* Leaves linear and very narrow, scarcely dilated at the points, scape 1-flowered, about equal in length with the leaves.—Flower white, externally blue. Indigenous to Germany and the borders of the Delaware. See Journal Acad. Nat. Sc. Philad. vol. i. p. 115.

A genus of 3 or 4 species, 2 indigenous to Europe and 1 of them also common to America, 1 at the Cape of Good Hope and another in India.

428. SCROPHULARIA. *L.* (Figwort.)

Calix 5-cleft. ***Corolla*** subglobose, resupinate. ***Capsule*** 2-celled.

Mostly herbaceous, rarely shrubby; stem usually quadrangular; leaves mostly opposite, rarely verticillate, entire or pinnatifid; peduncles 2 or many-flowered, bibracteate at the divisions, oppositely axillary, terminally spiked or paniculate.—Several of the common species have a fœtid scent. Flowers often brownish or inclining to red.

SPECIES. 1. S. *marylandica.* 2. *lanceolata.*

A genus of about 30 species, principally indigenous to the south of Europe, Barbary and the Levant; there are 2 also in tropical America.

429. BIGNONIA. *L.* (Trumpet-flower, &c.)

Calix 5-toothed, cyathiform, partly coriaceous. ***Corolla*** 5-lobed, campanulate, ventricose on the under side. ***Silique*** 2-celled. ***Seeds*** membranaceously alated.

Trees or climbing shrubs; leaves opposite, simple, conjugate, ternate, digitate, pinnate or decompounded, the conjugate leaved species mostly cirrhiferous; flowers paniculate.

SPECIES. 1. B. *crucigera.* This plant does not appear to be indigenous to the U. S. 2. *capreolata.* 3. *radicans.*

This splendid genus, of 60 or more species, is with a few exceptions in India, China, and Japan, exclusively indigenous to the tropical regions of America.

430. RUELLIA. *L.*

Calix 5-parted, often bibracteate. ***Corolla*** subcampanulate, border 5-lobed. ***Stamina*** approximating by pairs. ***Capsule*** attenuated at either extremity, bursting with elastic teeth. ***Seeds*** few.

A genus of herbaceous or shrubby plants nearly allied to *Justicia*, producing axillary and terminal flowers.

SPECIES. 1. R. *strepens.* 2. *oblongifolia*, also R. *hybrida.* PH. 3. *humistrata.*

A tropical genus of more than 60 species, indigenous to India, Arabia, Africa and the warmer parts of America.

431. BUCHNERA. *L.*

Calix 5-toothed. Tube of the *corolla* slender, border 5-cleft, nearly equal; lobes cordate. *Capsule* 2-celled.

Leaves opposite; flowers spiked or corymbose, terminal. Allied to *Erinus*.

Species. 1. B. *americana*. Flowers greyish-blue. Very common in the western parts of the state of New York, Pennsylvania, &c.

A genus of about 13 species, whereof 2 are indigenous to tropical America, 5 to the Cape of Good Hope, 4 to India and 1 to Arabia Felix.

432. ANTIRRHINUM. *L.* (Toadflax, Snapdragon, &c.)

Calix 5-parted; the lower segments remote. *Corolla* calcarate, ringent, orifice closed by the prominent palate. *Capsule* ovate, 2-celled, 2-valved, bursting at the summit with 3 to 5 reflected dentures, a stapediform styliferous arch remaining betwixt either aperture. Gærtner.

Herbaceous, or very rarely shrubby; leaves alternate, opposite or verticillate, entire, angular, oblong or narrow; flowers solitary and axillary or spiked, furnished with the rudiments of a fifth stamen scarcely conspicuous, as in 2 or 3 other proximate genera.

Species. 1. A. *Elatine*. Valves of the capsule entire. 2. *Linaria*. Much too abundantly naturalized throughout the middle states, but not indigenous. 3. *canadense*. Chiefly near the margins of sandy swamps and ponds. 4? *tenellum*. Ph. Leaves linear, opposite; flowers axillary, calix campanulate; stem simple, annual.—Is this plant indeed of this genus? Can it possibly be a bad specimen of *Collinsia*? 5. *Orontium*. Very doubtful.

A genus of more than 70 species, almost exclusively indigenous to the south of Europe and Barbary.

433. *COLLINSIA.

Calix 5-cleft. *Corolla* bilabiate, orifice closed: upper lip bifid; the lower trifid, intermediate segment carinately saccate and closed over the

declinate style and stamina. *Capsule* globose, partly 1-celled, and imperfectly 4-valved. *Seeds* 2 or 3, umbilicate.

An annual plant, with entire opposite and verticillated leaves; peduncles axillary, 1-flowered, verticillate and opposite; flower particoloured.

Species. 1. C. *verna*. Hab. On the banks of the Ohio, &c. For an accurate figure, See Journal Acad. Nat. Sc. Philad. vol. i. plate 9.—The only species hitherto known to me.

434. GERARDIA. *L.*

Calix half 5-cleft, or 5-toothed. *Corolla* subcampanulate, unequally 5-lobed, segments mostly rounded. *Capsule* 2-celled, opening at the summit.

Certainly a confused and divided genus, the usual artificial character entirely excluding the North American species which appear to require a careful comparison with *Digitalis*.—Herbaceous plants, very rarely shrubby; leaves generally opposite, entire, or pinnatifid; flowers solitary, axillary, opposite, approximating towards the summits of the branches, yellow or purple. Capsule more or less ovoid, not acuminate, 2-celled; dissepiment medial, indivisible, parallel to and uniting with the simple longitudinal margined receptacle.

† *Flowers purple.* (*Calix campanulate, margin 5-toothed.*)

Species. 1. G. *purpurea*. Stem angular, much branched; leaves scabrous, linear, long and acute; flowers large, subsessile; segments of the calix subulate. Hab. Common both in fresh and subsaline marshes. 2. * *maritima*. Mr. Rafinesque, in the New York Medical Repository, vol. ii. p. 361. Low and succulent; stem angular; leaves linear, carnose, short, somewhat obtuse; flowering branches partly naked; flowers small, shortly pedunculate, the 2 upper lobes ciliate; margin of the calix crenulate. Hab. Not unfrequent in the salt-marshes of New Jersey and New York. Flowering from July to September. *G. purpurea*, β. *crassifolia*. Ph. It is unquestionably distinct from *G. purpurea;* being every way smaller; oppositely branched from the base upwards; the leaves are also quite convexly carnose and shining; the flowers of a pale red, are remotely situated, and seldom exceed 3 pair, approximating towards the summits of the branches; the pubescent ciliation of the corolla and the truncature of

the calix are invariable. Like the preceding it is only annual, and therefore distinct from the following.

3. **linifolia.* Perennial: stem terete, virgate; branches floriferous towards the summit; leaves smooth, linear, acute, and subcarnose, longer than the peduncles; calix truncate, campanulate; corolla large, orifice pubescent, and all the lobes ciliated. HAB. From Wilmington, North Carolina, to Florida. OBS. Root perennial, creeping. Stems 2 or 3 feet high, branches virgate, cylindric. Leaves 10 to 15 lines long, scarcely more than 1 wide, very smooth and partly carnose but flat and acute, diminishing in size upwards. Flowers from 3 to 5 pair, large, campanulate, and purple, peduncle often more than an inch long in the fruit. Calix remarkably truncated, yet presenting 5 minute and acute dentures nearly on a line with the margin.

4. *tenuifolia.* Low and much branched; stem quadrangular; leaves linear, acute, scabrous; flower funnelform; style exserted; flowering peduncles nearly as long as the leaves; dentures of the calix acute. HAB. Common in dry and sandy forests from New York to Carolina; perfectly distinct from *G. purpurea;* usually 6 to 10 inches high and very much branched; flower pale purple with the orifice smooth, (the reverse of *purpurea*) lobes of the corolla dilated, approaching to obcordate; stamina as in the whole genus densely pubescent, (which is not the case, if I recollect right, in *Digitalis*;) peduncles often equal in length with the upper leaves, but shorter than the lower ones. The corolla of this species is remarkably wide and shallow. 5. *setacea.* Leaves setaceous; peduncles alternate and opposite, very long; calix obsoletely toothed, capsule ovate. HAB. In the sandy forests of Carolina. Annual. Peduncles often 2 inches long, and remote. A taller plant than the preceding, which produces a globose capsule, the present an ovate one exserted beyond the calix.

6. **aphylla.* Stem naked, virgate, with very few branches, quadrangular, and margined, oppositely squamiferous, squamæ ovate, very minute, white and deciduous; flowers opposite, approximating towards the summits of the branches; corolla somewhat funnelform, longer than the primary peduncle. HAB. From North Carolina to Florida, where it was first detected by Dr. Baldwyn. A very remarkable and not uncommon species around Wilmington in North Carolina. I have a specimen now before me which is about 3 feet long, rigidly erect, and sending out only 2 pair of branches; in place of leaves we perceive only minute opposite sphacelate scales, which are ovate,

acute, and scarcely a line long. Fruiting peduncle nearly the length of the flower. Corolla very similar to that of *G. tenuifolia*. Calix campanulate, minutely 5-toothed. Capsule ovate, longer than the calix. Root annual, very small. Now and then very minute leaves appear to be produced, but they are generally wanting.

7. **filifolia*. Perennial? Stem terete, branched; leaves filiform, carnose, subfasciculate, and alternate; flowering peduncles longer than the leaves, alternate, calix acutely toothed; corolla large, ventricose-campanulate. HAB. In West Florida. Dr. Baldwyn. OBS. Leaves filiform, about an inch long, nearly terete, smooth, and very slender, in the only dried specimen before me alternate, collected in axillary clusters; flowers purple, as large as *G. purpurea*, orifice of the corolla pubescent, and ventricose, flowering peduncle near an inch and a half long. A species in aspect very distinct from all the preceding. I suspect it to be either suffruticose or shrubby.

8. *auriculata*. Chiefly indigenous to the western states as far as Louisiana, it has also been once found near Chester in Delaware by Dr. Darlington, as I have been informed by Mr. Collins. This plant is considered to be *Erinus Africanus* in Muhlenberg's Catalogue, but surely neither the same species nor genus, if there be any essential character in *Erinus*. It is more probably a species of *Seymeria*. 9. *cuneifolia*. PH. Calix 5-parted; leaves serrate. *G. lancifolia?* Muhl. Catal. Not of this genus? 10. *fruticosa*. PH. Leaves lanceolate, serrate, calix 5-parted; flowers racemose and bracteate. Is it not rather a *Digitalis?*

†† *Flowers yellow.* (*Calix semiquinquifid.*)

11. *flava*. 12. *quercifolia*. PH. 13. *Pedicularia*. Leaves nearly smooth, oblong, and pinnatifid, segments uncinate, serrate.—Common throughout the middle states. β. *pectinata*. Stem and branches densely pilose; leaves ovate, pectinately subbipinnatifid, softly pubescent; calix hirsute, peduncle much shorter. HAB. In the sandy pine forests of Carolina and Georgia. A much finer plant than the common species and probably distinct; the laciniæ and serratures diverge nearly at right angles; flowers very large and yellow.

Probably an American genus, excluding the species of Africa and India.

435. SEYMERIA. *Pursh.* AFZELIA. *Gmelin.*

Calix 5-parted nearly to the base. *Corolla* rotate-campanulate, almost equally 5-lobed.

Stamina scarcely unequal, subsessile, inserted near the orifice; anthers oblong, naked. *Style* declinate. *Capsule* ventricose-ovate, acute, 2-celled, 2-valved, opening at the summit.

Herbaceous plants with opposite pinnatifid leaves, and yellow oppositely disposed flowers; lobes of the corolla rounded and entire, orifice and short tube internally pubescent; filaments scarcely any, pubescent, anthers mostly smooth, oblong, and nearly equal, 2-celled, opening longitudinally. In one, if not all of the species, there exists an imperfect fifth stamen, thus pointing out the affinity of this genus to *Celsia* and *Verbascum* and so to the natural order of SOLANACEÆ. Capsule ventricose-ovate, acute, and compressed at the summit, partly 4-lobed, 2-celled, somewhat 4-valved, being readily separable in the line of the medial coriaceous dissepiments; seminal receptacles 2, round, small, and pendulous from the centre of the dissepiments, neither compressed nor marginated as in the preceding genus. Seeds angular, with alated margins.

SPECIES. 1. S. **macrophylla*. Stem tall and branched; leaves large, nearly smooth, lower ones subpinnatifid or deeply toothed, the upper lanceolate and entire; flowers subsessile, shortly campanulate, orifice and tube densely lanuginous; stamina scarcely exserted. HAB. In shady alluvial soils on the banks of the Little Miami, (Ohio,) near the town of Lebanon. Flowering in July. A very distinct species much resembling *Gerardia flava* in herbage, 4 or 5 feet high, distinctly connecting this genus with the preceding, and indicating by its disparity with the following species, the probable existence of several more in some of the unexplored recesses of North or South America. Leaves from 3 to 6 inches long, attenuated towards the petiole, which is short. Calix only divided about half way down, segments partly ovate and often foliaceous. Corolla yellow, with a distinct tube, about the size of that of *Verbascum Thapsus*, but more like a *Gerardia*; border deeply 5-parted, lobes rounded, orifice and tube filled with a matted woolly pubescence. Stamina almost equal, oblong, and quite smooth; towards the base of the tube there is a fifth stamen often almost perfect. Stigma subcapitate. Capsule small, ventricose, with a compressed point. Receptacles 2, roundish, dissepiment bipartile. A hardy and curious plant, well worth cultivating.

2. *pectinata*. PH. OBS. Extremely branched; leaves small, pinnatifid, segments simple, linear, terminal one

broader, obtuse; corolla subrotate, stamina exserted; capsule pubescent. HAB. From North Carolina to Florida. Common. 3. *tenuifolia.* PH. Leaves smooth and pseudopinnate; segments filiform, divided; corolla nearly rotate; stamina exserted; capsule smooth. HAB. Much more rare than the preceding; in Georgia and Florida. Stem hirsute, divaricately and profusely branched; leaves extremely slender; flowers somewhat resembling those of *Cassia* as well as the preceding; stamina linear-oblong, in both species nearly equal; capsule ventricose-ovate, acute, with the summit compressed.

A North American genus.

436 PEDICULARIS. *L.* (Lousewort.)

Calix ventricose, half 5-cleft. *Galea* (or upper lip of the *corolla*) emarginate and compressed. *Capsule* bilocular, mucronate, oblique. *Seeds* angular, tunicated.

Leaves opposite or alternate, multifid, mostly pinnatifid; flowers opposite or alternate, bracteate, aggregated in short terminal spikes.

SPECIES. 1. P. *Euphrasioides.* 2. *pallida.* Stem tall, smooth, and branched, pubescently lined; leaves lanceolate, pinnatifidly toothed, incisions crenulate and scabrous on the margin; flowers distinct, subsessile; point of the galea, truncated; calix bifid, segments rounded. *P. serotina.* Muhl. Catal. HAB. Very common throughout the sandy swamps in New-Jersey. Flowers straw yellow. Capsule short and broad ovate. I am very well satisfied that *P. lanceolata* of Michaux is nothing more than a specimen of this plant with a simple stem, which I have frequently seen thoughout the western states as far as the neighbourhood of St. Louis, Louisiana. 3. *gladiata.* 4. *canadensis.*—The following species with No. 1. are either indigenous to Labrador or the North West Coast. 5. *resupinata.* 6. *recutita.* 7. *elata.* 8. *lapponica.* 9. *grœnlandica.* 10 *verticillata.* 11. *flammea.*

A genus of near 40 species, indigenous to the colder or alpine regions of Europe, America, and Siberia, extending to the ultimate limits of phænogamous vegetation.

437. MIMULUS. *L.* (Monkey-flower.)

Calix prismatic, 5-toothed. *Corolla* ringent: upper lip reflected at the sides; palate of the

lower lip prominent. *Stigma* thick and bifid. *Capsule* 2-celled, many-seeded. *Seeds* minute.

Mostly herbaceous plants, with prominently quadrangular stems and opposite leaves; peduncles solitary and axillary, 1-flowered, destitute of bractes; colour of the flowers blue or yellow.

Species. 1. M. *ringens.* 2. *alatus.* Nearly allied to the preceding. 3. *luteus.* 4. *Lewisii.* Ph.

A small genus of 6 species, partly indigenous to both North and South America.

438. CHELONE. *L.*

Calix 5-parted, tribracteate. *Corolla* ringent, ventricose. *Sterile filament* shorter than the rest; *anthers* lanuginous. *Capsule* 2-celled, 2-valved. *Seeds* membranaceously margined.

Herbaceous plants with opposite leaves; flowers subimbricately spiked, terminal; lower lip of the corolla internally bearded; capsule oval. (*C. barbata* is a *Pentstemon*, and therefore an exception to the artificial character.)

Species. 1. C. *glabra.* Leaves lanceolate-oblong, acuminate, serrate, subsessile, smooth. β * *lanceolata.* Leaves lanceolate, conspicuously acuminate, serrate, sessile, under side pubescent; bractes scarcely dilated; segments of the calix oblong. Probably a distinct species. 2. *obliqua.* 3. *Lyoni.* *v. v.* Near Wilmington, (N. Carol.)

A North American genus.

439. PENTSTEMON. *L.*

Calix 5-leaved. *Corolla* bilabiate, ventricose. The *fifth* sterile filament longer than the rest and bearded on the upper side. *Anthers* smooth. *Capsule* ovate, 2-celled, 2-valved. *Seeds* numerous, angular.

Herbaceous and perennial plants, rarely shrubby or suffruticose; leaves opposite, entire, flowers paniculate, purple, rarely scarlet, or blue; corolla usually bilabiate, oblong and tubular; the upper lip shorter, 2-lobed, and coarctate; orifice usually pubescent; in several other species, however, the corolla appears nearly campanulate and with the border almost equally 5-lobed, in these the sterile filament is less conspicuous.

† *Upper lip of the corolla compressed; the lower plaited.*

Species. 1. P. *lævigatum.* 2. *pubescens.* Leaves in both these species repandly serrulate, and with the orifice of the lower lip pubescent. 3. **gracile.* Stem smooth and slender; leaves smooth, linear, acute, subamplexicaule, sharply serrulate; panicle simple, few-flowered; sterile filament longitudinally bearded; corolla internally smooth, segments of the calix linear-oblong. Hab. From the Arikarees to Fort Mandan, in depressed soils. Flowering in June. Allied to *P. pubescens,* but perfectly distinct. Flowers the smallest of the genus, pale purple. Radical leaves lanceolate-ovate, entire; stem leaves opaque, and pungently serrulate, remote.

† *Corolla subcampanulate, border almost-equally 5-lobed.*

4. * *cristatam.* Fras. Catal. 1813. *P. erianthera.* Ph. 2. p. 737. Obs. Pubescent. Stem 6 to 8 inches. Radical leaves lanceolate and denticulate; cauline sessile, linear-oblong, sublanceolate. Pedicells axillary and terminal, 1 to 3-flowered, very short. Calix subhirsute, segments linear-lanceolate, acuminate. Corolla large and violaceous, ventricose; border 5-lobed, spreading, orifice of the lower lip and the whole upper surface of the subexserted sterile filament very conspicuously and cristately bearded. Hab. On arid denudated argillaceous hills from the confluence of Teeton river and the Missouri to the Mountains. 5. *frutescens.*

6. * *erianthera.* Fras. Catal. *P. glabra.* Ph. 2. p. 738. Bot. Magaz.—Very smooth; leaves sessile, ovate-lanceolate, entire, margin partly undulated; peduncles many-flowered, secund; segments of the calix rounded-oval, acuminate; sterile filament slightly bearded under the retuse point; anthers pubescent. Hab. In arid soils near the confluence of Shian river. Flowering in June. Flowers purple, by cultivation very numerous, as in the figure in Curtis's Magazine. The pubescent anthers distinguish this from every other known species, but it never amounts to the tomentum of *Chelone.*

7. * *cæruleum.* Smooth and glaucous; radical leaves sublinear, cauline sublanceolate-linear, all entire and sessile, margin minutely pubescent; sterile filament short and bearded above; leaves of the calix lanceolate, acute; peduncles many-flowered; corolla subcampanulate, azure blue. Hab. On the plains of the Missouri, near Fort Mandan and the Indian towns. Rare. *P. angustifolium.* Fras. Catal. and Ph. 2. p. 738, but as *P. gracile* is also equally narrow-leaved, and the beautiful and peculiar color of the flower so characteristic, I could not refrain

from adopting it in preference to that which I had formerly given, previous to my becoming acquainted with the flower, which Mr. Shepherd obtained from a plant that I had presented to the Botanic garden of Liverpool. The plant somewhat resembles *P. barbatum* of Mexico (*Chelone barbata*) but the flower is tubular-campanulate, with an almost equally 5-cleft, border, and of a beautiful azure blue, without the smallest tinge of violet; a color so prevalent in all the other species.

8. * *albidum*. Stem very low; leaves ovate-lanceolate; subserrulate, smooth and sessile; flowers partly fasciculated, axillary and terminal; sterile filament slenderly and interruptedly bearded; corolla internally smooth and partly tubular, border almost equally 5-cleft, spreading; leaves of the calix linear-lanceolate, pubescent. HAB. On the plains of the Missouri, common, from the confluence of the river Platte to the Mountains. *P. teretiflora*. Fras. Catal. 1813. The humblest species of the genus, rarely exceeding 6 or 8 inches in height; stem somewhat angular. Leaves approximating. Flowers usually white.

9. * *grandiflorum*. Fras. Catal. 1813. Very smooth and glaucous; leaves entire; radical suboval, cauline amplexicaule, roundish-oval, with an abrupt point; flowers large, mostly solitary and axillary; corolla campanulate, border 5-lobed, spreading; sterile filament partly pubescent at the summit. *P. Bradburii*. PH. HAB. On the plains of the Missouri, common, from the confluence of the river Platte to the Mountains; also near the Prairie du Chien, Mississippi. A splendid and beautiful species, about 3 feet high, flowers variously tinged, as large as those of *Digitalis purpurea* which they not unaptly resemble.

A North American genus and probably an extensive one.

440. MARTYNIA. *L.*

Calix 5-cleft. *Corolla* ringent. *Capsule* ligneous, corticate, 4-celled, 2-valved, each of the valves terminating in a hooked rostrum.

Annual plants with opposite or alternate leaves; flowers racemose axillary or terminal.

SPECIES. 1. M. *proboscidea*. Common around Lewistown in Delaware, also on the banks of the Ohio and Mississippi. The whole plant is remarkably viscid, the singular form of its large fruit has obtained it the name of Cuckold's-Horns.

† † *Calix* 4-cleft.

441. SCHWALBEA. *L.*

Calix ventricose, tubular, obliquely 4-cleft; upper segment shortest, the lower large and emarginate or bidentate. *Corolla* bilabiate, upper lip entire, arched, the lower 3-lobed. *Capsule* ovate-subterete, 2-celled, 2-valved; dissepiment produced by the inflected margin of the valves, and parallel with the longitudinal receptacle. *Seeds* numerous, imbricated, linear, and alated.

Perennial and herbaceous; leaves alternate, entire; flowers axillary, racemose, alternate, shortly pedicellate; calix mostly marked with 10 or 12 angular striatures and conspicuously bibracteate at the base. From the structure of the capsule, no plant can more decidedly belong to the ANTIRRHINEÆ than this, having no vestige of a transverse septum, the capsule cylindric-ovate, and opening longitudinally, always below the adhering summit.

SPECIES. 1. S. *americana*. Generally occurring on the borders of sphagnose swamps not far from the sea-coast? from the state of New-York to Florida.—The only species of the genus.

442. * EUCHROMA.† BARTSIA. *L.* (Painted-Cup.)

Calix spathæform, bifid, and emarginate, or quadrifid, with the segments subulate. *Corolla* bilabiate, upper lip very long and linear, embracing the style and stamina; lower lip short and trifid, without glands. *Anthers* linear, with unequal lobes, all cohering in the form of an oblong disk. *Capsule* compressed, ovate, oblique, 2-celled, 2-valved; dissepiment medial, bipartile. *Seeds* numerous, and small, surrounded with a membranaceous inflated vesicle.

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† *Finely coloured*, in allusion to the common name of "Painted Cup," from its brilliant colouring.

Herbaceous; stem simple, leaves alternate, sessile, palmately cleft; flowers solitary, axillary, sessile, marcescent; sometimes subtended by coloured bractes.—(Calix irregular, long and tubular, in *E. coccinea* only 2-lobed, lobes retuse, coloured, and slightly emarginate; corolla constant in form, slenderly tubular, of an obscure and greenish yellow, upper lip 2 or 3 times the length of the lower one, entire; lower lip trifid, segments plaited and acute. Stamina seated upon nearly the same line of the orifice; anthers smooth, long and linear, all cohering together, producing a disk which is poliniferous at its surface, in consequence of this coherence the 2 lobes of each anther are unequal, the inner lobe being always shorter. Style very long and filiform; stigma scarcely bilobed. Capsule ovate, acute, compressed and oblique, in the earliest stage of the germ bursting the base of the corolla tube. Seeds small, each inclosed in a reticulated membranous inflated vesicle, attached to the receptacular margins of the transverse septa. Proper receptacle obsolete. Is this genus as distinct from *Castilleja* as from *Bartsia?*)

Species. 1. E. *coccinea*. Annual or biennial; leaves and coloured bractes divaricately trifid; calix bifid, nearly equal with the corolla, segments retuse and emarginate. (*Bartsia coccinea*, L.) 2. * *grandiflora*. Perennial; leaves and uncoloured bractes mostly trifid, segment divaricate; calix 4-cleft, partly oblique; corolla longer than the calix, segments of the lower lip acuminate. Hab. On the plains of the Missouri from the confluence of the river Platte to the Mountains, common; also near the Prairie du Chien, Mississippi. Flowering from April to May. *Castilleja sessiliflora*. Ph. 2. p. 738. Obs. Stem simple, and with the leaves pubescent. Flowers pubescent, slenderly tubular and curved, 2 to 3 inches long, greenish-white, a little rosaceous; upper lip nearly green, attenuated; segments of the lower lip linear-lanceolate, acuminate, shorter than the upper, plaited. Style and stamina smooth, enfolded by the upper lip, exserted. Capsule and seed as in *E. coccinea*.—A very distinct species, but inseparable in genus from the preceding, notwithstanding the disparity of the calix, in every important particular besides they agree; other species will probably one day be discovered, connecting these 2 more closely.

243. BARTSIA. *L.*

Calix 4-cleft. *Corolla* ringent; upper lip concave, entire, the lower trifid and reflected. *An-*

thers equally lobed, uncombined. *Capsule* 2-celled, 2-valved. *Seeds* angular.

Herbaceous; leaves entire, alternate and opposite; flowers alternate, bracteate, in terminal racemes; color blueish, purple, or yellow.

Species. 1. B. *pallida*. 2. *acuminata*. Ph. 3. *tenuifolia*. Ph. Is not this a bad specimen of *Euchroma grandiflora*, at all events not a species of this genus? 4. *alpina*. 5. *Gymnandra*. Thriving near the limits of phænogamous vegetation, within the arctic circle.

Partly an alpine and European genus, extending to the Levant.

444. RHINANTHUS. *L.*

Calix 4-cleft, ventricose. *Corolla* ringent; upper lip mostly compressed. *Capsule* bilocular, obtuse, compressed.

Herbaceous; leaves opposite, mostly toothed or serrate; flowers opposite, bracteate, in terminal spikes.

Species. 1. R. *Crista-galli*. Hab. In Canada.

A genus of 10 species, dispersed through both hemispheres from Siberia to India; within its proper limits perhaps solely European.

445. EUPHRASIA. *L.* (Eye-Bright.)

Calix cylindric, 4-cleft. *Corolla* bilabiate; upper lip bifid; lower 3-lobed; segments bifid. Lobes of the 2 lower anthers spinulose.

Herbaceous, or suffruticose; leaves opposite or alternate; flowers bracteate, axillary, producing terminal racemes.

Species. 1. E. *officinalis*. 2. *latifolia*. The first indigenous to Canada the second to Labrador.

A small genus of about 15 species, chiefly European, and extending into Barbary.

446. *ORTHOCARPUS.†

Calix tubular, semiquadrifid. *Corolla* bilabiate, closed; upper lip smaller, compressed,

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† The *straightness* of the fruit, readily distinguishing this genus from *Melampyrum*.

with the margin inflected; lower concave, obsoletely 3-toothed, unexpanded. *Anthers* unconnected; lobes unequal, divaricate. *Capsule* straight, elliptic-ovate, 2-celled, 2-valved, many-seeded, opening on both sides; dissepiment transverse. *Seeds* small, with an alated lunate margin.

Annual; stem simple; leaves alternate, entire; flowers axillary, alternate, sessile, and bracteate; bractes divaricately trifid.

Species. 1. O. *luteus*.

Descript. Root tortuous, perpendicular, and fibrous. Stem simple, hirsutely pilose, terete. Leaves increasing in size upwards, alternate, sessile, lanceolate-linear, acute, entire, opaque, and as well as the bractes and calix shortly and somewhat viscidly pubescent, margins scabrous; bractes cuneate, divaricately trifid, about an inch long and the same in width, 3-nerved. Calix much shorter than the bractes, partly compressed, striated, subcampanulate, segments linear-lanceolate, acute. Corolla yellow, smooth; tube slender, about the length of the calix; both of the lips concave, inflected, and closed, the lower somewhat plaited and terminated by 3 minute dentures, so inconspicuous as to give the corolla the appearance of being destitute of an under lip. Stamina 4, small; filaments capillary, ingrafted upon the upper lip a little below the orifice, approximating by pairs under the same lip; anthers pale, unusually small, 2-celled, distinctly and separately 2-lobed, lobes pubescent, not parallel, one acute-angularly diverging from below the summit of the other, almost exactly similar to the small *lamdba* of the Greek alphabet (λ). Style filiform, stigma simple, minute. Capsule elliptic ovate, obtuse, staight and pubescent, included within the calix, 2-celled, 2-valved, many-seeded, margins of the valves partly inflected; dissepiment transverse, or origining from the middle of the valves and seminiferous. Seeds small, more than 10, having an alated interrupted margin. Cotyledones 2, very small, upon the growing plant, oval. Hab. In humid situations on the plains of the Missouri, near Fort Mandan; very local. Flowering in July and August. Height about 12 or 14 inches. Growing in quantities. Flowers of a bright and uniform yellow, almost of the size and form of the common species of *Melampyrum* at first sight. In point

of affinity it cannot be compared with any other genus, notwithstanding its marked distinction.

447. MELAMPYRUM. *L.* (Cow-wheat.)

Calix 4-cleft. Upper lip of the *corolla* compressed, margin folded back; lower lip grooved, trifid, subequal. *Capsule* 2-celled, oblique, opening on one side; cells 2-seeded. *Seeds* cartilaginous, cylindric-oblong.

Herbaceous; leaves opposite, with entire margins; flowers opposite, often secund, terminally racemose; bractes more or less pinnatifid.—(Stamina, in *M. lineare*, scarcely unequal; anthers cohering longitudinally. Perisperm in the form of the seed, cartilaginous, almost resembling a grain of wheat, embryon minute, immersed near the summit, erect; cotyledones and radical nearly equal.)

Species. 1. M. *lineare*. Common. Flowers pale yellow with a tinge of purple. 2. *latifolium*. Muhl. Catal. Hab. In Delaware.—A small genus, and except the present species, exclusively indigenous to Europe.

448. OROBANCHE. *L.* (Broomrape.)

Calix 4 or 5-cleft, segments often unequal. *Corolla* ringent. *Capsule* ovate, acute, 1-celled, 2-valved; seeds numerous. A *gland* beneath the base of the germ.

Herbaceous and subcarnose plants destitute of verdure, mostly brownish, or approaching to white, parasitic upon the roots of plants; roots short and somewhat tuberous, imbricated with scales; stem alternately squamulose, often simple; flowers bracteate, terminally spiked, rarely solitary.

Species. 1. O. *americana*. Often growing in vast clusters at the roots of trees in the most shady forests, (near Philadelphia rare. W. Bartram.) 2. * *ludoviciana*. Pulverulently pubescent; stem very low and simple; flowers and ovate acute scales subimbricated; calix unequally and deeply 5-cleft, bibracteate; corolla recurved, 5-cleft; stamina included, smooth. Hab. In sandy alluvial soils, around Fort Mandan, abundant, and not apparently parasitic. Obs. 3 or 4 inches high; flowers very numerous and crowded, much longer than the bractes.

Calix partly lobed, but monophyllous, segments 5, long, linear, and acute. Upper lip of the corrolla bifid; lower trifid, and plaited, purple. Anthers whitish, lobes acute at the base.

* GYMNOCAULIS. *Calix and corolla almost equally 5-cleft.*

3. * *fasciculata.* Stem short and simple; peduncles many, naked, nearly terminal, and about the length of the stem; scales few, ovate and concave, pubescent; lobes of the corolla very short, rounded, and naked on the margin. HAB. With the above. Flowering in June and July. Very nearly allied to the following. OBS. 4 or 5 inches high, densely and pulverulently pubescent. Stem angular, with few scales, terminating in 6 or more naked filiform peduncles, 2 to 2 1-2 inches in length. Calix campanulate, semiquinquefid, segments sublanceolate, acute, little more than one-third the length of the corolla. Corolla curved, tubular, dilute purple; segments of the border scarcely more than a line long; lower lip producing a grooved palate. Stamina smooth, lobes of the anthers acute below, opening marginally and longitudinally, the lobes being parallel. Capsule 1-celled, ovate, acuminate.

2. * *biflora.* Stem very short, often obsolete; mostly 2-flowered, peduncles scapiform, naked; scales smooth, concave; lobes of the corolla oblong-oval, with a pubescent coloured margin. *O. uniflora.* L. HAB. Common in shady woods throughout the Atlantic states. OBS. Stems rarely more than an inch, often several together, producing 5 or 6 smooth scales; peduncles naked, 4 to 6 inches long, somewhat pubescent. Calix and corolla as the preceding, tube also recurved, lobes flat, and nearly equal, twice as deep as in the preceding, yellowish white, as well as the whole corolla, marked with faint blue veins, margin elegantly bordered with an azure blue pubescent line, very conspicuous in the early stage of the flower; under side of the tube also furnished with a grooved palate after the manner of the genus; the ridges yellow on the inner side. Anthers obcordate, and with the filaments smooth, pubescent on the margin of the cells, lobes parallel and acute below; stigma bilammellate, perforate, lobes rounded and acuminate, nearly smooth, lower lobe arched over the stamina. Capsule 1-celled, parietal placentulæ 4; seeds minute.

A genus principally indigenous to Europe and the temperate parts of Africa in both hemispheres, with a few species also in Siberia.

449. *EPIFAGUS.† OROBANCHE. *L.* (Beech-drops. Cancer-root.)

Polygamous.—*Calix* abbreviated, 5-toothed. *Corolla* of the infertile flower ringent, compressed, 4-cleft, lower lip flat: fertile flower minute, 4-toothed, deciduous. *Capsule* truncate, oblique, 1-celled, imperfectly 2-valved, opening only on one side.

A somewhat carnose herbaceous plant, destitute of verdure as in the preceding genus, and parasitic only upon the roots of the Beech; stem virgately branched, branches simple, every where distantly floriferous; scales small and remote, commencing from the extremity of the root, subtending both radical fibres and flowers, upper parts of the branches producing perfect flowers but abortive fruit, lower imperfectly formed flowers fructiferous! capsule coriaceous, roundish and small, with the character of *Melampyrum*, but truncated, at length extending by moisture in the form of a cup.

SPECIES. E. **americanus.* (Orobanche virginiana. L.) Equally indigenous to every part of North America.

OBS. Root tuberous and carnose, squamiferous, radicles axillary, fragile, short and divaricately branched. Stem and the whole plant, nearly smooth, branched from the base, 12 to 18 inches high, branches about 6 to 9, long and furnished with small ovate scales, shorter than the subpeduncolated calix. Flowers distant and alternate, destitute of proper bractes, subtended by the cauline scales. Calix short and cup-shaped, only about half the length of the capsule, border angularly crenate, crenatures 5, acute. Fruiting corolla very small, 4-toothed. rarely expanding, elevated and rendered deciduous by the obliquity and rapid enlargement of the germ; later flowers produced towards the summits of the branches, conspicuous, more than half an inch long, tubular, compressed, and bilabiate, upper lip subemarginate; the lower 3-toothed, flat, and acute, without any intermediate plaits or palate, colour white, with dark but bright purple stripes. Stamina 4,

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† Nearly similar to the common and appropriate name of "Beech-drops," by which this plant is almost universally known; from being commonly parasitic upon the roots of the Beech, (*Fagus sylvatica*, and *F. ferruginea.*)

free, partly exserted; filaments smooth; anthers pubescent, small, lobes parallel, opening centrally, not on the margin, destitute of distinct valves, acute below. Style simple, smooth, stigma capitate, excentric, slightly emarginated. Gland under the germ going merely half round. Capsule small, roundish, and gibbous, opening only on one side and therefore semibivalve, placentulæ obsolete. Seeds very numerous, minute, and of a pale colour, ovate, the embryon still more minute, situated near the summit of a somewhat corneous perisperm, not unlike that which is more obvious in *Melampyrum*.

Class XIV.—TETRADYNAMIA.

Order I.—SILICULOSA.

450. **CAKILE.** *Gærtner.* (Sea Rocket.)

Silicle sublanceolate, 4-angled, biarticulate, separating at the articulation; articulations dissimilar, the lower emarginate, each 1-seeded and valveless.

Succulent herbaceous maritime plants, with alternate leaves, after the manner of the whole class; fruiting branches racemose; flowers pale purple.

Species. 1. C. * *americana.* Leaves carnose, entire, cuneate-oblong, obtuse, margin toothed; both articulations often seminiferous, uppermost ovate, acute. Hab. Common on the strand of the sea-coast, and also on the shores of the great North Western Lakes of the St. Laurence. Certainly distinct from *C. maritima.* Obs. Plant large, much branched and subdecumbent, of a deep green, no way glaucous, leaves smooth and carnose; flowers inconspicuous, small; petals oval, claws slender; lower articulation of the fruit subterete, often equal with the upper, emarginate, producing on either side a small setaceous tooth. In fruit this species approaches *Bunias,* and seems to evince the propriety of again uniting these 2 genera.

Of this small genus there are 2 other species in Europe.

451. **DRABA.** *L.* (Whitlow-grass.)

Silicle entire, oval-oblong, valves flattish, parallel with the dissepiment. *Style* scarcely any.

Stem leafy or partly naked, with the leaves radically crowded; pubescence stellate or divided as in *Alyssum.*

Species. 1. D. *verna.* 2. *caroliniana.* Petals and style none. 3. *nivalis.* 4. *glabella.* Ph. 5. *nemoralis.* Obs. Stem sparingly branched; radical leaves spathulate-oblong, cauline few, sessile, ovate, subdentate, raceme very long; flow-

ers small and yellowish; silique elliptic-oblong, pubescent. Flowering in May. On the gravelly hills of the Missouri, from the river Platte to Fort Mandan, rare. 6. *incana*; 7. *Arabis*.

Almost exclusively an European genus.

452. ALYSSUM. *L.* (Gold of Pleasure.)

Filaments of 2 of the stamina often internally toothed near the base. *Silicle* 2-celled, entire, acuminated with the style, mostly pubescent, subelliptic or globose.

An obscurely defined genus. Most of the species as in *Arabis* are furnished with a divided or stellate pubescence; stems suffruticose as well as herbaceous; leaves generally entire, flowers often yellow, the species with this colour are said to be those only which produce the denticulated filaments, (an American species with yellow flowers, and inflated globose pods, is totally destitute of this distinction and yet unquestionably an *Alyssum*.)

SPECIES. 1. A. * *dentatum*. Stem erect, and herbaceous, recemes paniculate, axillary; radical leaves subruncinately toothed, and somewhat asperate, cauline linear-lanceolate, sessile, nearly smooth, and partly entire; silicle elliptic, compressed, pubescent and contorted, terminated by a style nearly its length; peduncle longer than the silicle. *Draba Arabisans*, PH. not of Michaux? A plant so distinct, could scarcely bear comparison with *Draba incana*. OBS. Perennial or nearly so; (I have before me specimens clothed with the vestigia of 3 years.) Pubescence thin and not communicating any thing of a hoary appearance so common in this genus, hairs with only 4 rays, or decussated at right angles. Leaves all lanceolate and acute, those of the stem remote. Seeds brown, elliptic, and compressed, scarcely margined. Flowers not seen. HAB. On the shelvings of slate rocks; near Harper's Ferry in Virginia. *v. s.* In Herb. Muhl.

2. **ludovicianum*. Herbaceous and spreading; argenteously tomentose; stems numerous, simple, angular; leaves linearly spathulate, entire, obtuse, attenuated; silicles elliptic, inflated, pubescent. *Myagrum argenteum*, PH. 2. p. 434. HAB. On the high hills of the Missouri, and on the shelvings of rocks. Flowering in April and May. OBS. 6 to 8 inches high. Perennial. Calix oblong, erect. Petals obovate, entire, golden yellow. Filaments simple. Peduncles about an inch long. Silicle tomentose, 2-valved, 2-cel-

led, many-seeded, style terete, about the length of the silicle.

3. *hyperboreum*. HAB. On the N. West Coast.

An extensive genus of near 40 species, principally indigenous to the mountains of Europe, and the temperate parts of Northern Africa and Asia. The southern hemisphere does not appear yet to have afforded a single Alyssum, without we consider with Persoon *Draba magellanica* as such.

453. CORONOPUS. *Gærtner*. (Wart-Cress.)

Silicle **reniform, compressed, and corrugated, cells valveless, 1-seeded.**

A genus in sensible properties and vegetation similar to Lepidium. Leaves entire or pinnatifid. Stamina in *C. didyma* 2 or 4. Corymb lateral or terminal.

SPECIES. 1. C. *didyma*. Abundant along the margins of the Mississippi and Missouri, common also in Carolina with the following. 2. *Ruellii*.

A genus of 4 species, 2 indigenous in common to Europe and America. *C. didyma* was also, I believe, remarked around Port Jackson in New Holland by Mr. R. Brown. Two other species are now added to the genus, 1 from Madagascar, the second from Monte-video, and not apparently very distinct from entire leaved specimens of *Lepidium virginicum*.

454. LEPIDIUM. *L.* (Cress.)

Silicle **emarginate, elliptic, cells 1-seeded, valves carinate, dissepiment contrary.**

Leaves often pinnatifid or deeply serrated, many of the stamina and in some species the petals defective.

SPECIES. 1. L. *virginicum*. Leaves linear-lanceolate, mostly all entire, but deeply serrate, flowers diandrous; silicle lentiform and emarginate, cells 1-seeded; stem branched towards the summit.—Common every-where. Flowers minute.

An extensive genus of near 40 species, indigenous to Europe, Siberia, the Levant, the Society islands, and the Cape of Good Hope.

455. THLASPI. *L.* (Shepherd's-purse.)

Silicle **emarginate, obcordate, many seeded: valves navicular, with a carinate margin.**

Leaves entire, except in the commonest species *T. Bursa pastoris*, in which the radical ones are pinnatifid, and the silicle moreover triangular and without margin; this was the *Capsella* of Cæsalpinius, and ought perhaps to be separated from this genus. In the other species the capsule varies in form, and the cells are also sometimes 1-seeded, consequently there is no precision in the artificial character, though there is something in the habit or mode of vegetation which appears to distinguish a Thlaspi.

Species. 1. *T. arvense.* A common weed around Detroit, (Michigan Territory.) 2. *alliaceum.* This species sometimes occurs in fields of grain or flax, in such situations I have observed it in the state of Ohio. 3. * *tuberosum.* Silicle suborbiculate, short and compressed; leaves rhomboid-ovate, obsoletely toothed, smooth, and sessile, radical ones upon long petioles; stem pubescent, very short and simple; root tuberous and fibrous. Hab. In Western Pennsylvania. Flowering in April and May. Not more than 4 or 5 inches high; flowers rather large, like those of an Arabis, rosaceous. 4. *Bursa pastoris.*

Principally an European genus.

456. LUNARIA. *L.* (Moonwort.)

Silicle entire, elliptic, flat and pedicellate; valves flat, equal with the parallel dissepiment. Two of the leaves of the *calix* saccate at the base and coloured.

Leaves simple, the lower ones often opposite. Silicle very large.

Species. 1. *L. annua.* Beginning to be naturalized in several localities around Philadelphia; as near Gray's Ferry, &c. accompanying *Chelidonium majus.*

An European genus, its natural limits as yet confined to 2 species.

Order II.—SILIQUOSA.

457. DENTARIA. *L.* (Toothwort.)

Silique springing open elastically and the valves "nerveless" and revolute. *Dissepiment* partly fungose. *Stigma* emarginate. *Calix* longitudinally connivent.

Roots tuberous, tubercles dentoid; leaves ternate, rarely digitate or pseudopinnate, opposite, alternate, or in threes. Stems scapiform, simple; flowers dilute purple, rarely yellowish. Mr. R. Brown in Hort. Kew. 4. p. 101. unites this genus with Cardamine and probably with propriety; at the same time the habit of *Dentaria* is very distinct.

Species. 1. D. *laciniata*. Leaves in 3s, ternate, leaflets 3-parted, oblong, unequally and incisely toothed, margin naked; root moniliform. 2. *diphylla*. Stem 2-leaved, leaflets ternate, ovate-oblong, unequally and incisely toothed; root dentate; flowers yellowish.

3. * *heterophylla*. Stem 2-leaved, leaves ternate, petiolate, leaflets linear, sublanceolate, acute, entire, margin asperate, ciliate; radical leaflets ovate-oblong, incisely and grossly toothed. Hab. In western Pennsylvania; (in the shady Fir woods on the banks of Wishahikon creek, a few miles from Philadelphia.) Obs. The smallest species with which I am acquainted. Root concatenately and also simply tuberous, tubers oblong, dentoid. One radical leaf always present upon a long petiole arising from the base of the scape, deeply toothed, dentures obtuse, with a small abrupt point; cauline leaflets very rarely subserrate, generally entire, invariably ciliated, nearly linear, more than an inch long, and only about 2 lines wide. Corymb small, about 9-flowered; flowers pale purple, nearly the size of those of *Cardamine pratensis*, petals oblong, entire, longer than the stamina. Flowering in June. Figure Pluk. Amalth. t. 435. f. 2. ? but in this figure the leaves are a little toothed. 4. *tenella*. Ph. Leaves sessile, entire.—Columbia river. 5. * *maxima*. Stem tall, leaves usually many, alternate, ternate, axills naked, leaflets suboval, incisely and acutely toothed, lateral ones lobed; racemes lateral and terminal. Hab. In the western parts of the state of New York, and Pennsylvania. Obs. Stem often near 2 feet high. Tubers concatenate; leaves alternate, remote, 5 to 7, margin a little asperate; petioles 2 inches or more; leaflets nearly as broad as long; racemes many-flowered, flowers pale purple, petals oblong-oval, longer than the stamina. Style longer than the germ. 6. *multifida*. Muhl. Catal.

A small genus, almost exclusively indigenous to the mountainous parts of Europe, and North America.

458. CARDAMINE. *L.* (Ladies'-smock.)

Silique long, opening elastically, the valves mostly revolute and equal with the dissepiment.

Stigma entire. *Calix* partly gaping. "A *gland* situated between each of the shorter stamina and the calix." SMITH.

Leaves simple, ternate, pinnatifid or imperfectly pinnate. In some of the species there is occasionally an abortion of petals or of 2 of the stamina.

SPECIES. 1. C. *spathulata.* 2. *teres.* 3. *virginica.* 4. *uniflora.* 5. *pennsylvanica.* 6. *prutensis.* In Labrador. 7. *multifida.* PH. Leaves tripinnatifid, silique short. A *Sisymbrium?*

Within its natural limits almost exclusively an European genus.

459. BARBAREA. *R. Brown.* ERYSIMUM. *L.*

"*Silique* 4-sided-ancipital. *Cotyledones* accumbent. *Seeds* in a single series. *Calix* erect. *Glands* disposed at the internal base of the shorter filaments." R. BROWN. Hort. Kew. 4. p. 109.

Leaves lyrately pinnatifid; stem branched; flowers yellow, terminally racemose.

SPECIES. 1. B. *vulgaris.* *Erysimum Barbarea.* L. HAB. Apparently indigenous in the northern states. This species, called "Yellow Rocket," affords a fine double flowered variety.—Of this genus there is only a second species, and both are indigenous to Europe.

460. SISYMBRIUM. *L.* (Water Cress. Water Radish.)

Silique terminated by a short terete rostrum, valves nearly straight, not elastic. *Calix* and *corolla* spreading.

Leaves mostly pinnatifid, pseudopinnate, or compounded; flowers axillary and solitary, but more commonly in simple or paniculated racemes. Silique ovate, in *S. amphibium* almost similar to the silicle of some species of *Cochlearia*, in many others also short. Flowers often yellow.

SPECIES. 1. S. *Nasturtium.* Truly indigenous. Abundant on the margins of ditches and spongy springs in Long Island near New York, &c. 2. *palustre.* 3. *amphi-*

bium. Mostly pubescent, calix and petals more or less yellow. Everywhere abundant on the banks of the Missouri and Mississippi. 4. *vulgare*, Persoon (*sylvestre.* L.) Creeping Water Rocket. Silique declinate, leaves (pseudo) pinnate; leaflets lanceolate, incisely serrate. LIN. On the gravelly banks of the Delaware, near Kensington, Philadelphia. Introduced? Agrees exactly with Sr J. E. Smith's, very accurate description. Flor. Brit. 2. p. 701. I have never before seen it in America. 5. * *canescens.* Leaves pseudobipinnate, canescent; segments incisely toothed, obtuse; petals equal with the calix; silique clavate, suberect, shorter than the peduncle. HAB. From Virginia to Georgia. *S. Sophia?* PH. A much smaller plant than *S. Sophia* which it resembles only in habit, and in fact approaches nearer apparently to *S. album* of Siberia. Leaves about 3 inches long, oblong, sessile, equally covered with a whitish pubescence; pinnæ about 7 pair, nearly all equal in length, scarcely 1-2 an inch, ultimate segments cuneate and arounded, about 3-toothed, dentures unequal. Raceme terminal, petals very small, obovate, pale yellow and about the length of the calix. Silique linear-oblong, smooth, scarely more than half the length of the peduncle, and terminated by a minute style.

A genus of more than 60 species principally indigenous to Europe, there are also species in Northern Africa and in the Levant, a few are also found in the southern hemisphere, at the Cape of Good Hope, in India, New Zealand, and Terra del Fuego.

461. ERYSIMUM. *L.* (Hedge-mustard. Winter cress.)

Silique columnar, 4-sided. *Calix* closed.

An heteromorphous and arbitrary genus, artificial, but no way natural, including species scarcely distinct from *Sisymbrium*, and *Cheiranthus*, the only genuine species is considered to be *E. officinale.*

SPECIES. 1. E. *officinale.* Naturalized, but not so very common, as in England and France. 2. *parviflorum.* Persoon, (*E. Cheiranthoides.* L. an unmeaning and very exceptionable name which might be applied to more than half of the genus.) HAB. On the gravelly banks of the Potomac, &c. Virginia, on the banks of the Missouri, around the Mandan villages.

The plants which have been referred to this genus are almost exclusively European.

462. CHEIRANTHUS. *L.* (Wall-flower. Stock.)

Calix closed; 2 of the leaves gibbous at the base. *Petals* dilated. Disk of the germ biglandulous. *Silique* compressed or terete. *Stigma* bilobed. *Seeds* flat, sometimes marginated.

Herbaceous or suffruticose; leaves more or less pubescent, entire or pinnatifid; flowers yellow or purple, large, and often odorous. A genus very nearly allied to *Hesperis* and to the entire leaved species of *Erysimum*, excluding *E. Alliaria*.

Species. 1. C. *Pallasii*. Ph.—North West Coast. 2. * *asper*. Stem simple, and acutely angular; leaves canescently pilose, sublinear, entire, margin acculeately and retrorsely asperate, radical fasciculated attenuated-sublanceolate, acute, retrorsely toothed; silique very long quadrangular and divaricate; claws of the petals longer, than the calix. *Cheiranthus erysimoides*. Ph. Hab. On the plains of the Missouri, commencing near the confluence of White river. Fl. June. Obs. Biennial. Stem 12 to 18 inches high, mostly simple, but now and then branching towards the summit. Leaves every where covered with white, short, retrorse, strigose and appressed hairs; margin aculeolate, stem leaves crowded, 2 or 3 lines wide and 2 inches long. Flowers very similar to those of *C. Cheiri*, and almost equally odorous. Calix oblong, 2 of the leaves distinctly gibbous at the base. Petals dilated, claws long, limb broad obovate, bright yellow. Stigma bilobed. Silique 2 or 3 inches long, spreading, 4-sided, 2 of the angles asperate.

A genus of about 40 species, indigenous to Europe and the temperate and colder parts of Asia and Africa in both hemispheres.

463. HESPERIS. *L.* (Rocket.)

Calix closed, shorter than the claws of the petals. *Petals* for the most part obliquely bent, linear or obovate. *Silique* subterete. Lobes of the *stigma* connivent. *Seeds* immarginate.

Nearly allied to the preceding genus, having also 2 of the calix leaves gibbous at the base, and a gland at the inner base of the 2 shorter stamina. Stigma in some species sagittate at the base.

Species. 1. H. *pinnatifida*. Leaves ovate-lanceolate, sharply toothed, nearly smooth, lower and radical subpin-

natifid; siliques pedunculate, slender and spreading, mostly scabrous. HAB. Not uncommon on the banks of the Ohio, from Le Tart's rapids downwards. OBS. Root perennial. Stem 2 or 3 feet high, simple or branched, smooth, angular and grooved. Leaves ovate-lanceolate, sessile, remote, sharply and unequally toothed, thin and membranaceous, the under side minutely scabrous, lower stem leaves amplexicaule and pinnatifid only towards the attenuated base; (about 3 inches long, and 1 wide.) Raceme mostly terminal and simple, occasionally axillary. Peduncle very distinct, in the fruit half an inch long. Rachis, peduncle and silique usually scabrous. Calix ovate, a little purplish, leaves membranaceous on the margin, shorter than the claws of the petals, 2 of them distinctly gibbous at the base. Petals obtusely obovate, entire, pale purple, small. Anthers revolute. Stigma a little dilated at the base, lobes connivent. Silique rather compressed, torulose, near 2 inches long, and about the thickness of an ordinary sowing thread, shortly rostrate, curved upwards in a line with the peduncle.

A genus of about 20 species, with the above exception, exclusively indigenous to the south of Europe, and Northern Africa.

464. ARABIS. *L.* (Wall-Cress.)

"*Silique* linear (mostly compressed) crowned with the subsessile stigma; valves venose or nerved. *Seeds* disposed in a single series. *Cotyledones* accumbent. *Calix* erect." R. BROWN. Hort. Kew. 4. p. 104.

SPECIES. 1. A. *alpina.* 2. *thaliana.* 3. *reptans.* 4. *lyrata.* Perennial. Stem and upper entire linear leaves smooth and glaucous; radical leaves lyrate, often pilose; peduncle spreading, silique erect and compressed. 5. *stricta.* 6. *canadensis.* *A. falcata.* Mich. 7. *pendula?* Leaves sagittate oblong, amplexicaule, entire and smooth; silique bicipital, linear, pendulous. HAB. Near Fort Mandan on the banks of the Missouri. Stem nearly simple, spike very long. Calix and corolla erect. 8. *rhomboidea*, *A. bulbosa*, Muhlenberg. *Cardamine rotundifolia?* Mich. OBS. Radical leaves roundish, upon long petioles, proceeding from the bulb or tuber, cauline subsessile, rhomboid-ovate, sparingly and incisely toothed; flowers very much like those of *Cardamine pratensis*, but white; siliques divaricate, upon very long peduncles, linear, very smooth, flat, and

cuspidate, rather broad, somewhat lanceolate-linear or attenuated at either extremity, terminating cusp 1-4 of an inch long. 9. *hirsuta*, Brown. *Turritis hirsuta*, Willd.

A genus of about 25 species, almost exclusively indigenous to Europe.

465. TURRITIS. *L.* (Tower-Mustard.)

"*Silique* elongated, ancipital: valves nervose or carinate. *Seeds* disposed in a double series. *Cotyledones* accumbent." R. Brown.

Stem erect, simple or divided; spike long and terminal. Pubescence in this and the preceding genus forked.—Calix and corolla erect.

Species. 1. T. *lævigata*. Is this plant distinct from *Arabis canadensis*?

A small European genus.

466. * STANLEYA.†

Calix very large, rectangularly cruciate, divergent, coloured. *Petals* erect, claws exceeding the laminæ in length and connivent in a tetrahedral tube. *Stamina* subequal. *Glands* 4; 2 outside and 2 inside the corolla. *Silique* stipitate, bilocular, bivalve. *Seeds* oblong, flattish. *Embryon* flat and erect.

Herbaceous and perennial; leaves alternate and pinnatifid; flowers densely racemose, conspicuous; silique slender and very long, producing a distinct and parallel dissepiment.

Species. 1. *S. pinnatifida*. Glaucous and smooth; leaves thickish and undulated, interruptedly pinnatifid, lobes sublanceolate, remotely toothed; racemes terminal, many-flowered; flowers yellow, upon longish peduncles.

Cleome pinnata. Ph. In suppl. 2. p. 739.

Obs. Stem about 3 feet high, terete. Leaves large and

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† This genus is dedicated as a tribute of respect to the Right Honourable Lord Stanley, whose distinguished taste and talents for natural history, and more particularly ornithology, are too well appreciated to require any further illustration.

thick, resembling those of many species of *Brassica*, undulated, smooth, glaucous, interruptedly and almost lyrately pinnatifid. Flowers very numerous, raceme 12 to 18 or more inches long. Calix 4-leaved decussate, nearly an inch in diameter, of a deep and bright yellow bordering on orange, leaves ligulate, obtuse; subovate at the base, a little concave, incurvately spreading. Petals 4, erect, the claws connivent in the form of a long 4-sided tube, internally pubescent; limb short and oblong, sulphur yellow Glands 4. Stamina 6, nearly equal in length, exserted and almost double the length of the calix, 4 of them disposed by opposite pairs, (as in all other genuine Cruciferous plants;) filaments flat and subulate, anthers linear, at length recurved. Style and stigma scarcely apparent. Silique slender and conspicuously stipitate, 15 lines long, torulose, 2-celled, and 2-valved, dissepiment membranaceous and parallel. Seeds rather small, bright brown, linear-oblong, the base somewhat acute, partly plano-convex; marked with a central groove. Embryon flat and erect, not incurved. HAB. Commencing, (as we observed,) near the confluence of Paint creek and the Missouri, growing on the talus of broken calcareous cliffs; from hence it occurs locally for 2 or 300 miles further up the river, so that it appears only to occupy a limited belt which traverses the Missouri. It flowers in the month of May, and is by far the most splendid plant in the Natural Order of CRUCIFERÆ, from which it is inseparable in point of affinity, notwithstanding its very singular calix, corolla, and stipitate silique, which lay claim to the order CAPPARIDES in common with the genus *Stephania*, to which the present appears nearly allied, and holds that kind of interesting and intermediate rank which evinces the existence of a *general* and *natural* alliance throughout the vegetable kingdom. The ambiguous character of *Stanleya*, and its near affinity to the suspicious CAPPARIDES, we had occasion to prove; its large, and glaucous leaves, so much like some of the cultivated varieties of *Brassica oleracea*, had induced us to collect them as an article of diet, but to more than half of those who had partaken of this deleterious vegetable, after being boiled, it proved a violent emetic; which I suspect to be the case with most of the species of *Cleome*.

The *Brassica Washitana*, of Muhlenberg's Catalogue, will, when better known, probably prove a second species of this genus with red or scarlet flowers, as I have been informed by hunters who have traversed those regions.—Of this plant there is no specimen in Muhlenberg's herbarium.

467. CLEOME. *L.*

Nectariferous glands 3, one under each of the 3 upper calix leaves, the lower one without a gland. *Calix* 4-leaved, small and deciduous. *Petals* 4, all ascending to one side. *Capsule* siliquose, stipitate, 1-celled, 2-valved.

Principally annual plants, disagreeably scented, and somewhat actively deletereous; leaves producing 2 glands or 2 spines at the base, simple, ternate, or digitate; flowers axillary, or in terminal racemes, pedicells bracteate. Stamina 4, 6, 12, 20, or more.

Species. 1. C. *pentaphylla.*—Flowers white, extremely singular. Calix small, green, and distinctly 5-leaved. Petals roundish, upon capillary claws 3 times their length. Stamina 6, very long, originating about the middle of the styloid pedicell which supports the fruit; anthers linear and never curved.—In confirmation, in some measure, of the sagacious suspicions of Linnæus, I have now before me a somewhat viscidly pubescent specimen, in which the peduncles produce now and then a distinct prickle, thus proving the near affinity of this species to *C. heptaphylla* and *C. triphylla.* 2. *dodecandra.* Common on the sandy shores of lake Erie, near Buffaloe creek, also along the margins of the Missisippi and the Missouri. Flowers white. Pods large and sessile. The whole plant more or less viscid and fœtid. 3. * *cuneifolia.* Muhl. Catal. Every where smooth; leaves simple, cuneate, retuse, flowers racemose, hexandrous. *v. s.* In Herb. Baldwyn and Muhlenberg. Obs. Annual. Petals white, with long and capillary claws. Silique stipitate. Indigenous to Georgia.

* Atalanta. Calix 1-leaved, deciduous, margin 5-toothed. Glands none. Petals equal, subsessile. Stamina 6, monadelphous, equal; anthers revolute. Silique oblong, stipitate, 1-celled, 2-valved, terminated by a small persistent style.

Annual, and smooth, leaves ternate, flowers in terminal racemes, bracteolate, peduncle surrounded by the seceding calix.

4. *serrulata.* (*Cleome serrulata.* Ph.) Leaves ternate, glaucous; secondary leaves lanceolate, subulately acuminate, obsoletely subserrulate, petals ovate. Hab. Abundant on the alluvial and sandy margin of the Missouri for more than a thousand miles continuance. Obs. Stem 3

or 4 feet high, much branched. Leaves all ternate, very smooth and glaucous above, scarcely pubescent beneath, thickish. Stem and calix entirely free from viscid pubescence. Calix small, and cupulate, membranaceous, separating at the base it then becomes deciduous, subsiding down the peduncle upon which it remains inseparable; border crenate, 4-toothed, dentures subulate, alternating with the petals. Nothing like glands are perceptible, and the corolla appears regular. Petals 4, ovate, subsessile and spreading, of a bright violaceous purple, 2 or 3 lines long, 3 times the length of the calix. Stamina 6, equal and capillary, spreading, monadelphous at the base, arising from a second torus distinct from that of the calix, and at the base of the stipe which supports the silique; anthers oblong, small and recurved, opening dicoidly on the outer surface. Stipe at length about an inch long, supporting an oblong, and somewhat ovate, smooth silique, terminated by a short style and stigma. Receptacle without dissepiment, marginal, on either side seminiferous. Embryon incurved. The whole plant when bruised emits almost the same fœtid odor as *C. dodecandra*. If the flower affords any generic character *Atalanta* is a genus, the habit is however altogether that of Cleome; but is every plant to be considered a Cleome which produces digitate leaves, and pedicellate siliques? What affinity but this connects together *C. pentaphylla* and *C. dodecandra;* in this last, moreover, the silique is sessile, and the flower, which is solitary and axillary, furnished with only a single gland, as in *C. uniglandulosa*, of New Spain, which is probably the same plant.

A tropical genus, containing about 26 species, indigenous to India, meridional America, Arabia, and Africa; it is a singular fact that Nos. 1 and 2 of this Catalogue are equally indigenous to India, and though originating no doubt in the most ardent of climates, *Cleome dodecandra*, like many other annuals, has now extended its limits into Pennsylvania, and to the 48th degree of North latitude on the banks of the Missouri. From their active qualities, they seem to claim the attention of physicians. Some indeed are probably very deleterious. Of *C. gigantea*, produced in the fatal climate of Guinea, Linnæus remarks, that its taste is extremely burning, and its odor as remarkably virose.

Class XV.—MONADELPHIA.

I.—PENTANDRIA.

468. LOBELIA. *L.*

Calix 5-cleft. *Corolla* monopetalous, irregular, on the upper side cleft nearly to its base. *Stamina* united into a tube. *Stigma* 2-lobed; involucrate! involucrum (or indusium) bearded. *Capsule* inferior or semisuperior, 2 or 3-celled, opening at the summit. *Seeds* minute, scabrous.

Suffruticose, shrubby, rarely arborescent, most commonly herbaceous; leaves alternate, flowers minutely bibracteolate, solitary and axillary, or terminal and racemose, raceme bracteate; flowers bilabiate, 5-cleft, upper lip cloven, segments linear, lower trifid, laciniæ ovate or obovate, palate channelled or bidentate, often bimaculate. Tube of the anthers curved at the summit, bearded and perforate, at length admitting the egress of the stigma. Colour of the flowers, scarlet, fulvous, or more commonly blue.

Species. 1. L. *Dortmanna*. Leaves linear, fistulous, and bilocular, scape simple. 2. * *paludosa*. Leaves radical, aggregated, flat, linear-oblong, obtuse, carnose and lucid, margin obsoletely crenulate; scape nearly simple and naked; flowers few and very remote; disk of the lower lip thinly bearded. Hab. In deep sphagnose swamps, from Sussex county in Delaware to Georgia. A very singular species, evidently allied to *L. Dortmanna*, and like it subaquatic, but perfectly distinct. Obs. Root perennial, producing large clusters of thick fleshy leaves 4 to 6 inches long and scarcely 5 lines wide, from the centre of these arise several fistulous, angular scapes, about 2 feet in length, mostly simple, though sometimes sending out a single branch subtended by 1 or 2 leaves. Flowers pale blue and small, subtended by minute bractes, often near 2 inches apart; calix smooth. The pubescence of the lower lip in this and the following species is a peculiarity not to be met with in any of the other North American Lobelias,

and therefore importantly specific. 3. *crassiuscula*. Erect, subpubescent; stem mostly simple; leaves linear-lanceolate, serrulate, acute, and rather thick; flowers subsessile; segments of the calix reflexly denticulate; disk of the lower lip of the corolla bearded.—Flowers very few and remote, rather large, blue, calix as often smooth as pubescent. 4. *amœna*. Obs. The largest of the United States' species. Leaves more commonly scabrous than smooth, lanceolate acuminate, serrate, 6 to 8 inches long, little more than an inch broad; flowers bright blue in secund racemes. 5. *puberula*. Erect, simple and pubescent; leaves subelliptic, or elliptic-ovate, serrulate; spike secund, foliaceous at the base, bractes serrulate; calix shorter than the tube of the corolla; segments of the lower lip oval, acute.—Very nearly allied to *L. Claytoniana*, but the flowers are 3 times as large, and of finer and deeper blue. The calix is either smooth or pubescent, never ciliated. Hab. On the margins of ponds and swamps in the Pine forests of Carolina and Georgia.

6. **Michauxii*. *L. Cliffortiana*. Mich. Rather smooth, branching above; leaves petiolate, oval, crenately toothed; lower ones suborbicular; spike leafless; flowers small, pedicellate. Hab. In Virginia. Certainly distinct from *L. Cliffortiana* of Linnæus, which appears to be a South American species. 7. *Claytoniana*. Obs. Bractes entire, calix equal with the tube of the corolla, segments of the lower lip oblong, palate prominently bidentate as in *L. puberula;* spike smooth, naked below.

7. *Kalmii*. Stem smooth, erect and branching; leaves smooth, long, linear and nearly entire; raceme loose and leafy; peduncle longer than the fruit, minutely bibracteate at the summit; calix campanulate, segments lanceolate, shorter than the capsule, which is attenuated at the base. Hab. In the state of New York, &c. I have scarcely seen any plant, the flower apart, which so imposingly resembled *Campanula rotundifolia*. It is one of the slenderest and most northern species; the calix including the germ (which it properly invests throughout this genus) is perfectly campanulate; in the specimen before me, which appears luxuriant and virgately branched, some of the leaves are 2 1-2 inches long, and scarcely 2 lines wide, with here and there a minute denticulation; the fruiting peduncles are an inch in length, with the very minute and almost glanduliform bractes occupying a position on the peduncle not to be met with in any other of the species in this Catalogue; the capsule smooth, and partly vesicular, is obovate and acute below as in a Campanula! the flower is of a delicate blue, the segments of the lower lip oboval and

acute, the palate smooth, marked with 2 confluent white spots, in the centre of which are 2 greenish dentures, and 2 other spots of the same green colour towards the base of the tube. The height of the plant is from 1 1-2 to 2 feet.

8. * *gracilis.* Stem erect, minutely scabrous, simple or filiformly branched; leaves oblong-linear, minutely denticulate, partly obtuse and remote; flowers slenderly racemose, distant; peduncle coloured, shorter than the flower, bibracteate at the base; segments of the calix subulate, longer than the capsule which is obtuse below. HAB. On the dry margins of sandy swamps, from New Jersey to Carolina, and appears to be the plant which Michaux had considered as a variety of the preceding, to which it in many respects approaches, though perfectly distinct. It is the smallest and most slender species in the United States, approaching the South African species particularly *L. Erinoides*, though unquestionably different. The radical leaves are spathulate and mostly hirsute; stem leaves remote, sessile, scarcely ever exceeding an inch in length. Stem filiform, often somewhat flexuous, but erect. Peduncles only 2 or 3 lines long, in the flower blue; segments of the calix nearly double the length of the capsule. Flower blue; palate of the lower lip marked with 2 acute white lines, and 2 greenish spots with 2 others also near the base of the tube. The root is slender but apparently perennial. 9. *inflata.* Stem erect and branched; leaves ovate, subserrate, longer than the peduncles, capsule globose, inflated.—According with the habit of this genus, as it regards North America, the present species is hirsute towards the base, but smooth above, therefore Mr. Pursh's interpolation of the term "hirsutissima" in this instance will mislead rather than instruct. 10. *siphilitica.* Leaves ovate-lanceolate, subserrate, sinuses of the calix reflected. 11. *cardinalis.* Flowers bright scarlet; the tube of the stamina exserted beyond the corolla. OBS. *L. fulgens* has never yet been discovered in the United States, that species was introduced into Europe from Mexico by the celebrated traveller Humboldt; See a note in the first volume of his Travels, chap. I? p. . . .

A genus containing at present near 100 species almost peculiar to America, South Africa (the Cape of Good Hope,) and Australasia; with the exception of the United [States; the numerous and splendid species indigenous to America are chiefly tropical; Europe affords but 3.

469. PASSIFLORA. *L.* (Passion-Flower.)

Calix 5-parted, coloured. *Petals* 5, inserted

upon the calix. *Lepanthium* a filamentose crown. *Pepo* (Berry *L.*) pedicellate.

Generally climbing shrubs, rarely annual or perennial; leaves alternate and stipulate, simple, entire, 3-lobed or digitate; petiole naked or glandulous, tendrills axillary; peduncles 1 to 3-flowered, below the calix mostly articulated, the articulation subtended by a 3-leaved or 3-parted involucrum, the segments of which are entire or rarely dissected, the same involucrum sometimes minute, 1-leaved, or altogether wanting. The calix is properly speaking 10-parted, the 5 internal segments being merely petaloid.

Species. 1. P. *lutea*. 2. *incarnata*. From Delaware to Florida. Fruit edible, subacid and spongy.

A genus of 53 species, according to Persoon, exclusively indigenous to the American tropics with the sole exception of the 2 species in this Catalogue.

470. PHILOXERUS. *R. Brown.*

Calix 5-parted. *Corolla* none. *Stamina* 5, combined at the base into a small entire cup, shorter than the germ. *Anthers* 1-celled. *Stigmas* 2. *Utriculus* membranaceous, 1-seeded, valveless.

Leaves opposite, spikes terminal, capitate; flowers tribracteate.

Species. 1. P. *vermicularis*. *Illecebrum vermiculatum*. L. Hab. On the sea-coast of Carolina and Florida. Ph.

471. * OPLOTHECA.†

Calix double; exterior 2-leaved, scariose, convolute, truncated and much shorter than the interior; interior calix monophyllous, semiquinquifid and densely tomentose. *Corolla* none. *Lepanthium* cylindric, 5-toothed, staminiferous. *Stigma* simple, capitate, pubescent. *Utriculus* 1-seeded, inclosed in the indurated muricate calix.

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† From οπλον, *armour* and θηκη, *a sheath*, in allusion to the seed of this plant being protected in an armed sheath.

Herbaceous, leaves opposite, entire, without stipules; panicle simple, terminal; spikes opposite, sessile; flowers unibracteate; bractes acute, adhering to the lanuginous rachis.

SPECIES. *O. Floridana.*

DESCRIPT. Root perennial? Stem simple, erect, pubescent, glandular, terete and striate, tumid at the joints. Leaves sessile, remote, long and lanceolate, acute, upper side singularly scabrous, the papillæ minute, very numerous, and shortly piliferous, under surface densely and sericeously lanuginous. Panicle virgate, naked, simple; spikes remote, sessile, and opposite, 10 to 15 lines long. Flowers imbricated, whitish. Exterior calix diaphanously membranaceous, truncate and emarginate, about half the length of the interior; interior ovate, compressed, covered with a long and silky tomentum similar to cotton as in *Gomphrena*, summit connivent, 5-cleft, enlarging over the fruit it becomes at length cartilaginously indurated, and muricate with 2 crested lacerate margins, there are also 2 dorsal protuberances on either side near the base, so that the fruit perfectly resembles that of several species of Atriplex when deprived of the tomentum. Antheriferous tube about the length of the calix, having a margin of 5 linear teeth, anthers linear, attached by the middle. Utriculus 1-seeded, ovate-lanceolate, compressed. Seed brown. HAB. On the banks of the Altamaha, Florida.—Baldwyn. This plant appears almost intermediate by allied to *Gomphrena* and *Achyranthes.*

A second species of this genus is *Gomphrena interrupta* of Jamaica, so well illustrated by L'Heritier, Stirp. Nov. 1. p. 5. t. 3. it possesses precisely the habit of our *O. floridana*, but the leaves are spathulate and obtuse, the stem not quite erect, and the spikes approximate.

472. ACHYRANTHES. *L.*

Calix 5-leaved. *Corolla* none. *Squamulæ* 5, united into a tube at the base, the points fimbriate and alternating with the stamina. *Stigma* bifid. *Seed* solitary, covered by the connivent segments of the calix.

Shrubby or herbaceous, branching; leaves opposite and alternate; spikes terminal; flowers sessile, mostly reflected.

SPECIES. 1. A. *ficoideum.* 2. *polygonoides.* A common weed in the streets of Charleston and New-Orleans.

A tropical genus of about 26 species, chiefly indigenous to India, with a few in Africa and meridional America.

II.—OCTANDRIA.

473. PISTIA. *L.*

Calix, spatha tubulously cucullate, lingulate. *Corolla* none. *Filaments* lateral; anthers 3 to 8. *Style* 1. *Capsule* 1-celled, many-seeded.

A floating aquatic; leaves all radical, expanded in a circle; flowers axillary, subsessile, solitary, white.

SPECIES. 1. P. *spathulata.* In Carolina. Probably a mere variety of *P. Stratiotes*, which is indigenous to Asia, Africa, and America, being a genus of a single species.

III.—DECANDRIA.

474. GERANIUM. *L.*

Calix 5-leaved. *Petals* 5, regular. *Nectarium* 5 melliferous glands adnate to the base of the longer filaments. *Strilli* 5, 1-seeded, awned, awns naked and straight.

Herbaceous, rarely shrubby; leaves mostly opposite and palmately lobed; peduncles axillary, 1 or 2-flowered.

SPECIES. 1. G. *maculatum.* 2. *carolinianum.* 3. *columbinum.* 4. *dissectum.* 5. *robertianum.* This species possesses the same peculiar scent as in Europe.

An extensive genus, principally European.

475. ACACIA. *Willd.* MIMOSA. *L.*

Polygamous.—*Calix* tubulous, 5-toothed. *Petals* 5. *Stamina* 5 to 10, exserted. *Legume* 1-celled, 2-valved.

Shrubby or herbaceous; leaves once or twice pinnate; flowers mostly capitate.

SPECIES. 1. A. *brachyloba.* 2. *glandulosa.* 3. *farnesiana.*

Common around New-Orleans. A thorny and spreading. shrub 6 to 10 feet high, with very fragrant yellow flowers.

A very extensive tropical genus, almost exclusively indigenous to America and India.

476. SCHRANKIA. *Willd.* MIMOSA. *Mich.*

Polygamous.—*Calix* tubulous, 5-toothed. *Petals* 5. *Stamina* 8 to 10, exserted. *Silique* 4-valved.

Herbaceous and procumbent, aculeate; leaves bipinnate; flowers capitate, reddish.

SPECIES. *S. uncinata.* Leaves irritable, contracting from the touch. HAB. From Virginia to Florida, and throughout Lower Louisiana.—The only species known.

IV.—POLYANDRIA.

477. SIDA. *L.*

Calix 5-cleft, simple. *Style* multipartite. *Capsules* many, 1 or 3-seeded.

Shrubby or herbaceous, rarely arborescent, flowers axillary or terminal; pedicells articulated.

SPECIES. 1. *S. spinosa.* 2. *hispida.* PH. A Malva? 3. *rhombifolia.* 4. *crispa.* 5. *Abutilon.* 6. *Napæa.* PedunCles distinctly articulated. 7. *dioica.* 8. *alcæoides.*

A genus of nearly 120 species, chiefly indigenous to tropical America and India.

478. MALVA. *L.* (Mallow.)

Calix double; the exterior mostly 3-leaved. *Petals* 5. *Capsules* many, 1-seeded, disposed orbicularly.

Shrubby or herbaceous; leaves alternate and stipulate, undivided, or palmately lobed; flowers axillary or terminal, solitary, more or less aggregated or racemose. (Pubescence stellate.)

SPECIES. 1. *M. abutiloides.* 2. *caroliniana.* A Sida? *S. rotundifolia* Introduced. 4. *triloba.* In Carolina. 5. * *coccinea.* T. N. in Eras. Catal. 1813. A very beautiful species with scarlet flowers disposed in dense recemes;

outer calix wanting, leaves mostly trifid, canescently tomentose. HAB. From the confluence of the river Platte and the Missouri, often extending over the plains in such quantities as to communicate a brilliant redness to thousands of acres. This plant has no sort of affinity to *Cristaria*, and by the fruit is a genuine Malva.

A genus of more than 60 species, many of them indigenous to tropical America, to the Cape of Good Hope, and some to Europe.

479. MALOPE. *L.*

Calix double; exterior 3-leaved, *Capsules* 1-seeded, aggregated without order.

Leaves entire or lobed, flowers axillary, mostly solitary.

SPECIES. 1. *M. malacoides. v. s.* in the herbarium of Stephen Elliot, Esq., Charleston.—Of this genus there are 2 other species in Greece and Barbary.

480. HIBISCUS. *L.*

Calix double; exterior many-leaved. *Stigmas* mostly 5. *Capsule* 5-celled, many-seeded.

Shrubby or herbaceous; leaves entire or palmately lobed; flowers axillary and terminal.

SPECIES. 1. *H. Moscheutos.* 2. *palustris.* 3. *grandiflorus.* 4. *incanus.* 5. *virginicus.* 6. *militaris.* 7. *speciosus.* 8. *Manihot.* 9. *scaber.* 10. *esculentus.* Cultivated. Originally from India. It flowers and ripens seeds in the gardens of Pennsylvania.

A tropical genus containing about 70 species, chiefly indigenous to America, India and its islands, a few species extend to the temperature zone, Persia, the Cape of Good Hope and North America; the flowers of many are splendid, and some of the species are aborescent.

481. HALESIA. *L.* (Snow-drop Tree.)

Calix 4-toothed, superior. *Corolla* 4-cleft. *Nut* corticate, quadrangular, 2 or 4 of the angles alated, 2 to 4-celled, 2 to 4-seeded.

Trees with alternate entire leaves; peduncles 1-flowered, laterally aggregated upon the branches; flowers subcampanulate, pendulous. (Germ in *H. tetraptera*, 4-celled, cells about 4-seeded; nut by abortion 1 to 4-celled 1 to 4-seeded.)

SPECIES. 1. H. *tetraptera.* In Carolina, Georgia and Florida, and on the banks of French Broad and other rivers

in Tennessee. 2. *diptera.* Round Savannah in Georgia, but scarce. 3. *parviflora.* Scarcely distinct from No. 1. HAB. In Georgia.

A North American genus.

482. **STYRAX.** *L.* (Storax.)

Calix campanulate, mostly 5-toothed, inferior. *Corolla* deeply 5 to 7-parted, inserted upon the calix. *Drupe* (theca?) coriaceous, containing 1 or 2, 1-seeded nuts. (*Stamina* 6 to 16, arising from the orifice of the corolla, coalescing at the base. *Anthers* oblong, linear.)

Trees or shrubs; leaves entire, without stipules; flowers axillary and terminal, solitary or racemose, white. (Corolla nearly divided to the base, segments spreading or revolute; filaments enlarged, pubescent and uniting at the base; style simple exserted; theca trifid, nut marked with 3 converging lines. Embryon flat, inclosed in a carnose perisperm, radicle inferior. Pubescence stellate, as in the MALVACEÆ.)

SPECIES. 1. *S. grandifolium.* 2. *pulverulentum.* 3. *glabrum.* Stamina from 10 to 14. By much the most elegant and ornamental. All the North American species have the calix 5-toothed.

Of this genus there are 2 other species; one of them indigenous to Syria and naturalized probably in Italy, the second, *S. Benzoin,* which affords the resin so called, is spontanous in Sumatra.

483. **HOPEA.** *L.* (Yellow-leaf.)

Calix 5-cleft, superior. *Petals* 5. *Stamina* many, connate in 5 bodies. *Style* 1. *Fruit* a drupe of 3 cells; (2 of the cells often abortive.)

A tree with entire alternate leaves; flowers axillary, fasciculated, earlier than the leaves.

SPECIES. 1. H. *tinctoria.* The leaves, which are of a sweetish taste, afford a yellow die which is augmented to red in an infusion of the flowers of several species of *Coreopsis.*—The only species of the genus, including a distinct low and fruticose variety.

484. **GORDONIA.** *L.*

Calix simple, 5-leaved. *Petals* 5, connate at

the base. *Style* 5-sided, stigmas 5. *Capsule* 5-celled, 5-valved, septa medial; receptacle columnar, cells 2-seeded. *Seed* alated.

Deciduous leaved or sempervirent trees with entire, alternate, lanceolate, or ovate leaves; stipules none; flowers solitary, axillary.

Species. 1. G. *Lasianthus.* Capsule conic; leaves sempervirent. 2. *pubescens.* Leaves deciduous, capsules spherical.—Of this genus there is a third species in the mountains of Jamaica.

485. STEWARTIA. *L.*

Calix 5-parted. *Petals* 5. *Stigma* capitate, somewhat 5-lobed. *Capsule* 5-celled, 5-valved; septa medial; cells 1 or 2-seeded. *Seeds* ovate, osseous.

Shrubs with alternate leaves; flowers large and solitary, axillary.

Species. 1. S. *virginica.* 2. *pentagyna.* (*Malachodendron ovatum.* Cavanilles.)—A North American genus.

Class XVI.—DIADELPHIA.

I.—PENTANDRIA.

486. PETALOSTEMON. *Michaux.*

Petals 5, nearly equal, 4 of them alternating with the stamina, and uniting with them in a cloven tube. *Legume* 1-seeded, included in the calix.

Herbaceous perennials, with pinnated glandulous leaves, and setaceous stipules; flowers purplish or white, densely, and almost imbricately spiked or capitulate, squamosely bracteate. (Petals small, nearly uniform, occupying the place of 5 of the 10 stamina usual in the *Papilionaceæ*, 4 of them alternating with the 5 stamina, and the 5th occupying the place of the single unconnected stamen.)

Species. 1. P. *candidum.* 2. *carneum.* 3. *violaceum.* This beautiful species, which retains its fine colour so well in the herbarium, and No. 1, are every where abundant throughout Upper Louisiana probably to the sources of the Missouri. Nos. 2 and 5 are peculiar to the warmer Atlantic states. 4. * *villosum.* Every where villous; stem decumbent; spike larger, cylindric, subsessile; bractes shorter than the calix, calix lanuginous, 5-toothed; leaflets linear-oblong, about 7 pair, petals rosaceous. Hab. On the sandy banks of Knife river, near Fort Mandan, Missouri. Flowering in August. Obs. Root fusiform, large, red, and perennial, sending out several decumbent stems; spikes 2 or 3 inches long, larger than in any other species; calix striate; petals oblong-obovate, pale red. 5. *corymbosum.*

A North American genus.

II.—HEXANDRIA.

487. CORYDALIS. *Ventenat.* Fumaria. *L.*

Calix 2-leaved. *Corolla* ringent. *Filaments*

2, membranaceous, each bearing 3 anthers. *Capsule* siliquose, many-seeded.

Caulescent, rarely stemless; leaves multipartite, sometimes imperfectly bipinnate or biternate, the rachis not unfrequently terminated by tendrils; flowers in terminal racemes; corolla with 1 or 2 calcarate nectaries at the base.

Species. 1. C. *Cucullaria*. Obs. Calix unequal, 4-leaved, leaves decussated, 2 of them linear and acuminate, the 2 others appressed to the corolla, ovate, acuminate. Petals 2, saccate at the base, limb hooded and reflected, filaments 6, distinct, 3 arising from each petal, central filament calcarate at the base. Thalamus connate above, partly panduriform, dorsally crested, hollow and impervious, with rugose folds. Capsule lanceolate-ovate, many-seeded. Stigma compressed, somewhat reniform. Root a granulated scaly bulb, a bulbous enlargement produced at the base of each leaf, finely spotted with red; leaves radical, ternate, partitions subbiternately divided, ultimate segments incisely toothed, roundish at the extremity, with a short setaceous point; raceme secund, flowers nodding, white with a yellowish limb; bractes obvallate, short and acuminate.—Mr. Bosk proposed this plant as a distinct genus under the name of *Diclytra*. Mr. Pursh afterwards proposes another name intended to include the first section of this genus with bicalcarate flowers; it does not, however, prove to be natural, as there is almost a different structure in each individual; for instance, *C. formosa* and *C. fungosa* accord with the genus in having 2 trianthe-riferous filaments, notwithstanding this discrepancy, the habit of *C. formosa* and *C. spectabilis* is too similar to that of *C. Cucullaria* ever to admit of any separation. 2. *formosa*. 3. *tenuifolia*. Ph. 4. *fungosa*.

§ 11. *Corolla unicalcarate.*—5. *glauca*. 6. *aurea*.

Siberia, Japan, and Europe afford most part of this genus of 25 species.

488. FUMARIA. *L.* (Fumitory.)

Calix 2-leaved. *Corolla* irregular; calcarate at the base. *Filaments* 2, each bearing 3 anthers. *Capsule* valveless, 1-celled, 1-seeded.

Habit similar to that of the preceding genus.

Species. 1. F. *officinalis*. Introduced.—A genus of 8 species, indigenous to Europe, Siberia, and Barbary.

III.—OCTANDRIA.

489. POLYGALA. *L.* (Milkwort.)

Calix 5-leaved; 2 of the leaves in the form of wings, and coloured. *Capsule* obcordate, 2-celled, 2-valved.

Herbaceous or shrubby; leaves mostly alternate; flowers each producing from 1 to 3 bractes, alternate, loosely or densely spiked, and terminal.—(A genus of diversified aspect, and scarcely natural, those of different continents possessing, however, a common resemblance, with a few exceptions.) Seeds of the American species strophiolate and pubescent, often hirsute; strophiole (or carunculate hilum) bifid, in *P. incarnata* and *P. setacea* reflected upwards.)

Species. 1. P. *incarnata.* Glaucous. 2. *setacea.* Perennial. 3. *vulgaris.* Hab. On the banks of Mohawk river, New York. *v. s.* 4. *paucifolia,* (*P. uniflora?* Mich.) From Pennsylvania to the mountains of Corolina. Forming almost exclusive carpets of great extent in the Pine forests of Lake Huron. Is it not possessed of medicinal properties similar to those of *P. Senega,* which it resembles in taste, and in its action on the fauces? 5. *Senega.*

6. * *alba.* Perennial: flowers cristate; stem simple; leaves alternate, linear, revolute on the margin; flowers racemosely spiked; spike long pedunculate, bractes deciduous; wings of the calix rounded, about the length of the corolla. Hab. On the plains of the Missouri, common, and the only species of the genus in the upper part of Louisiana. Obs. A small plant scarcely more than 6 inches high, considerably allied to *P. Senega,* but more than a variety, as it has been considered by Mr. Pursh; leaves smooth and narrow; flowers and calix white, nearly sessile; bractes lanceolate.

7. * *pubescens.* Muhl. Catal.? Perennial: stem erect, and pubescent, virgately branched; leaves alternate, ovate-lanceolate, ciliate, subsessile; raceme elongated, flowers bearded, distinct, rosaceous. Hab. Around Savannah in Georgia, &c. One of the largest and finest species indigenous to the United States, and certainly very distinct from *P. Senega.* The bractes are minute and deciduous, flowers larger than in any other species included in this Catalogue.

8. *polygama.* Ph. Stem branched from the base; leaves linear-lanceolate, attenuated downwards; racemes filiform, lateral and terminal, flowers sessile; radical racemes pro-

cumbent, apetalous *P. rubella*. Willd. HAB. In the Pine forests of Lake Michigan. OBS. Perennial, and subdecumbent; flowers reddish. Allied to *P. Senega*. Mr. Pursh's plant appears to differ considerably from the one here described, but I am persuaded it is the same, from a good specimen which I have seen in the possession of Z. Collins, Esq. agreeing with the Michigan plant.

9. *lutea*. Stem branching, lower leaves spathulate, upper lanceolate; spike subcapitate, obtuse; wings of the calix elliptic, acute, bractes shorter than the flowers. HAB. New Jersey to Florida. 10. *viridescens*. Stem simple or none; radical leaves spathulate, often retuse, cauline ovate; spike ovate; wings of the calix acuminate; bractes nearly as long as the sessile flowers. HAB. In the Pine forests of Carolina and Georgia. OBS. Autumnal and winter spikes squarrose and stemless, sessile amidst the radical leaves; flowers always green with a tinge of yellow. It appears to be very nearly allied to the preceding, but what resemblance it bears to *P. incarnata* is more than I can imagine, and Mr. Pursh's giving it a habitat in Pennsylvania almost proves that he had never seen our plant.

11. * *purpurea*. (*P. sanguinea*, Michaux, Pursh.) Annual: stem fastigiately branched; leaves alternate, oblong-linear; flowers beardless, imbricated in obtuse cylindric spikes; rachis squarrose; wings of the calix cordate-ovate, erect, twice as long as the capsule. HAB. Common throughout North America. Flowers rosaceous.

12. *sanguinea*. L. Annual: stem fastigiately branched; leaves alternate, narrow-linear; flowers beardless, disposed in long and crowded spikes; rachis squarrose; calicine wings obovate, the length of the capsule. HAB. In the low Pine barrens of New Jersey. Flowering in July and August. Allied proximately to *P. purpurea*, but very distinct; a much smaller plant, with short and narrow leaves; spikes acute, growing out 2 or 3 inches long, loose compared with the preceding; flowers small and sanguineous, or dark red intermixed with green from the imperfectly concealed capsules; the proper corolla yellowish; rachis much more squarrose than in the preceding. I believe this to be the *P. sanguinea* of Linnæus, though now the preceding, which is much more common, passes for it. This species also accords very well with Plukenet, Mant. 153. t. 438. f. 5.

13. *verticillata*. Annual: leaves verticillate, linear and remote; flowers cristate, greenish, calicine wings roundish, nearly veinless, and shorter than the fruit to which they are appressed; spikes pedunculate, subacute; brac-

tes deciduous; stem erect and branched. Hab. Common throughout the Atlantic states.

14. * *ambigua.* Annual: first leaves verticillate, linear, the rest alternate; stem virgately branched; spikes acute, upon very long peduncles; flowers cristate, purplish; calicine wings round and venose, equal with the fruit to which they are appressed; bractes deciduous. Hab. In New Jersey and Virginia; in forests and on road sides near ditches, abundant, but not so common as the preceding, to which it very nearly approaches. After several years examination in a living state I am decidedly induced to consider it a separate species; the flowers are larger, purple, and distinctly pedicellate; I have now before me specimens in which the filiform spike and its peduncle is from 6 to 8 inches long. The flowers of both these species are distinctly cristate.

15. * *fastigiata.* Annual: stem slender and fastigiately branched; leaves alternate, linear, acute; spikes subcapitate, pedunculate; flowers subcristate; calicine wings spreading, ovate, acute, scarcely longer than the capsule. Hab. In New Jersey, &c. *v. v.* Nearly allied to *cruciata*, more remotely to *setacea*, with which it is confounded in Muhlenberg's Herbarium. *v. s.*

16. *cruciata.* Annual: stem fastigiately branched, angular, angles alated; leaves linear-oblong, punctate, verticillate in 4's; spikes condensed, sessile; flowers subcristate, calicine wings deltoidly-cordate, acuminate, concealing the small and reflected capsule. Hab. On the margins of dry sphagnose morasses; not very common; generally dwarf and spreading, spikes from 10 to 15 lines long, bractes persistent, calicine wings flatly spreading, greenish, with a bright rosaceous margin, capsule minute, substipitate.

17. * *brevifolia.* Annual: stem erect, subfastigiately branched, angular, angles alated; leaves oblong-linear, short, resinously punctate, verticillated in 4's; spikes pedunculate, partly capitate; flowers subcristate; calicine wings cordate-ovate, acute, scarcely longer than the capsule. Hab. On the margins of sandy swamps, New Jersey, also in Ohio. Flowering in July and August; somewhat rare. Obs. Nearly allied to the preceding, with which it has probably been confounded, though perfectly distinct; it is more slender, leaves scarcely half the size, branches subvirgate and erect, flowers brightish red.

† *Flowers corymbose.*

18. *corymbosa.* Perennial: stem simple, angular, summit corymbose, many-flowered; radical leaves spathulate-obovate, cauline subequal, linear; calicine wings conniyent,

oblong-ovate, acute. Hab. In sphagnose swamps from Sussex county, Delaware, to Florida. Flowering in July and August. Obs. Stem about 12 inches high; stem leaves about an inch long, of the same length nearly to the summit of the stem, oblong-linear and somewhat obtuse; the whole corymb citron yellow, in a dried state blackish green; corolla cristate as in the following species, though very inconspicuously so.

19. * *attenuata*. Perennial; stem tall, simple, terete, and attenuated, summit corymbose, many-flowered; radical leaves, spathulate-lanceolate, acute, cauline subulate, unequal; calicine wings connivent, elliptic-oblong, acute. Hab. In grassy swamps from North Carolina to Florida, very similar to the preceding, but much larger, from 2 to 3 feet high, hence Dr. Baldwyn called it *P. prælta*, but as the following species is equally tall, and many foreign species much more so, I have chosen the present name as expressive of the singularly attenuated appearance of the stem, the flowers are of the same color as in *P. corymbosa*.

20. * *Balduini*. Perennial? Stem tall, sparingly and virgately branched; flowers squarrosely capitate, capituli corymbose, whitish; wings of the calix connivent, lanceolate, setaceously acuminate; radical leaves spathulate, obtuse, cauline sublanceolate, acute. Hab. Near St. Mary's in Florida.—Dr. Baldwyn, from whom I received a specimen under the name of *P. polycephala*. Obs. A very singular and distinct species. Stem 2 to 3 feet high, branched from below the middle, branches 2 to 5? angular, summits corymbosely branched; leaves small and distant, smooth, alternate, sessile, flowers greenish-white, imbricately capitulate, appearing squarrose from the spreading setaceous points of the calix; corolla almost perfectly beardless; capsule 2-celled, 2-seeded, very minute, seed hirsute, and subglobose, after the manner of the genus.

I have not here adopted the artificial sections of this genus, viz. those of the *cristate* and *beardless* corolla, because they do not appear to exist in nature, judging from a careful examination of the 20 species here enumerated, in which I find it impracticable to draw any definite line, all possessing more or less evidently the filiform processes of the carinate petal; in *P. Senega*, *P. pubescens*, *P. purpurea*, *P. sanguinea* and *P. Balduini*, it is indeed reduced to the appearance of glanduloid excrescences, in all the others it is more or less apparent and filiform, according to the size of the corolla.

Of this vast genus, containing more than 100 species,

Europe affords but 6, South and tropical America as far as Buenos Ayres 24, Barbary and the Levant 4, Siberia 2, Guinea 2, the Cape of Good Hope produces 24, many of them ornamental shrubs, India and China 13, 1 in Japan, 1 in Arabia Felix, and several others of uncertain locality. Several distinct genera appear to be confounded in *Polygala*, which ought to claim the attention of Botanists.

IV.—DECANDRIA.

† *Stamina all connected, (or monadelphous.)*

490. AMORPHA. *L.*

Calix subcampanulate, 5-cleft. Vexillum of the *corolla* ovate, concave. *Wings* (or lateral petals) and *carina* none. *Legume* small, 1 or 2-seeded, curved at the point.

Suffruticose or shrubby plants; leaves pinnate, glandular; stipules setaceous, minute, both general and partial, distinct from the leaves and leaflets; flowers numerous and small, spiked, usually blue, spikes solitary, aggregated and terminal; legume glandulous; style pubescent, stigma smooth.

Species. 1. A. *fruticosa*. Only one of the calicine dentures acuminated. 2. * *nana* T. N. in. Fras. Catal. 1813. Shrubby, very low, and nearly smooth; leaflets subovate-elliptic, mucronulate and smooth; spikes solitary and aggregated; flowers pedicellate; dentures of the calix all setaceously acuminate; legume 1-seeded. *A. microphylla*, Ph. 2. p. 466. Hab. On the woodless and grassy hills of the Missouri, from the river Platte to the Mountains, growing only from 6 inches to a foot high. Flowers purplish blue and fragrant, coming out in the month of May. This very humble plant, often diffused, like Heath in Europe, over hundreds of acres in succession, is the only upland shrub apparently capable of withstanding the peculiarities of this climate. 3. *herbacea*. Walter. Low and herbaceous, pubescent; leaflets oblong-elliptic, glandularly mucronulate; spikes very long, often solitary; dentures of the calix unequal, short and acute. *A. pubescens*. Willd. Ph. A name unnecessarily altered, as there are 2 other species more or less pubescent. *A. pumila*. Mich. Hab. In open Pine forests from North Carolina to Florida. Spike

often 12 inches long; flowers nearly white; legume 1-seeded.

4. * *canescens.* T. N. in Fras. Catal. 1813. Suffruticose, and canescently villous; leaflets proximate, subsessile, ovate-elliptic, mucronulate; spikes aggregated; flowers subsessile; dentures of the calix equal, ovate, acute; vexillum bright blue. HAB. From the banks of Fox river and the Ouisconsin to the Mississippi; around St. Louis, Louisiana, and on the banks of the Missouri probably to the Mountains. This species is nearly allied to *A. pubescens*, but larger, and much more villous, with shorter and more numerous spikes. A very elegant and ornamental plant. Germ 2-seeded, legume 1-seeded; leaves almost impunctate. Mr. Pursh places his *usual* mark of *v. v.* to this species, although he had never seen a flowering specimen except in my herbarium.

A North American genus.

491. ERYTHRINA. *L.* (Coral Tree.)

Calix subbilabiate, various. *Vexillum* of the corolla very long and lanceolate. *Legume* torulose, many-seeded.

Small trees or shrubs, mostly aculeate, rarely herbaceous; leaves ternate, pinnate; flowers mostly scarlet, in long and terminal spikes.

SPECIES. 1. E. *herbacea.* Leaves ternate, subhastate, smooth; stem herbaceous and aculeate, calix truncate; root very large and tuberous. HAB. In the open bushy forests of Carolina, Georgia, and Florida, not far from the sea-coast; rather rare. A magnificent and large perennial with long spikes of deep scarlet flowers; leaves coriaceous, acute, remarkably dilated in the middle, so as to appear almost 3-lobed; stem and petiole distinctly aculeate; the root a tuber larger when full grown than an ordinary Yam, and branched below; seeds, after the manner of the genus, bright scarlet, the size of horse beans. 2. *corallodendron.* In Florida. Muhl. Catal.

A very splendid genus of 12 species, 8 of them indigenous to the warmer and tropical regions of America, 3 to India, and 1 to the Cape of Good Hope.

492. LUPINUS. *L.* (Lupin.)

Calix bilabiate. Five of the *anthers* oblong, and 5 partly round. *Legume* coriaceous, torulose.

Herbaceous, rarely shrubby; leaves digitate, in a few species simple, stipules adnate to the base of the petiole; flowers in terminal spikes, alternate or subverticillate, naked or bracteate.

Species. 1. L. *perennis*. 2. *nootkatensis*. 3. *sericeus*. Ph. 4. *argenteus*. Ph. 5. *pusillus*. Ph. Annual; small and very hairy; leaves digitate, leaflets (5 to 7) cuneate-oblong, above smooth and somewhat glaucous; flowers alternate, calix inappendiculate, upper lip short and bidentate, lower ovate-lanceolate, entire; legume 2-seeded, hirsute. Hab. On the barren argillaceous plains of the Missouri, near the confluence of White river. Obs. From 4 to 6 inches high, growing in considerable quantities together; flowers bright blue, appearing in May; bractes nearly as long as the calix, the lower lip of which is twice the length of the upper, wings of the corolla adnate at the summit; carina resupinate, attenuated; stamina united into a cylinder, anthers alternately minute; style smooth, rigidly persistent; legume extremely pilose, hirsute.

6. *villosus*. Biennial; lanuginously villous; leaves simple, oblong-lanceolate, petiole and legume densely lanuginous; stipules filiform, very long; flowers semiverticillate; calix appendiculate, the upper lip bidentate, the lower undivided. Hab. In sandy Pine forests, from South Carolina to Florida; rare. (Not uncommon round Savannah in Georgia.) Obs. Decumbent; stem, petiole and stipules, thickly covered with long, soft, spreading hairs; stipules 12 to 15 lines long, petiole 2 to 3 inches, leaf 5 or 6 inches long, subacute, spike proportionably large; bractes subulate, deciduous, as long as the calix; calix conspicuously villous, producing on either side a lateral subulate segment, (or appendiculate as described by Willdenow and adopted by Persoon, notwithstanding the careless assertions of Michaux and Pursh to the contrary;) legume 10 to 15 lines long, so densely lanuginous as to appear like a mass of silky wool, seeds smaller than lentiles, variegated. Vexillum violaceous, towards the centre very deep brown. The figure in Pursh's Flora, 2. p. 468. t. 21. appears to have been taken from a bad specimen.

7. * *diffusus*. Sericeously and closely villous; stems numerous, diffuse and decumbent; leaves simple, oblong-obovate, attenuated downwards; petiole and stipules short and naked. Hab. Around Wilmington, and in many other parts of North and South Carolina, in the barren forests of the *Quercus Catesbæi* and *Q. nigra*. The flowers and fruit I have never seen; and if the plant had not occurred to me at least a thousand times, and for several hundreds of miles so uniform and distinct from *L. villosus*, I should not have

ventured to consider it a species in the absence of flowers; it therefore remains to be confirmed in these particulars by some future observer. This species appears to be decidedly perennial, and spreads diffusely to a considerable extent; the petioles, destitute of the long woolly hairs of the preceding, rarely exceed an inch in length, the subulate stipules are only 2 or 3 lines long, the leaf is attenuated downwards, and arounded at the summit, covered with short and silky hairs, and only about 2 and a half inches long.

5 other species of this genus exist in Peru, 3 at Monte Video, 6 in the south of Europe, several of them also common to the Levant, 1 in Egypt, 2 of uncertain locality; an entire leaved species at the Cape of Good Hope, not sufficiently distinguished from *L. villosus*, but producing a blue flower, and another in Cochinchina.

493. CROTALARIA. *L.* (Rattle-box.)

Vexillum **large and cordate;** ***carina*** **acuminate.** ***Filaments*** **united in one body, with a dorsal fissure.** ***Legume*** **pedicellate, turgid.**

Herbaceous or shrubby; leaves simple, ternate or rarely digitate; stipules scarcely any, or conspicuous (as in *C. sagittalis*, &c.) and mostly distinct from the petiole; inflorescence various, scarcely that of a simple genus, *e. g.* flowers often spiked or racemose, terminal, axillary or opposite to the leaves; legume also often short, and 1 or 2 seeded, or long and many-seeded.

Species. 1. *C. sagittalis.* ⊙ 2. *parviflora.* 3. *ovalis.* Perennial, stem hirsute, procumbent; leaves simple, subsessile, oval; stipules acuminate, decurrent; racemes about 3-flowered opposite the leaves. Hab. In Carolina and Georgia; common around Savannah; leaves sometimes destitute of stipules, in which imperfect state it is described by Mr. Pursh, who does not also appear to have known that it was perennial, and consequently very distinct from the annual *C. sagittalis*, with which Michaux associated it.

This tropical genus of near 60 species is almost exclusively indigenous to India and the Cape of Good Hope.

†† *Stigma pubescent.* (Stamina diadelphous.)

494. PISUM. *L.* (Pea.)

Segments of the *calix* foliaceous and equal. ***Vexillum*** with 2 protruding plaits. ***Style*** com-

pressed, carinate, villous on the upper side. Suture of the *legume* naked.

Stem scandent or diffuse; petiole many-leaved, leaflets and stipules large; peduncles axillary, 1 or many-flowered.

Species. 1. P. *maritimum.* Abundant on the shores of Lakes Erie, Huron and Michigan, but differs from the European species in having a pubescent legume.

At present there are but 4 species of this genus, indigenous to Europe and Egypt, but the habitat of the garden pea (*P. sativum*) like that of many other important plants in human diet, appears not to have been ascertained.

495. OROBUS. *L.* (Bitter-Vetch.)

Style linear. *Corolla* long. *Calix* obtuse at the base; upper segments deeper and mostly shorter.

Stem herbaceous, often erect; leaves conjugate, bijugate or pinnate, mostly terminated by a short and straight, undivided, setiform tendril; stipules mostly semisagittate; flowers racemose, axillary and terminal.

Species. 1. O. * *dispar.* Leaves unequally pinnate, 6 to 8 pair, leaflets linear, obtuse; stipules simply ovate, acute; racemes sessile, filiform, 2 or 3 together; segments of the calix equal, the uppermost indenture deeper and wider. Hab. On arid hills near Fort Mandan. Flowering in June. Obs. This and the following species differ very remarkably from the usual habit of the genus, but analytically compared with *Orobus sylvaticus*, now before me, they appear to be inseparable congeners. Root perennial. Stems numerous, decumbent, branched, terete below, angular above, rigid, a little pubescent in common with the rest of the plant. Racemes about the length of the leaves; flowers remote, ochroleucous; the calix obtuse at the base, dentures subacuminate; wings longer than the carina; style and minute stigma nearly smooth; legume many-seeded, smooth and flat, acute and curved at the point, attenuated at the base; seeds 6 to 8, about the size of small Vetches. The habit of this plant is more that of *Astragalus* than *Orobus*.

2. * *longifolius.* Sericeously villous; leaves ternate and bijugate, uppermost simple, leaflets very long and filiformly linear; stipules undivided, ovate-lanceolate, acuminate; racemes pedunculate, filiform, often solitary, shorter than the leaves; the 2 upper dentures of the calix shorter

HAB. On sand-hills, on the banks of the Missouri, not far from the confluence of the river Platte. Flowering in May. *Psoralea longifolia* PH. 2. suppl. p. 741. See Herb. Lambert. OBS. Roots perennial, filiform, creeping. Stems nearly simple, terete below and angular above. Stipules connate, distinct from the petioles, ovate, acute, below lanceolate, acuminate above. Leaves singularly elongated, much like those of *Indigofera filifolia* of the Cape of Good Hope; the lowest shortest, often trifoliate, above they are sometimes bijugate (or in 5's), the uppermost simple, scarcely a line wide, and nearly a span long. Racemes 1 or 2 in the same axill, 7 to 10-flowered; flowers somewhat remote, pale red, nearly as large, but shorter, than those of *O. sylvaticus;* calix and bractes subulate. Vexillum rather broad, stamina diadelphous. Style and minute subcapitate stigma smooth. Legume linear-lanceolate, exserted, flatly compressed, smooth, 8 to 10-seeded. Certainly a very extraordinary species of *Orobus*, yet inseparable in genus from the preceding; both these species appear to be somewhat allied to *Tephrosia*, but the stamina are diadelphous, and the whole habit and fruit is different from the American species of that genus.

Orobus is principally an European genus extending, however, into Siberia and Northern Africa; *O. fruticosus* of Peru is scarcely a congener.

496. LATHYRUS. *L.* (Vetchling, Everlasting Pea.)

Style flat, broader above and villous on the upper side. The upper segments of the *calix* shorter.

An heteromorphous and unnatural genus, scarcely distinct from many European species of the preceding.—Stems scandent or diffuse, with the angles often alated by the decurrence of the petioles; stipules cauline, distinct, usually toothed or produced at the base; leaves pseudopinnate, from 1 to 5 pair, (in *L. Nissolia* simple, and in *L. Aphaca* altogether abortive,) common petiole as in the Pea terminating in a divided tendril; peduncles axillary and terminal, 1, 2, and many-flowered.

SPECIES. 1. *L. palustris.* 2. *myrtifolius.* Near Philadelphia. 3. *venosus.* Leaflets about 5 pair. Common in the Alleghany mountains, growing on the declivities of shady hills.

4. * *polymorphus.* Stem quadrangular, naked; stipules semisagittate, lanceolate; leaflets 4 to 5 pair, linear-oblong,

or oblong-elliptic, mucronulate; racemes many-flowered, longer than the leaves. HAB. On the grassy alluvial plains of the Missouri, from its confluence to its sources? Flowers as large as those of *Pisum maritimum*, and of a fine purple, variable however in size as well as the leaves, hence it appears to be *L. decaphyllus*, PH. 2. p. 471. and *Vicia stipulacea* of the same, 2. p. 739. as both these specific names are inexpressive and deceptive, I could not in candour do otherwise than reject them.

Lathyrus containing near 40 species, is almost exclusively European; there are, at the same time, species in Northern Africa, 3 around Monte Video, and 1 at the Straits of Magellan, near the extremity of South America.

497. VICIA. *L.* (Vetch.)

Stigma transversely bearded on the under side. *Calix* emarginate and bidentate above, the 3 lower dentures long and straight. *Vexillum* emarginate.

Stem erect or scandent, often slender; leaves pseudo-pinnate; stipules small; flowers in pedunculate spikes, or from 1 to 3, subsessile and axillary.

SPECIES. 1. V. *pusilla*. 2. *sativa*. 3. *americana*. 4. *sylvatica*. HAB. On the alluvial banks of the Missouri as far as Fort Mandan. Leaflets a little more obtuse than usual. 5. *Cracca*. Much smaller than the European plant and probably distinct. 6. *caroliniana*.

A genus of near 50 species almost exclusively indigenous to Europe. In this genus is included the common Bean (*Vicia Faba*), so important an article of diet, said to be still spontaneous not far from the Caspian Sea, on the confines of Persia.

498. PHACA. *L.* (Bastard Vetch.)

Carina obtuse. *Style* beardless. *Stigma* capitate. *Legume* 1-celled, somewhat turgid, the upper suture internally tumid and seminiferous. DECANDOLLE.

Habit similar to *Astragalus*.

SPECIES. 1. P. *villosa*. *Astragalus villosus*. Mich. This species ought to be compared with *P. boetica*. HAB. On sandy hills in the Pine forests of South Carolina and Georgia, and on the high hills of the Missouri to its sour-

ces? *v. v.* Collected also in China by Sir G. Staunton. *v. s.* in Herb. Lambert. Obs. Nearly stemless and hirsutely pilose, leaflets oval, or oblong-oval, above smooth; peduncles various, equal with or shorter than the leaves; spikes subcapitate; flowers ochroleucous, small; legume canescently villous, teretely subcymbiform.

2. * *cæspitosa*. Cespitose, canescently villous, and stemless; leaves digitate, ternate and quinate; leaflets lanceolate, acute at each end; flowers scapeless, aggregated, stipules membranaceous, amorphous; legume pubescent, subcylindric. *Astragalus triphyllus*. Ph. 2. p. 740. Hab. On arid gravelly hills near the confluence of Sawanee river and the Missouri. Obs. Plants aggregated in numerous tufts: caudex short and proliferous; petioles 2 to 3 inches long, leaflets about an inch, somewhat shining; flowers sessile on the candex, aggregated in dense clusters, and as well as the leaves subtended by broad sheathing and amorphous membranaceous scales; calix pilose, cylindric, near an inch long, border subulately 5-toothed; corolla ochroleucous, exserted beyond the calix nearly its length; legume short.—Flowering in May.

A small genus chiefly indigenous to Europe and Siberia.

499. OXYTROPIS. *Decandolle*. Astragalus. *L.*

Carina terminating above in a subulate appendage. *Legume* bilocular or subbilocular, the upper suture inflected.

Habit similar to *Astragalus*.

Species. 1. O. *Lambertii*. Ph. Cespitose, and stemless; leaflets numerous, linear-lanceolate, strigose, and rather remote; common petiole very long; scape longer than the leaves, spike oblong, bractes lanceolate, shorter than the silky calix. Hab. On the woodless hills of the Missouri, from the river Platte to the Mountains. Mr. Pursh's character is taken from a solitary, luxuriant and cultivated specimen, which I obtained from seeds, and is inapplicable in nature. Obs. Flowers bright purple, carina with a subulate appendage; legume smooth, black, and small, subterete, acuminate, and partly bilocular. Flowering in May and June.

A genus containing near 50 species, principally indigenous to Siberia, with the exception of a few species in Europe and the Levant.

500. ASTRAGALUS. *L.* (Milk-Vetch.)

Carina obtuse. *Legume* bilocular, or subbilocular, inferior suture inflected.

Suffruticose or more commonly herbaceous, erect or diffuse; leaves pinnate; stipules distinct from or connected with the petiole; petioles in some species rigidly persistent, or spinescent; flowers glomerate or spiked, axillary and terminal, purple, ochroleucous, or yellow.

Species. 1. A. *carolinianus*. 2. *canadensis*. Both these species are unusually tall with dense spikes of ochroleucous flowers. 3. *glaber*. Rather low, and caulescent; leaflets (about 10 or 11 pair), oblong-elliptic, obtuse or emarginate, every where smooth; pedunculate loose spikes longer than the leaves; flowers whitish, pedicellate; legumes distant, smooth, spreading, depressed and incurved. Hab. In the sandy forests of Georgia and South Carolina. Seldom more than a foot high; fruiting peduncles much longer than the leaves; legume partly bilocular and somewhat rugose. 4. *alpinus*. 5. *secundus*.

6. * *missouriensis*. Nearly stemless, partly diffuse; stipules cauline, ovate; leaflets small, obovate-elliptic, canescently villous; peduncles a little longer than the leaves; spikes capitate; calix blackish and strigose; legume oblong, acuminate, nearly smooth and transversely dilated. Hab. On hills throughout Upper Louisiana; flowering in May. A very elegant species with deep violet purple flowers, (there is also a white flowered variety occasionally to met with): scarcely 6 inches high, pubescence whitish and somewhat shining; leaflets 5 to 10 pair, about the size of Thyme, leaves obtuse; capitate spike about an inch long; flowers 10 to 12, large for the size of the plant; bractes ovate, shorter than the calix; carina obtuse; legume black and coriaceous, subunilocular, lower suture inflected. *Oxytropis argentata*. Ph. 2. p. 473. but neither the same plant, (which I have examined in Pallas's herbarium) nor the same genus.

7. *hypoglottis*. On the low and level plains of the Missouri, commencing about the confluence of the river Jauke, and continuing upwards probably to the Mountains; flowering in May. It does not sensibly differ in any particular from the European plant. 8. *Laxmanni*. Hab. On the hills of the Missouri, forming a luxuriant and nutritive herbage for herbivorous animals, and would probably be worth cultivating upon light and otherwise unproductive soils. Obs. Perennial; stems diffuse and adscendent, grooved; bractes cauline, membranaceous and acuminate; leaflets a little pubescent, oblong, 6 to 8 pair; peduncles axillary and terminal, much longer than the leaves, thick and grooved, spike crowded, suboval, bractes acuminate, nearly as long as the calix which is blackish

and pubescent; vexillum ovate, nearly straight; legume oblong, at first pubescent.

9. * *carnosus.* Caulescent, decumbent and pubescent; leaflets (8 to 10 pair,) oblong-lanceolate; stipules ovate; racemes axillary, about the length of the leaves; legumes large and pendulous, oval, carnose, inflated and compressed, smooth. HAB On the plains of the Missouri from the confluence of the river Platte to the Mountains; the legumes are about the size of ordinary plums, and considerably resemble, as to form, those of *A. physodes.* Flowers violet-purple; bractes much shorter than the calix; calix covered with a dark pubescence, segments not subulate; vexillum ovate, long and erect, fruiting racemes prostrate. The plant described for the present by Mr. Pursh in Suppl. 2. p. 740. was a species of *Sophora* to which he by mistake applied the fruit of our *A. carnosus.*

10. *galegoides.* Stem partly erect; leaflets oblong-lanceolate (about 21), somewhat pubescent beneath; peduncles axillary, longer than the leaves; spike crowded, flowers pedicellate, secund; legumes stipitate, pendulous, biventricosely triquetrous and smooth; calix pubescent, segments subulate HAB. On saline alluvial soils, from White river to the Mountains; common. OBS. About two feet high and nearly smooth; the whole plant rather strongly and somewhat disagreeably scented, flowers whitish, numerous, bractes subulate, longer than the pedicells; fruiting raceme 8 to 10 inches long; legume 10 to 15 lines, conspicuously stipitate. *A. racemosus.* PH. in Suppl. 2. p. 740.

11. * *gracilis.* Fras. Catal. 1813. Pubescent, stem slender and erect; leaves subsessile, leaflets oblong-linear, remote (13 to 21,) racemes pedunculate, longer than the leaves; legumes very short, cernuous, elliptic-ovate, subtriquetrous and pubescent, 1-celled, dentures of the calix minute. HAB. From White river to the Mountains, on the plains of the Missouri. Flowering in May. Nearly allied to *A. sulcatus,* but pubescent. It appears to be *A. tenellus* of Pursh and also *Ervum multiflorum,* Suppl. 2. p. 739. It is likewise *Dalea parviflora,* PH. 2. p. 474. as I have examined the specimen so marked in Herb. Lambert. OBS. Stem about 2 feet high, angular, but scarcely striate. Stipules ovate, acuminate. Peduncles very long; racemes loose, subsecund; calix villous; legume about 2 lines long, many-seeded, acuminated with the curved style. Flowers pale purple.

This vast genus of near 180 species exists principally in Siberia; there are a few species also in Europe and the

Levant. From *A. gummifer* and *A. creticus* is obtained the gum Tragacanth, from the latter it is white, and from the former yellowish; *A. Tragacantha* affords no gum whatever.

†††† *Legume mostly* 1-*seeded.* (Stamina diadelphous.)

501. DALEA. *L.*

Calix semiquinquifid. *Corolla* partly papilionaceous. *Wings* and *carina* adnate to the undivided column of the stamina. *Legume* 1-seeded, included in the calix.

Herbaceous; leaves pinnate, interspersed with diaphanous glands in common with the calix; flowers in dense and terminal spikes, rarely racemose, unibracteate. Distinguished from *Petalostemon* by the subpapilionaceous corolla, and the insertion of the adnate petals far below the separating filaments, and not alternating with them in the same line, the presence of 10 in place of 5 stamina is also of some importance in this family of plants.

Species. 1. D. *alopecuroides. D. Cliffortiana.* Willd. sp. pl. 3. p. 1336. *D. pedunculata?* Ph. 2. p. 474. *D. Linnæi.* Mich. flor. Am. 2. p. 57. t. 38. *Petalostemon alopecuroideum.* Ph. 2. p. 461. Hab. Common on the banks of the Missisippi and the Missouri in alluvial soil. The number of leaflets, as might be expected in so compound a leaf, are variable both in number and a little so in form. Vexillum white, wings and carina pale violet. Michaux's figure is excellent. 2. *aurea.* T. N. in Fras. Catal. 1813. Ph. 2. p. 140. Perennial; stem erect; spikes dense and cylindric, flowers yellow; bractes rhomboidally ovate, as long as the calix; calix densely lanuginous, dentures subulate; leaflets (about 9,) obovate, under side pilose. Hab. On gravelly hills, near White river, Missouri; rare.

3. *laxiflora.* Ph. Very smooth; stem erect and tall, branched above, branches slender and effuse; racemes few-flowered; flowers distinct, enneandrous; bractes smooth, obvallate, acute; segments of the calix acuminate, sericeous and plumose; leaves about 4 pair, linear-oblong. Hab. On the high hills and naked grassy plains of the Missouri, also on the banks of the Missisippi near the Prairie du Chien. Obs. Perennial, root reddish and somewhat fusiform. Stem simple, round, and smooth, of a brownish colour, 3 or 4 feet high, divaricating at the

summit into numerous slender spreading branches, each terminated by a raceme of white flowers. Leaves small, extremely deciduous in drying, smooth, and thickly sprinkled with resinous diaphanous glands. Calix considerably like that of *Petalostemon corymbosum*, the segments linear and acuminate, nearly twice the length of the other bractes. Stamina 9. Carina twice the length of the petals. Seed solitary, legume shorter than the calix; seeds yellow, reniform.—On being bruised the leaves and bractes give out a very penetrating and disagreeable balsamic odor much like that of the Diosmas and of Rue (*Ruta graveolens.*)

A north American genus, of which there are 10 other species chiefly indigenous to Mexico.

502. PSORALEA. *L.*

Calix 5-cleft or 5-toothed, the lower segment mostly elongated. *Stamina* diadelphous. *Legume* the length of the calix, 1-seeded, subrostrate and valveless.

Shrubby or herbaceous; leaves glandularly punctate, ternate, rarely digitate, simple or pinnate; stipules cauline; flowers spiked or glomerate, axillary or terminal.

Species. 1. P. *canescens.* 2. *cuspidata.* Ph. On the banks of the Missouri. Root large, tuberous, and ramified.

3. * *esculenta.* T. N. in Fras. Catal 1813. Ph. 2. p. 475. Nearly stemless and hirsutely pilose; leaves digitate quinate; leaflets ovate-elliptic, smooth above; spikes pedunculate, subcapitate; corolla scarcely longer than the calix; bractes 3-flowered, ovate, acuminate, impunctate; root simple, somewhat fusiform, bulbous above the middle. Hab. On the elevated plains of the Missouri; also on the high and bare hills of the lead-mines near the river Merimek, a few miles from St. Louis. The root is similar in form to that of *P. canescens.* Taste rather insipid, but not disagreeable either raw or boiled, the latter is its common mode of preparation among the savages: its texture is laminated, always tenaceous; solid, and never farinaceous; it is also somewhat medicinal and operates as a diuretic. Nearly allied to *P. cuspidata*, but very distinct in the root. It is known to the Canadian boatmen by the name of "Pomme de prairie."

4. * *incana.* T. N. in Fras. Catal. 1813. Sericeously villous and canescent; leaves digitate, quinate, uppermost ternate, leaflets elliptic-lanceolate; spikes few-flowered, interrupted; bractes acuminate, 3-flowered; root flagellately fusiform. Hab. On the open plains of the Missouri

with *P. esculenta*, which it somewhat resembles, but is covered with a soft, white, and silky villus, but not tomentose. Spikes axillary, (after the manner of the genus, as it appears in North America,) about from 6 to 10-flowered, flowers small, bright azure blue. The whole plant about 12 inches high and rarely branched. Flowering in July. *P. argophylla.* Ph. 2. p. 475.

5. *tenuiflora.* Ph. Nearly smooth, and everywhere conspicuously punctate: stem diffusely and slenderly branched: leaves ternate, leaflets oblong-elliptic, obtuse; racemes filiform, few-flowered; calix nearly equal; bractes 3-flowered, shorter than the pedicells; root flagellately fusiform. Hab. On the plains of the Missouri, near the Arikaree village: rare. Obs. Habit or mode of vegetation similar to *Baptisia tinctoria.* Stem about 2 feet high, slenderly pubescent; leaflets about 5 lines long, thick, opaque, and copiously punctured, slightly pubescent beneath; racemes 2 or 3 inches long, axillary, interrupted, 9 to 12 or more flowered, growing by 3's, very small and pale purple; calix in this and the following more nearly equal than in any other species; bractes persistent.

6 * *arenaria.* Nearly smooth, stem dichotomous, sparingly branched, erect; leaves ternate, leaflets linear-sublanceolate, obtuse, and mucronulate; peduncles longer than the leaves; spikes capitate, many-flowered, bractes deciduous; dentures of the calix minute, obtuse, nearly equal; root repent. Hab. On the sandy banks of the Missouri, from the river Platte to the Mountains. Flowering in July and August. *P. lanceolata.* Ph. 2. p. 475. *P. elliptica,* of the same, in Suppl. 2. p. 741. Obs. Growing in great quantities together, sending up shoots in every direction through the sand, in which soil it is exclusively met with. Stem about a foot; leaves aromatic when bruised, attenuated downwards, more than an inch long, stipules linear; flowers pedicellate, small and numerous, pale purplish blue; dentures of the calix obtuse, and glandulous.

7. *Lupinellus.* Very smooth; leaves digitate, upon long petioles; leaflets by sevens and fives, filiform-linear; racemes pedunculate, much longer than the leaves, (axillary) many-flowered; bractes 1-flowered, shorter than the peduncles; lower denture of the calix produced, legume rugose. Hab. From South Carolina to Florida; rare. A very singular plant; the leaves are so narrow as scarcely to be distinguished from the petiole, and 2 to 3 inches long, extremely deciduous when dry; peduncles very thick, near a span long; flowers purplish, not remarkably

small. Calix and leaves glandulous. All the larger leaves in 7's, the upper only in 5's.

8. * *Onobrychis.* Stem tall and smooth; leaves ternate, leaflets ovate-lanceolate, somewhat pubescent; racemes (axillary) long pedunculate; flowers secund; legume subovate, muricate, smooth; root flagellate. HAB. On the banks of the river Merrimek, a few miles from St. Louis, Louisiana. OBS. Stem 3 to 5 feet high, brownish; leaves like an *Hedysarum* which it greatly resembles; racemes 6 inches long or more; legumes on one side, longer than the calix, black, 1-seeded, and extremely rough with tubercles. Perhaps a trifoliate *Onobrychis:* the flowers I have not seen, although I have had the plant cultivated in the neighbourhood of London. Perhaps *P. Hedysaroides* of Muhl. Catal.

9. * *virgata.* Nearly smooth; stem striate, virgate; leaves simple, very remote, linear-lanceolate, radical oblong-ovate; spikes oblong, pedunculate, shorter than the leaves (axillary); bractes long and subulate, deciduous. HAB. In West Florida between St. Mary's and Satilla river.—Dr. Baldwyn. OBS. Root perennial. Stem herbaceous, about 2 feet high, simply branched from the base. Leaves a span apart, a little pubescent as well as the spike in an early stage, 2 to 3 inches long and acute, uppermost only 2 or 3 lines wide. Spike shortly pedunculate, rather dense; flowers pedicellate, nearly blue, the vexillum finely veined. Calix 5-cleft, glandulous, lower segment a little produced. Legume 1-seeded, even.

With very few exceptions this genus is indigenous to North America and the Cape of Good Hope.

503. MELILOTUS. *Tournefort.*

Flowers racemose.—*Calix* tubulous, 5-toothed. *Carina* simple, shorter than the wings and vexillum. *Legume* as long as the calix, rugose.

Species of *Trifolium.* L. which they resemble exactly in habit, but the stem is generally erect, and the flowers not capitate.

SPECIES. 1. M. *officinalis.* Flowers yellow. Naturalized or indigenous in the state of New-York. β. *alba.* Stem very tall, flowers white. Naturalized or indigenous in the lower part of the state of Delaware.

2. * *Psoraloides. Trifolium Psoraloides.* Walter. *Psoralea Melilotoides.* Willd. sp. pl. Pubescent, stem erect; leaflets oblong-lanceolate, entire; flowering raceme partly oblong,

upon a very long peduncle; bractes broad and acuminate, deciduous; carina very short; legume gibbous, and transversely rugose. HAB. In Carolina and Florida, also common in the open forests of Ohio, Kentucky and Tennessee. Perennial. Stem about 12 to 18 inches high, grooved and minutely strigose. Stipules cauline, linear, acuminate; leaves ternate, without glands, a little pubescent, central leaflet conspicuously petiolate. Spikes or racemes in fruit 3 or 4 inches long, common peduncle 4 to 6 inches. Flowers pale violet, pedicellate, erect. Calix pubescent, almost equally 5-cleft and strongly veined, without glands. Wings (or lateral petals) more than twice the length of the carina. Legume 1-seeded, naked and transverse, the length of the calix; persistent style resupinate. The entire absence of glands, the minuteness of the carina, and the fruit, decide this plant to be a *Melilotus*, to which genus it was long ago referred by Clayton; it is at the same time the connecting link to *Psoralea*.

An European genus, with a few species indigenous to Barbary and the Levant.

504. TRIFOLIUM. *L.* (Trefoil.)

Flowers subcapitate.—*Legume* valveless, covered by the calix, 2 to 4-seeded.

Herbaceous; leaves ternate, rarely digitate; stipules adnate to the base of the petiole, flower in *T. pratense* monopetalous.

SPECIES. 1. T. *reflexum*. 2. *repens*. Cultivated and naturalized. 3. *carolinianum*. 4. *microcephalum*. PH. In California. 5. *pratense*. Cultivated and naturalized. 6. *pennsylvanicum*. 7. *arvense*. Native. 8. *agrarium*. 9. *procumbens*. These 2 last are naturalized. 10. *involucratum*.

11. * *megacephalum*. *Lupinaster macrocephalus*. PH. 2. p. 479. t. 23. Leaflets by 7's, cuneate-lanceolate, petiole very long, stipules cuneate, incisely 3-toothed; segments of the calix setaceous, plumose; legume 3 to 4-seeded. HAB. Near the sources of the Missouri. Neither this species nor *T. Lupinaster* appear to possess any single generic character distinct from *Trifolium*. There can surely be no generic character in leaves; but even here analogy is not altogether wanting, as many genuine species of *Trifolium* occasionally produce more than 3 leaflets.

A genus of near 80 species, principally indigenous to Europe.

505. **STYLOSANTHES.** *Swartz.*

Calix tubulous and very long, bearing the corolla. *Germ* beneath the corolla. *Loment* with 1 or 2 articulations, hooked.

Herbaceous; leaves ternate, stipules sheathing, adnate to the petiole; bractes ciliate; flowers yellow.

Species. 1. S. *elatior*. Swartz. *S. hispida*. Mich. Pluk. Amalth. 182. t. 447. f. 7. Obs. Flowers conglomerate 3 or 4 together, invested by ciliate sheathing bractes; leaves sublinear-lanceolate, acute, smooth and naked; stem erect; loment indurated, 1-seeded. Common from Pennsylvania to Carolina. Flowers golden yellow.

A small tropical genus of 6 species indigenous to America, with the exception of a single one in India.

506. **GLYCYRRHIZA.** *L.*

Calix mostly bilabiate, gibbous at the base. *Vexillum* including the wings and carina. *Legume* subovate or oblong, compressed, and mostly hispid, 2 to 6-seeded.

Herbaceous; leaves pinnate, stipules cauline; flowers capitate, spiked or racemose.

Species. 1. G. *lepidota*. T. N. in Fras. Catal. Ph. 2. p. 480. Leaflets oblong-lanceolate, acute, every where squamulose, under surface covered with glandulous atoms; spikes axillary, acute, flowers crowded; legume oblong, many-seeded, echinate, setæ uncinate. Hab. Abundant around St. Louis, where it was first detected by Mr. John Bradbury, F. L. S.; it is also common on the alluvial banks of the Missouri to the Mountains, and is in all probability the Liquorice mentioned by Sir A. Mackenzie as indigenous to the coasts of the North Pacific Ocean. Obs. Roots flagelliform, creeping, and very long, possessing in no inconsiderable degree the taste of liquorice. Stem erect, 3 to 5 feet high; spikes pedunculate; flowers whitish, dense, sessile; calix almost equally 5-parted, segments subulate. Vexillum ovate-oblong, nearly straight. Legume oblong, compressed, hispid, 5 or 6-seeded, much resembling the fruit of *Xanthium spinosum*, not spontaneously opening. Nearly allied to *G. foetida*, and like that species emitting a somewhat disagreeable resinous odor. This plant appears to destroy the artificial distinctions by which *Glycyrrhiza* and *Liquiritia* have been sepa-

rated; as it can be equally referred to either one or the other.

The South of Europe, Tartary and the Levant furnish the other 6 species of this genus.

507. LESPEDEZA. *Michaux.*

Calix 5-parted; bibracteate at the base, segments subequal. *Carina* transversely obtuse. *Loment* lenticular, unarmed, 1-seeded.

Stem subligneous, annual, seldom suffruticose; leaves ternate, margin entire; stipules cauline, setaceous, partial ones wanting; flowers axillary and terminal, racemose, or spiked, spikes capitate, mostly pedunculate; rachis bracteate, bractes trifid, 2-flowered; calix bibracteolate at the base. Flowers violet-purple or ochroleucous, the vexillum then marked with a purple spot. (These characters exist uniformly in 8 species which I have examined.)

Species. 1. L. *sessiliflora.* Erect and somewhat ramose; leaflets oblong-oval, obtuse; fascicles of flowers subsessile, axillary ones partly racemose; loment naked, acute. Hab. Common from New York to Florida, and throughout the western states.

2. *reticulata.* Stem simple, rigid and erect; leaflets oblong-linear, strigosely pubescent beneath; fascicles of flowers subsessile, very numerous, axillary ones subracemose; loment naked, acute. Hab. In New Jersey. A species distinct from the preceding, though confounded with it by Michaux; it is taller and apparently never branched. 3. *capitata.* 4. *polystachia.*

5. * *Stüvei.* Erect and simple, softly and sericeously villous; leaflets elliptic-oval; spikes pedunculate, scarcely longer than the leaves; loments naked, pubescent. Hab. In the sandy fields of New Jersey. This very distinct species I have dedicated to the memory of my friend W. Stuve, M. D. of Bremen, who discovered it. Obs. Stem subligneous, but annual, simple, and rigidly erect, 2 to 3 feet high. Stipules cauline, sphacelate, and setaceous as in the rest of the genus. The whole plant covered with a soft and velvet-like villus, but most abundant on the under surface of the leaves; lower petioles near an inch long, leaves obtuse, destitute of the partial stipules of *Hedysarum* in common with the genus, axills ramuliferous, ramuli short and abortive or ultimately floriferous. Spike or raceme pedunculate, peduncle about an inch in length; flowers as usual, in pairs, but distinct and not crowded, each pair subtended by a trifid bracte, calix bibracteate at the base, segments subulate, not veined, shorter than

the protruding loment. Corolla purple, much longer than the calix. Somewhat allied to *L. sessiliflora.*

6. *violacea.* Diffuse and much branched; leaves long petiolate; leaflets oval-elliptic, obtuse, under surface minutely strigose, racemes setaceous, longer than the petioles, subumbellate, flowers by pairs, distinctly pedicellate; loments rhomboidal, reticulated and smooth. HAB. Around Philadelphia and New Jersey, common. Stem nearly procumbent; racemes few-flowered, flowers bright violet-purple. Considerably allied to the following species. *L. divergens* of Willdenow appears to be only a variety of the present. *v. s.* In Herb. Muhl. under the name of *L. divergens.*

7. *procumbens.* Procumbent and slender, every where pubescent, but more particularly the stem petioles and peduncles; leaflets oval; peduncles very long and setaceous, raceme short, subumbellate, flowers by pairs, distinct; loment oval, nearly smooth. HAB. Very common throughout the middle States; flowers violet-purple.

8. *prostrata.* Prostrate, and smooth; petioles very short, leaflets obovate-elliptic, obtuse; racemes axillary and terminal, subpaniculate and partly umbellate, common peduncle very long; loments oval, subpubescent. *Hedysarum prostratum.* Willd. sp. pl. 3. p. 1200. HAB. Rather common in New Jersey.

A genus almost peculiar to North America, there are, however, about 3 species indigenous to Siberia, of which *L. trichocarpa* ought to be compared with *L. capitata;* 3 other very doubtful species of India are added to this genus by Persoon. Several species appear yet to be included in *Hedysarum.*

†††† *Legume mostly articulated.* (Stamina diadelphous.)

508. HEDYSARUM. *L.*

Calix 5-cleft. *Carina* transversely obtuse. *Loment* of several articulations: joints 1-seeded, compressed, and mostly hispid.

Herbaceous or suffruticose; leaves simple, ternate, or pinnate; stipules cauline, often both general and partial; flowers mostly racemose, rarely solitary, racemes axillary or terminal, often paniculate; flowers (in all the North American species) by pairs, or by 3's, each pair or aggregate subtended by 3 unequal and deciduous bractes, the 2 lateral ones minute, calix naked at the base, the lowest

segment of the border often elongated; flowers violaceous, rarely white, the carina often expanding and ejecting the stamina; the leaves in a few species exhibit a spontaneous motion.

Species. 1. H. *canadense.* 2. *canescens.* 3. *marylandicum.* 4. *obtusum.* 5. *ciliare.* Erect and subpilose, slender; leaves ternate, approximate, very shortly petiolate, leaflets small, oval, obtuse; stipules subulate; racemes axillary and terminally paniculate; articulations of the lo-ment oval, hispid. Hab. Near Philadelphia and in New Jersey. *v s.* Under this name in Herb. Muhl. A small and slender species about 2 feet high; stem pilose below, leaves often smooth as well as pubescent, about the same size and form as in *Buxus sempervirens,* approximating so as to be crowded below; panicle slender and considerably branched; flowers proportionably small, violet. Allied to *H. glabellum.* 6. *viridiflorum.* This species grows in Upper Louisiana as well as in the Atlantic States. 7. *glabellum.*

8. * *lævigatum.* Very smooth; stem simple, erect, and somewhat glaucous; leaves ternate, long petiolate, leaflets ovate, acute, stipules subulate, minute and deciduous; panicle terminal, nearly simple; flowers by pairs upon long petioles; bractes ovate, acute, shorter than the flower buds. Hab. In the forests of New Jersey; rare. Rather large, and the smoothest of the North American species. Lower petioles about 3 inches long; larger leaflets 3 inches long, and one and a half broad, every where perfectly smooth, and somewhat glaucous beneath, sometimes elliptic-ovate, constantly diminishing in size upwards; the stem attenuated into the terminal and racemose panicle, rachis of the panicle and peduncles minutely pubescent; lowest segment of the calix conspicuously elongated. The fruit I have not seen. Allied to *H. cuspidatum,* but perfectly distinct. 9. *cuspidatum. H. bracteosum.* Mich. Fl. Amer. 2. p. 73. 10. *paniculatum.* 11. *strictum.* Ph. Erect and smooth, stem simple, leaves ternate, sublinear, coriaceous, and reticulately veined, stipules subulate; racemes axillary and terminally paniculate; loments incurved, about 2-jointed, articulations somewhat lunately triangular, and hispid, isthmus filiformly narrowed. Hab. In the forests of New Jersey; rare. A distinct species, but allied to *H. paniculatum.* 12. *glutinosum. H. acuminatum.* Mich. 13. *nuliflorum.*

14. * *pauciflorum.* Decumbent; stem very low and filiform; leaves ternate, upon very long petioles, leaflets broad-ovate, acuminate, pubescently ciliate, central one rhomboidally dilated; stipules obsolete; raceme terminal

and pedunculate, shorter than the leaves, very few-flowered. Hab In the shady forests of Ohio, Kentucky and Tennessee, (common around Lexington, Kentucky.) A very singular and distinct species, with small, expanding flowers, which are uniformly white. Obs. Root apparently creeping, sending up short filiform weak stems at small intervals; stems about a span high (rather resembling the ascending branches of a humifuse plant), petioles 2 or 3 inches, stipules very minute, partial ones obliterated, lateral leaflets oblique, central one dilated, on both surfaces a little hirsute, paler beneath, length about 2 inches, breadth one and a half. Raceme long pedunculate, solitary and terminal, bearing no more than from 4 to 8 white flowers! the keel of which is commonly expanded; bractes very minute by 3's; flowers by pairs; calix nearly equally 5-toothed. Of the fruit, I am ignorant. The only species to which the present appears to bear any affinity is *H. axillare* of Jamaica. 16. *lineatum* 17. *rotundifolium.*

18. * *boreale.* Caulescent, subdecumbent, leaves pinnate (7 or 8 pair), leaflets oblong-obovate, partly villous; racemes long pedunculate, axillary, stipules sheathing, subulate; articulations of the loment nearly round, and rugose. *H. alpinum?* Mich. Fl. Am. 2. p. 74. Hab. In arid and denudated soils around Fort Mandan, on the banks of the Missouri. Flowering in June and July. Flowers of a fine red and numerous; common petiole very short; calix subulate, wings of the corolla short.

This very numerous and heteromorphous genus, consisting of more than 130 species, is principally indigenous to India, and America in both hemispheres, but particularly the Northern; there are also species in the southern extremity of Africa and in Japan, a few in Europe, Siberia, Northern Africa, and the Levant, but with pinnated leaves, and in the *Onobrychides* producing 1-seeded legumes. Amidst this vast family *H. gyrans* has long been celebrated for the spontaneous motion of its leaves, which undulate as if in agitation, without the assistance of excitement; my friend Dr. Baldwyn, late of Savannah, an indefatigable botanist, and an accurate observer, informed me, that the same spontaneous motion is evinced by *Hedysarum cuspidatum, H. bracteosum* of Michaux; there is also reason to suspect the same circumstance in *H. lævigatum.*

509. ZORNIA. *Gmelin. Michaux.*

Calix campanulate, bilabiate. *Corolla* inferior. *Vexillum* cordate, revolute. *Anthers* 5

oblong and 5 globose. *Loment* articulated, hispid.

Mostly herbaceous; leaves digitate in 4's, ternate, binate, or simple; flowers racemose, racemes axillary and terminal, bractes large, ovate or suborbicular.

SPECIES. 1. Z. *tetraphylla.* In Carolina.—A genus of 7 species, considerably allied to *Stylosanthes;* of these 5 are indigenous to India, and 1 to the Cape of Good Hope.

510. ÆSCHYNOMENE. *L.*

"*Stamina* divided into 2 equal bodies." BROWN. *Lomeni* exserted, compressed, one of the sutures straight, the other lobed; articulations truncated, 1-seeded. *Calix* bilabiate, labia dentate.

Arborescent, shrubby or herbaceous; leaves pinnate, nictitant or sensitive, stipules cauline; peduncles or racemes axillary and terminal, few-flowered; loment smooth or scabrous.

SPECIES. 1. Æ. *viscidula.* OBS. Prostrate, stem and peduncles viscidly pubescent; stipules small and ovate; leaflets 7 to 9 oblique, retusely obovate; peduncles filiform, 1 or 2-flowered; calix bibracteate at the base, 1-leaved, subcampanulate, border almost equally 5-cleft. Corolla small. Loment biarticulate, horizontally deflected, pubescent, isthmus very narrow as in many Hedysarums, articulations also roundish-oval. A species possessing scarcely any affinity with the following, and nearly allied to *Smithia,* judging by habit. Annual.

2. *hispida.* OBS. Annual. Stem erect, 2 or 3 feet high, hirsutely scabrous in common with the loment, petiole and peduncle. Leaflets very smooth and numerous, often as many as 49, linear-oblong and obtuse; stipules ovate, acuminate, decurrent at the base; racemes simple, 3 to 5-flowered, and usually bearing also a leaf. Loment conspicuously stipitate, compressed, slightly sinuated on the lower margin, 6 to 9-jointed. HAB. In the marshes of the Delaware, near Philadelphia, rare; also in Carolina. Flowers yellow, externally reddish, and veined.

A tropical genus of 13 species indigenous to India and America.

511. SESBANIA. *Poiret.*

"*Calix* 5-toothed. *Legume* elongated (terete

or linear), bivalve, divided into many cells by transverse dissepiments." R. BROWN.

Arborescent, shrubby or herbaceous; leaves pinnate; peduncles 1 or many-flowered.

SPECIES. 1. S. *platycarpa*. *S. disperma*. PH. 2. p. 485. HAB. In Carolina and Florida; common around New Orleans. 2. **macrocarpa*. Muhl. Flowers yellow. Around New Orleans. *v. v. s. fl.* Legume very long and narrow; leaflets numerous, oblong-elliptic.—A tropical genus of 10 species, indigenous to India and America, with one species in Egypt.

†††††† *Legume* 1-*celled*, *many-seeded*. (Stamina diadelphous.)

512. PHASEOLUS. *L.* (Kidney-bean.)

Carina with the style and stamina spirally convolute. "*Legume* compressed, falcate. *Seeds* compressed, reniform." ELLIOTT. *mss.*

Herbaceous and mostly twining plants; leaves ternate, petiolate, stipules minute, distinct from the petiole; flowers mostly racemose and axillary.—Calix bilabiate, often bibracteate at the base, upper lip emarginate, lower 3-toothed; vexillum reflected.

SPECIES. 1. P. *perennis*. HAB. From New England to Carolina. Mr. Elliott considers the southern plant as a distinct species.

A tropical genus, (with the above exception and 2 species at the Cape of Good Hope), containing about 30 species, several of which are cultivated for food.

513. DOLICHOS. *L.*

Vexillum with 2 oblong parallel callosities at its base, compressing the wings.

Vegetation similar to Phaseolus.—Calix 4-toothed, upper denture emarginate. Legume mostly cylindric.

SPECIES. 1. D. *luteolus?* Probably not the same with the West India plant, as the legumes are torulose, flattish and somewhat hirsute. HAB. Very common in the vicinity of Savannah, (Georgia.) 2. *vexillatus*. *Phaseolus vexillatus*. L. 3. *helvolus* Also referred to Phaseolus with the following by Wilidenow. 4. *trilobus*. 5. *parabolicus*. *Glycine parabolica*. P. W. Barton.

A tropical genus of more than 50 species, with some exceptions in Japan and South Africa. The seeds of some of the species are esculent, and used as articles of ordinary diet.

514. APIOS. *Moench.* GLYCINE. *L.*

Calix subbilabiate, truncate, with but a single denture situated beneath the carina. *Carina* falcate, reflecting the apex of the vexillum. *Germ* cylindrically sheathed at the base. *Legume* many-seeded.

Root consisting of pendulous oblong-cylindric tubers; stem herbaceous and twining; stipules cauline and subulate; leaves pinnate in 5's and 7's; racemes axillary, many-flowered, flowers brown, aggregated by 3's, bractes by 3's, caducous; calix short and truncate, subcrenate, bibracteolate, lower lip with a single denture; carina of the corolla falcate; stipe of the germ cylindrically sheathed, a circumstance common to two other genera.

SPECIES. 1. A. *tuberosa.* PH. Flowers odorous; tubers of the root edible and farinaceous, much like those of *Lathyrus tuberosus* sold in some of the German markets, and rarely larger, though very numerous.

515. * AMPHICARPA. *Elliott.* MSS.

Calix campanulate, 4-toothed, obtuse and naked at the base. *Petals* all oblong, vexillum broader and incumbent, subsessile. *Anthers* round. *Stigma* capitate. *Germ* cylindrically sheathed at the base. *Legume* flat, and stipitate, 2, 3 or 4-seeded.

Stems twining, leaves ternate, stipules, minute, cauline; racemes axillary; bractes 2-flowered; flowers sometimes apetalous. (Wings oblong, unidentate at the base; carina oblong, obtuse, straight.)

SPECIES. 1. *monoica.* OBS. Stem twining, retrorsely pilose; leaves ternate, ovate, nearly smooth; stipules ovate, striate; racemes pedunculate, short and crowded, pendulous; bractes roundish, persistent, 2-flowered. Calix campanulate, naked and obtuse at the base, almost equally 4-toothed; carina oblong, obtuse, not reflecting the vexillum, which is oblong; flowers all petaliferous, and all more or less producing fruit. Germ cylindrically sheathed at the

base, 3 or 4-seeded. Legume smooth, broad, flatly compressed, stipitate, and acute at either extremity, about 3-seeded, 10 to 15 lines long, stipe the length of the calix; upper suture straight, lower arcuate. *G. comosa* appears to be nothing more than the present plant, and ought perhaps to supercede the name of *monoica*, founded apparently upon an accidental specimen, or the monster of a garden. This species approaches *Galactia*, but cannot possibly be introduced into that genus. 2. *sarmentosa* Leaves ternate, ovate; racemes 3-flowered, flowers apetalous; legume flat, 2-seeded; calix 4-toothed. A genuine congener of the preceding.

516. GLYCINE. *Michaux. Pursh.*

Calix 4-cleft, subequal, upper segment bifid, base partly attenuated. *Vexillum* oboval; wings bidentate at the base: *carina* often incurved, shorter than the vexillum. *Germ* naked at the base. *Legume* oblong, compressed, 2-seeded, sessile.

Herbaceous or shrubby plants; stems erect or twining, stipules cauline, small, leaves ternate, rarely simple; flowers racemose, axillary and terminal, sometimes solitary; bractes deciduous, 1-flowered; flowers often yellowish.

Species. 1. G. *tomentosa*. Stem twining and angular; leaves ternate, ovate-oblong, acute, pubescent, beneath tomentose; racemes axillary, shorter than the petioles; (legume oblong, 2-seeded). Hab. From Virginia to Georgia. Flowers yellow.

2. * *erecta*. *G. tomentosa*, α. *erecta*. Mich. 2. p. 63. Stem erect and angular; leaves ternate, subovate, obtuse, sericeously villous; racemes axillary and terminal, longer than the leaves; segments of the calix long and linear. Hab. From Carolina to Florida. Flowers partly fulvous yellow. Stipules obsolete. Calix, as in the following species, divided nearly to the base, of a foliaceous consistence and veined, the lowest segment a little longer than the rest; vexillum subincumbent, longer than the other petals, bidentate at the base, and distinctly unguiculate; wings the length of the keel, as in all the other species which I have examined, upper margin plaited, also in common with the genus? bidentate at the base, (which is not the case with *Apios* and *Amphicarpa*, in the latter the oblong and sessile vexillum is destitute of sinuous inden-

tures at the base). Stamina diadelphous: style curved. Legume pubescent, oblong, 2-seeded, and partly compressed.

3. **monophylla*. *G. tomentosa*, β. *monophylla*. Mich. 2. p. 63. Dwarf and erect, pubescent: leaves simple, roundish and dilated, rugosely veined, stipules ensiform; racemes subsessile, conglomerate; segments of the calix lanceolate, acuminate, veined. HAB. From Carolina to Florida; in the Pine forests. Flowers yellow. *Glycine reniformis*. PH. 2. p. 486. OBS. Seldom more than 4 or 5 inches high, and producing simple, very rarely ternate leaves upon longish petioles. Calix divided nearly to the base. Corolla nearly as in the preceding, fulvous yellow; carina likewise very short, and as in the 2 preceding species not reflecting the vexillum. Legume partly oblong, compressed, 2-seeded.

4. **reflexa*. Stem twining; leaves ternate, roundish rhomboidal, smooth, at first villous, under side covered with resinous atoms; racemes filiform, pedunculate, scarcely longer than the leaves; flowers small and remote, reflected; corolla connivent; segments of the calix lanceolate, acuminate. HAB. In the vicinity of St. Mary's, West Florida.—Dr. Baldwyn; from whom I recieved a specimen under this name. Nearly allied, apparently, to *G. rhombifolia* of India, with which it ought to be compared. Flowers small and yellow. OBS. Stem slender, angular, slightly villous; stipules subulate. Leaves petiolate; leaflets 3-nerved, reticulately veined and partly coriaceous; lateral leaflets roundish and dilated on one side, central one rhomboidally dilated; all the leaflets subtended by setaceous stipules, and the terminating one by 2. Vexillum incumbent, somewhat reflected by the curved carina; one of the dentures at the base of the wings subulate, the other merely angular. Legume oblong, pubescent, 2-seeded.

To this genus, as above proposed, apparently belong *G. angustifolia*, *G. reticulata*, *G. mollis*, *G. picta*, *G. cana*, *G. caribæa*, and *G. rhombifolia;* of the remainder I can form no opinion, and recommend their examination to those botanists who may have it in their power.

317. *WISTERIA.† GLYCINE. *Willd.*

Calix campanulate, bilabiate, obtuse at the

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† In memory of Caspar Wistar, M. D late professor of Anatomy in the University of Pennsylvania, and for many years president of the American Philosophical Society: a philanthrophist of simple manners, and modest pretensions, but an active promoter of science.

base; upper lip truncate, emarginate, lower equally trifid. *Vexillum* broad and vertical, the claw lined with an adnate membrane separating at its summit: *wings* adhering at the apex; subulately bidentate at the base; *carina* not reflecting the vexillum. Stipe of the *Germ* sheathed. *Legume* torulose, many-seeded.

A twining shrub with pinnated leaves; flowers racemose, unibracteate, bractes very large, imbricately enveloping the flower buds, deciduous, and coloured; legume long and coriaceous; seeds large.

Species. W. *speciosa. Glycine frutescens.* Willd. *Apios frutescens.* Ph.

Obs. Leaves pinnate in nines, ovate, pubescent. Flowers pale blue, very abundant, and nearly as large as those of the common Pea. Calix villous, naked at the base. Vexillum broader than long, marked with a central green spot just above the claw, almost perpendicularly reflected, claw rigid and rather long, sheathed with an adnate membrane, which evinces its existence by a partial separation at the summit. Carina of 2 petals, incurved at the point, but without reflecting the vexillum, the denture at the base of each subulate. Stigma capitate. Legume 1-celled. Seeds nearly as large as the smaller kind of Kidney-beans, and also spotted, hence this shrub has received the common name of "Carolina Kidney-bean tree."

There appears to be a second species of this genus in the alluvial forests of West Florida.

518. GALACTIA. *Brown.*

Calix 4-cleft, bibracteolate. *Petals* all oblong, the vexillum broader and incumbent. *Anthers* oblong. *Stigma* obsolete. Stipe of the *germ* naked. *Legume* terete, many-seeded.

Herbaceous plants, either prostrate or twining; leaves often coriaceous, but deciduous, ternate or pinnate, stipules cauline, and as well as the bractes very minute, partial bractes setaceous; racemes axillary, few-flowered; flowers reddish. A genus very closely allied to the pinnate leaved species of *Clitoria.*

Species. 1. G. * *pilosa.* Every where softly and densely pilose; leaves ternate, partly oval, obtuse, paler beneath; racemes pedunculate, longer than the leaves; flow-

ers subsessile; legumes villous; stem twining. HAB. In Carolina and Georgia.

2. *mollis*. Softly villous: leaves ternate, mostly oval and obtuse, paler beneath, above smooth; racemes pedunculate, a little longer than the leaves; flowers pedicellate; calix acuminate; legumes compressed, pubescent; stem twining. HAB. In Carolina and Georgia. *v. s.* In Herb. Muhl. confounded with *G. glabella*, but more nearly allied to *G. pilosa*. *Hedysarum volubile*, Willd. 3. p. 1204.

3. *glabella*. Nearly smooth; leaves ternate, elliptic-oblong, subcoriaceous and lucid, at either extremity emarginate; racemes pedunculate, a little shorter than the leaves; flowers pedicellate; calix and legume smooth; stem prostrate. HAB. In arid soils from New Jersey to Carolina. (Abundant in New Jersey, about 3 miles from Philadelphia.) Calix acuminate; flowers reddish, considerably larger than in the 2 preceding; vexillum externally green; style long and nearly straight, exserted. Germ villous.

4. * *Elliottii*. Leaves pinnate, 3 pair (7), leaflets coriaceous, oblong-elliptic, mucronulate, smooth and lucid, emarginate at either extremity; racemes pedunculate, very few-flowered, shorter than the leaves; twining stem and calix smooth. HAB. In South Carolina.—S. Elliott, Esqr. Apparently distinct from *G. pinnata* of Persoon, 2. p. 302. The whole plant almost absolutely smooth, excepting the leaf-buds which appear silky; stipules and bractes after the manner of the genus minute and deciduous. Leaves nearly the same color on both sides. Calix rather deeply 4-cleft, segments lanceolate, acuminate. Corolla pale red; vexillum broader than usual, roundish. Fruit —?

Of this small genus there are 2 other species indigenous to the West Indies, and 1 to the isle of Bourbon.

519. CLITORIA. *L.*

Calix campanulate (the 2 lower dentures longer and often falcate) or tubulous, 5-toothed. *Corolla* resupinate; *vexillum* very large and spreading, overshadowing the wings. *Legume* linear, acuminate, many-seeded.

Herbaceous and twining or suberect plants; leaves ternate or rarely pinnate; stipules cauline, general and partial, small; peduncles axillary, 1, 2, 3 or more flowered,

or racemose (*Galactia?*) Calix mostly bibracteate at the base.

Species. 1. *C. virginiana.* The largest papilionaceous flower in the United States.

2. *Plumieri.* Stem twining; leaves ternate, ovate-oblong, acuminate, calix campanulate, shorter than the ovate bractes; corolla large, sericeous. Persoon, Syn. 2. p 303. Legume very long (and narrow). Carina particularly tomentose. Hab. *v. v.* Around New Orleans.

3. *mariana.* From Pennsylvania to Carolina. On the banks of the Schuylkill 2 miles from Philadelphia, but rare. Obs. Legume smooth and torulose, about 3-seeded, and rather short; flowers by pairs, large and pale blue, stem erect or twining at the summit; leaves ternate, ovate, acute, paler beneath; partial bractes subulate, conspicuous; calix tubular-campanulate, 5-cleft, much longer than the bractes.

A genus of 11 species indigenous to tropical America, except *C. mariana* and 2 species in India; *C. virginiana* is also indigenous to Jamaica and St. Domingo.

520. ROBINIA. *L.* (Locust Tree.)

Calix small and campanulate, 4-cleft, upper segment bifid. *Legume* compressed and elongated, many-seeded, seeds compressed, small.

Trees or shrubs with pinnated leaves, (in Caragana abruptly pinnated), stipules cauline and partial, small, or setaceous, peduncles mostly axillary, racemose. Stigma villous above.

Species. 1. R. *Pseudacacia.* (White Locust-tree.) 2. *viscosa.* 3. *hispida.*

Excluding *Caragana*, the rest of this genus of 15 species is almost exclusively indigenous to tropical America, the only exceptions are 1 species in India, and another in China.

521. INDIGOFERA. *L.* (Indigo.)

Calix spreading, 5-toothed. *Carina* on either side, near the base, producing a subulate spreading spur (or denture). *Legume* linear, rather small, terete or quadrangular.

Herbaceous or shrubby; leaves simple, binate, ternate, quinate or pinnate; stipules cauline, minute, general and

partial; peduncles axillary solitary, aggregated or racemose.

Species. 1. I. *caroliniana.* This species is considered no way inferior to the cultivated species for affording Indigo.

This vast genus of near 70 species is principally indigenous to the Cape of Good Hope and India, a few others exist in Arabia Felix, Egypt, Guinea, and tropical America. "It is remarkable," says Sonnini, p. 158. "that *Nil* or *Anil* is the American name of the Indigo plant, by the Arabs called *Nilé.*"—Sonnini's Travels in Upper and Lower Egypt.

522. TEPHROSIA. *Persoon.* Galega. *L.*

Dentures of the *calix* subulate, subequal. *Stamina* monadelphous. *Legume* compressed, subcoriaceous.

Shrubby or herbaceous, leaves pinnate, rarely ternate, more or less pubescent; nerves pennate; stipules cauline, minute, rarely spinescent, partial ones wanting? flowers solitary and axillary, or racemose, racemes terminal, axillary, or opposite the leaves. Legume rather large and exserted.

Species. 1. T. *virginiana.* Leaflets oblong, acute; raceme terminal, subsessile; wings calcarate at the base as in Indigofera. 2. *hispidula.* Slender, humifuse and pubescent; leaflets rather small, oblong-oval; peduncles elongated, about 3-flowered; legume oblong, falcate, somewhat hispid. Mich. Fl. Am. p. 68.

3. * *gracilis.* Erect and slender, nearly smooth: stem dichotomous, herbaceous; leaves pinnate, subsessile, leaflets oblong-elliptic, mucronulate and acute (13 to 15); peduncles opposite to, and about the length of the leaves, mostly 3-flowered; legume linear and hirsute, a little curved. Hab. In Carolina and Georgia. Can this possibly be *T. hispidula* of Michaux? It differs, however, in too many particulars. Obs. Root perennial as in all the North American species. Stem smooth, or with a very few scattered inconspicuous hairs; stipules and persistent bractes subulate; leaflets opaque, often near an inch long, and only about 2 lines wide, smooth above, with minute appressed hairs below, which are only visible through a lens; peduncle about 2 inches long, legume nearly the same length; vexillum in common with all the North American species externally pubescent.

4. * *paucifolia.* Simple, erect and herbaceous; stem and common petiole doubly pilose; leaves pinnate, re-

mote, leaflets cuneate-oval, very obtuse, and on either side villous (13 to 15); peduncles opposite to, and about the length of the leaves, mostly 3-flowered. HAB. In Georgia and Florida —Dr. Baldwyn. Stem 2 feet, in the specimen before me producing only 3 leaves, a span apart, pubescence partly ferruginous, on the stem and petioles double, one kind more dense and short like that of the leaves, the other pilose and spreading; leaf 4 or 5 inches long, leaflets an inch, and about 5 lines broad; flowers purple.

5. * *prostrata. Galega villosa.* Mich. 2. p. 67. *T. chrysophylla.* PH. 2. p. 489. Stem prostrate and pubescent; leaves pinnate, subsessile, quinate and ternate, leaflets cuneate-oboval, coriaceous, smooth above, sericeously villous beneath; peduncles about 3-flowered, opposite to, and longer than the leaves; legume linear, and nearly straight. HAB. Common around Savannah in Georgia, in dry and sandy woods. Michaux's name is necessarily altered in consequence of another species having been before named *villosa.*

This genus of more than 40 species is principally indigenous to India, the Cape of Good Hope, and tropical America. Its affinity to Indigofera is considerable, and *T. tinctoria* of Ceylon affords Indigo.

523. TRIGONELLA. *L.* (Fenugreek.)

Vexillum **and** ***wings*** **subequal, spreading, in the form of a tripetalous corolla.** ***Legume*** **often arcuate and mostly compressed.**

Herbaceous, (often annual); leaves ternate; stipules cauline, small; flowers axillary and terminal, solitary, subsessile, or in a peduculate spike or umbell.

SPECIES. 1 T. * *americana.* Legume long and peduculate, solitary, linear, and compressed; flowers unibracteate; leaflets entire, oblong, acute, and villous; stipules obsolete. HAB. On the dry and open alluvial soils of the Missouri, from the river Platte to the Mountains. *Lotus sericeus.* PH. 2. p. 489. OBS. Annual: stem erect, and about 1 foot high, sparingly branched above. Leaves ternate and sessile, softly pubescent, lateral leaflets oblique, the central one oblong-elliptic, petiolate; stipules scarcely visible. Peduncle 1-flowered, longer than the leaf; flower subtended by a foliaceous bracte; calix deeply cleft, almost the length of the corolla; segments linear and acute. Vexillum and wings nearly equal. Legume smooth,

about 15 lines long, straight and compressed, but convex, hooked at the point. *Flowering* in July. *Flower* nearly white, the vexillum rosaceously striated.

A genus principally indigenous to Europe and Siberia.

524. MEDICAGO. *L.* (Medick.)

Legume compressed, cochleate. *Carina* of the corolla deflected from the vexillum.

Herbaceous or rarely shrubby plants; leaves ternate; stipules small, growing to the base of the petiole; peduncles axillary and terminal, 1-flowered, or many-flowered, flowers spiked or conglomerate.

SPECIES. 1. M. *lupulina.* 2. *intertexta.* Introduced and scarcely naturalized.

A genus of 40 species, exclusively European. Legume variously contorted, smooth or tuberculate, often imitating an univalve spiral shell.

Class XVII.—SYNGENESIA.

Anthers 5, united into a tube. Flowers compound.

Order I.—POLYGAMIA ÆQUALIS.

(Flowers all hermaphrodite, fertile.)

† *Florets all ligulate.*

525. CICHORIUM. *L.* (Endive. Succory.)

Calix caliculate. *Receptacle* subpaleaceous. *Pappus* many-leaved, paleaceous.

Flowers blue or white, axillary, 1 to 6-glomerate, sessile, one of them sometimes long pedunculate.

Species. 1. C. *Intybus.* Naturalized. The parched root has been very generally used in Europe as a succedaneum for Coffee. The roots of *Leontodon Taraxacum* answer a similar purpose, and perhaps many more of the Cichoraceæ.

A small genus of 5 species indigenous to Europe, and *C. Endivia,* (Endive) to India.

526. APARGIA. *Willd.*

Calix imbricated. *Receptacle* naked. *Pappus* plumose, sessile.

Stemless or rarely caulescent; scapes and stems 1 or more flowered; leaves mostly runcinate or pinnatifid. Species of *Leontodon.* L.

Species. 1. L. *autumnalis.* Naturalized in the northern states.

Almost exclusively an European genus, and many of the species alpine.

527. LEONTODON. *L.* (Dandelion.)

Calix double. *Receptacle* naked. *Pappus* stipitate, plumose.

Scapes 1-flowered; leaves runcinate.
SPECIES. 1. L. *Taraxacum.* Naturalized: introduced.—
A genus of 5 species, indigenous to Europe.

528. PRENANTHES. *L.*

Flosculi definite, 5 to 20. *Calix* caliculate. *Receptacle* naked. *Pappus* simple, subsessile.

A polymorphous, but natural genus, principally herbaceous, rarely shrubby, and 1 species spinescent; leaves for the most part angularly dentate, pinnatifid, or runcinate, rarely minute and subulate; flowers often paniculate, conglomerate, subcorymbose or solitary and terminal, purplish, white, ochroleucous, or rarely yellow. Calix 4, 5; 8, or 12-parted, squamose at the base. Pappus somewhat scabrous.

SPECIES. 1. P. *altissima.* 2. *cordata.* 3. *virgata. P. rubicunda.* Willd. 4. *simplex.* PH. 5. *crepidinea.* 6. *alba.* 7. *Serpentaria.* PH. Scarcely distinct enough from *P. alba.* 8. *racemosa.* 9. *illinoensis.*

10. *juncea.* PH. Dwarf and nearly leafless; stem numerously and dichotomously branched, grooved; leaves subulate and sheathing, very short, branchlets subfastigate, 1-flowered; calix 5-cleft, 5 to 7-flowered. HAB. from the river Platte to the Mountains, in the alluvial sand-hills of the Missouri. Flowering in May. Flowers rosaceous. OBS. Root tuberous and brittle, very deep and creeping, charged with an abundant milky sap. Stems about 12 inches high, appearing nearly leafless. Radical leaves none, those of the stem from 1 to 10 lines long and pungently acute

11. * *aphylla.* Dwarf and almost leafless; stem nearly simple, sparingly and virgately branched, grooved; radical leaves narrow linear, entire, cauline minute, subulate, and very remote; branches 1-flowered, elongated; calix 8-parted 10 to 12-flowered. HAB. Near St. Mary's in West Florida.—Dr. Baldwyn. OBS. Root perennial. Stem smooth, about 12 inches high, with only 2 or 3 remarkably naked virgate branches; leaves scarcely visible; flowers large, and pale rose-colour. Nearly allied to the preceding.

A genus of near 40 species scattered over both hemispheres; Japan affords 10 species, India 4, Europe and the Levant 9, Siberia 2, Caraccas 1, and 1 in the island of Teneriffe, a few others are of uncertain locality.—Several of the North American species, in common with other genera of the CICHORACEÆ, afford on incision an abundant milky fluid, well ascertained to be Opium in several spe-

cies of *Lactuca* and *Leontodon*, to this substance must be attributed the real or pretended efficacy of these plants against the bites of poisonous reptiles. From this circumstance arose the name of SCORZONERA, a genus sufficiently abundant in the South of Europe, the name of which is nothing more than a corruption of the Spanish word *escorzo*, a viper, the plants of this genus having been popularly administered as remedies for the bite of that animal, hence it is called also "Viper's-grass."

529. LACTUCA. *L.* (Lettuce.)

Calix imbricated, cylindric, margin (of the segments) membranaceous. *Receptacle* naked. *Pappus* simple, stipitate. *Seed* even.

Vegetation partly similar to that of *Sonchus*. Flowers yellow, more rarely blue.

SPECIES. 1. L. *elongata*. *L. longifolia?* Mich. 2. **hirsuta*. Muhl. Catal. Lower part of the stem and leaves hirsutely pilose, radical ones lyrate, segments truncate, subdentate, the upper leaves partly runcinate-pinnatifid; flowers racemose, squamæ subulate. HAB. In Pennsylvania. Pappus stipitate. *v. s.* In Herb. Muhl. 3. *graminifolia*.

4. * *integrifolia*. Leaves subamplexicaule, ovate-oblong, all entire, smooth; panicle few-flowered, branchlets squamose; flowers large and blue. *L. oblongifolia*. T. N. in Fras. Catal. *Sonchus pulchellus*. PH. 2. p. 502. HAB. On the grassy alluvial soils of the Missouri and the lesser streams, from the Arikarees to the Mountains. Allied to *Sonchus sibiricus*, but the pappus is stipitate. OBS. Root perennial. Stem 1 and a half, to 2 feet high, dividing irregularly above into a few-flowered, fastigiate panicle. Leaves somewhat glaucous, very entire below, of an irregular, elongated oblong form, stem leaves sometimes with a single setaceous tooth at the base. Flowers about the size, and nearly the colour, of those of *Cichorium Intybus*. Calix cylindric. Flowering in August and September.

Excepting the above, almost exclusively an European genus containing 22 species. Scarcely a natural group, a mere section of Sonchus? The native country of the common Sallad Lettuce (*L. sativa*) can now no longer be ascertained.

530. SONCHUS. *L.* (Sow-Thistle.)

Calix imbricated, ventricose. *Receptacle* naked. *Pappus* pilose, sessile.

In this genus there are 4 shrubby species, the rest are herbaceous, several attain a considerable magnitude, producing blue, white, or yellow flowers; leaves runcinate, pinnatifid, or spinulosely denticulated.

SPECIES. 1. S. *macrophyllus.* 2. *alpinus.* 3. *leucophæus.* 4. *floridanus.* 5. *acuminatus.* 6. *pallidus.* 7. *arvensis.* 8. *oleraceus.* The 2 last introduced.

9. * *ludovicianus.* Leaves all runcinate, retrorsely and sharply toothed; peduncles and calix naked; panicle divaricate; flowers yellow; pappus conspicuously stipitate. HAB. In humid places, in the open plains, around Fort Mandan on the Missouri. Flowering in June. Very smooth; 3 to 5 feet high; stem leaves semiamplexicaule. By the stipitate pappus this species is a *Lactuca*, but the calix and whole habit is that of *Sonchus*.

A genus of more than 30 species, indigenous to both hemispheres, existing variously, in Lapland, Tartary, Siberia, Europe, Barbary, the Levant, Madeira, tropical Africa, Jamaica and the Cape of Good Hope. *S. oleraceus* makes its appearance in every quarter of the world.

531. HIERACIUM. *L.* (Hawkweed.)

Calix imbricate, ovate. *Receptacle* nearly naked. *Pappus* simple, sessile, (pale yellowish brown.)

A polymorphous genus, producing scapes with 1 or many-flowers, or leafy stems. Flowers generally yellow.

SPECIES. 1. H. *pusillum.* In Labrador. 2. *venosum.* 3. *Gronovii.* The variety *nudicaule* of Michaux is remarkably pilose, and appears to be a distinct species. 4. *molle.* 5. *paniculatum.* 6. *Kalmii. H. canadense?* Mich. *H. virgatum.* PH. 2. p. 503. 7. *fasciculatum.* PH. 8. *marianum. H. scabrum.* Mich. 9. *prenanthoides. H. macrophyllum?* PH. In Canada.

A genus of about 80 species, indigenous to Europe, with the above exceptions, a single doubtful species at the Cape of Good Hope, and a shrubby one in Madeira.

532. BORKHAUSIA. *Decandolle. Moench.* Species of CREPIS. *L.*

Calix caliculate, at length (in seed) sulcately-costate, exterior scales or calicle loose. *Receptacle* naked. *Pappus* stipitate, pilose.

The other species of *Crepis* with a sessile pappus are

said to be scarcely distinct from *Hieracium*. In this genus the leaves appear to be uniformly pinnatifid, or more or less laciniated; scapes or stems irregularly branched or subcorymbose; scales of the calix mostly embracing the marginal seeds, so as to render them obtusely carinated.

Species. 1. K. *caroliniana*. *Leontodon carolinianum*. Walter. p. 192. *Scorzonera pinnatifida*. Mich. 2. p. 89. *Chondrilla lævigata*. Ph. 2. p. 497. Leaves lanceolate, acute, laciniate, subpinnatifid, or nearly entire, smooth; stem erect, about 3-flowered, peduncles very long; calicle short and subulate. Hab. From Virginia to Florida, common; flowers bright citron yellow, and about the size of *Apargia autumnalis*. Obs. Root perennial. Stems scapoid, nearly solitary, 6 to 12 inches high (including the peduncles), smooth and grooved. Leaves smooth, sometimes pubescent on the margin, primary ones long, linear, and nearly entire, or irregularly dentate, succeeding and sessile cauline leaves, pinnatifidly laciniated, segments very acute. Peduncles 6 to 10 inches long, and nearly naked. Calicle small and spreading. Calix often a little pubescent, formed of a single series of ligulate leaflets, from 12 to 18 in number, grooved in the fruit, and finally reflected. Flosculi very numerous. Receptacle naked. Pappus pilose, stipitate. Seed dark grey, incurved, attenuated above; 5-ribbed, and transversely rugose, the 2 dorsal ribs much smaller than the others.

533. KRIGIA. *Willdenow.*

Calix many-leaved, simple. *Receptacle* naked. *Pappus* double, external membranaceous 5 or 8-leaved, interior about 5, 8, or 24 scabrous setæ.

Small annuals; scapes 1 or more flowered, rarely caulescent; leaves lyrate, runcinate, or entire, mostly glaucous; calix 8 to 12-parted, naked.

Species. 1. K. *virginica*. Glaucous; primary leaves roundish, entire, the rest lyrate and nearly smooth; scape 1-flowered, smooth, at length longer than the leaves; calix smooth. Hab. Common in arid and sandy soils;—Often minute; flowers orange-yellow, as in the other species. Paleæ and setæ 5 to 8.

2. * *caroliniana*. Somewhat glaucous: leaves all runcinate, and nearly smooth; scapes very long, and in common with the base of the calix glandularly pilose. Hab. Near St. Mary's, West Florida.—Dr. Baldwyn. Flowers orange. Obs. A larger species than the preceding. Apparently

the plant which Michaux properly compared with *Leontodon Taraxacum* in miniature. Leaves divided down to the mid-rib, runcinate (or with the segments retrorse and acute.) Calix 8 to 12-parted, simple. Pappus also as in the preceding. May not this be *Hyoseris caroliniana?* of Walter.

3. * *dichotoma.* Somewhat glaucous; dichotomously caulescent; leaves spathulate-linear, nearly entire, smooth, or subciliate; scapes numerous, 1-flowered, very long. *Hyoseris? ramosissima.* W. P. C. Barton. Flor. Philad. Prodromus. p. 75. Hab. "In the sandy fields of New Jersey near to Philadelphia, also in Maryland, on the road from York to Baltimore."—Doctor W. P. C. Barton. *v. s.* Obs. Stem diffusely caulescent, very short; scapes or peduncles 6 to 12 inches long, sparsely pilose. Setæ and paleæ of the pappus mostly in 5's; seed inversely conic, brown, and striate; primary striæ 5, converging, intermediate striæ 10, interposed by pairs (rarely by 3's) shorter than the primary, and coalescing at their base.

4. *montana. Hyoseris montana.* Mich. Flor. Am.

5. *Dandelion.* Glaucous and smooth; leaves linear-lanceolate, acuminate, incisely rarely and remotely toothed; root bulbous, pendulous; scape 1-flowered. Hab. In Virginia. Flower equal in size with that of *K. amplexicaulis,* the pappus double, and almost equally numerous. *Troximon Dandelion,* Persoon. 2. p. 360. *Hioseris angustifolia,* Mich. 2. p. 87.

6. *amplexicaulis. Hyoseris amplexicaulis.* Mich. *H. Prenanthoides,* Willd. Glaucous; leaves oblong-ovate, radical ones subdentate, spathulate; scape subbifoliate, simple or bifid, branches 2 or 3 flowered; flowers long pedunculate, fastigiate; pilose pappus numerous. Hab. Common throughout the eastern and western states. Flowers orange-yellow, as in the other species. Calix simple, about 12-parted, sometimes glandulously pilose at the base. Chaffy pappus external, 8-parted; pilose about 24 scabrous and deciduous setæ. Unquestionably a congener with the above.

Hitherto a North American genus and nearly allied to *Hyoseris.*

534. TROXIMON. *Gærtner.*

Calix oblong, conic, many-leaved, leaflets unequal, imbricated. *Receptacle* naked, puncticulate. *Pappus* sessile, pilose.

Allied to *Tragopogon.* Scapes 1-flowered, leaves nar-

row and entire. Leaflets of the calix indefinite, disposed in an irregular double or triple series; seed cylindric and attenuated, marked with 10 longitudinal ridges; pappus copious, sessile, pilose, white, only simple to the naked eye, partly plumose, seen through a lens.

Species. 1. T. * *glaucum.* Smooth and glaucous; leaves linear-ensiform, flat, entire and naked, shorter than the 1-flowered scape; leaves of the calix imbricated, acuminate, pubescent. Hab. On the grassy plains of Upper Louisiana, near Fort Mandan; rare. Flowering in July and August. *T. glaucum.* T. N. in Fras. Catal. 1813. Ph. 2. p. 505, and 742.

2. * *marginatum.* Scape 1-flowered, somewhat pubescent; leaves linear-lanceolate, acuminate, margin subundate, floccosely pubescent; leaves of the calix imbricated, acuminate, smooth. *T. cuspidatum.* Ph. 2. p. 742. Hab. On the grassy plains of Upper Louisiana; common. Fl. in April and May. Allied to *T. lanatum.* of Palestine. Flowers of both species yellow.

A North American genus with the exception of *T. lanatum.*

†† Flosculosæ. (Florets all tubular; border 5-cleft.)

535. STOKESIA. *L'Heritier,* Sert. Angl. p. 28.

Calix foliaceous, subimbricate. *Corolla* radiate, florets of the ray funnelform and irregular. *Receptacle* naked. *Pappus* 4 setæ.

Herbaceous and caulescent; leaves lanceolate, peduncles solitary, 1-flowered.

Species. 1. S. *cyanea.* Flowers blue.—The only species of the genus, indigenous to South Carolina.

536. ARCTIUM. *L.* Lappa. *Jussieu.* (Burdock.)

Calix globose; scales hooked inwards at the points. *Receptacle* paleaceous. *Pappus* setosely-paleaceous.

Leaves large and cordate, unarmed; flowers paniculate, terminal. Receptacle setose; florets purple.

Species. 1. A. *Lappa.* Naturalized around settlements as in Europe; introduced. The calix remarkable for its adherence to clothing and to the hides of domestic animals.

A genus of 2 species indigenous to Europe.

537. **CYNARA.** *L.* (Artichoke.)

Calix dilated, imbricate, scales carnose, emarginate with a point. *Receptacle* setose. *Pappus* sessile, plumose.

Leaves large, similar to those of *Acanthus* pinnatifid and spiny.

Species. 1. C. *Scolymus.* (Common Artichoke.) Beginning to be naturalized and proving a troublesome weed in some parts of Virginia.—Indigenous to the south of Europe.

538. **CARDUUS.** *L.* (Thistle.)

Calix ventricose, imbricate, scales spiny. *Receptacle* villous. *Pappus* pilose or plumose, deciduous.

Leaves usually spiny, decurrent or sessile. Stigma nearly entire. Anthers bifid at the base, the segments simple or pencillate. Seeds smooth and shining. Pappus articulated to a glandular ring.

Species. 1. C. *pectinatus.* +.

§ II. Cnicus. *Pappus plumose.*

2. *lanceolatus.* Naturalized. 3. *altissimus.* On the alluvions of the Missouri, not far from St. Charles, I have observed this thistle 12 to 18 feet high. 4. *arvensis.* Not commonly naturalized. Abundant round Detroit. I have never seen it in Pennsylvania. 5. *muticus.*

6. * *gluber.* Leaves sessile, pinnatifid, every where smooth, segments spiny, acute, lower ones subdecurrent; calix ovate, glabrous, scales spineless, shortly and setaceously mucronate, obtusely carinate; stem much branched. Hab. In New Jersey. Allied to *C. muticus.* 4 or 5 feet high and slenderly branched.

7. *virginianus.* Stem attenuated, mostly 1-flowered; leaves sessile, lanceolate-linear, margin revolute, distantly and spinosely serrate, beneath tomentose, above very smooth; calix ovate, scales appressed, shortly mucronate, carinate, carina glandulous. Hab. In the forests of North and South Carolina, common. Stem 3 or 5 feet high, slender, attenuating nearly into a solitary and almost naked peduncle; flower purple, somewhat larger than that of *C. arvensis.* Leaves numerous towards the base of the stem.

8. *discolor*. Muhl. and Willd. sp. pl. Stem tall, leafy, and divaricately branched; leaves lanceolate, sessile or amplexicaule, more or less deeply pinnatifid, above smooth, beneath tomentose, segments bilobed, partly ciliated and terminated by spines; calix subglobose, scales ovate spiny. Hab. Common in Pennsylvania and New Jersey, usually on the bushy margins of open swamps. Obs. Stem 3 to 6 feet high, scarcely pubescent, considerably branched, branches rather slender. Leaves variable, always pinnatifid, smooth above, often partly pseudopinnate or divided almost down to the mid-rib, in this case, the segments diverging by pairs are extremely spiny and ensiform; in others the segments are shortly bilobed and slenderly spiny. Calix not commonly large, subglobose, and rather smooth, naked, or sometimes partly involucrate, the scales appressed and terminated by long and slender spines; florets reddish-purple. Fl. July to September. This species appears to be allied to *C. cynaroides* of Crete, judging, however, merely from an ambiguous definition, it is perhaps at the same time very distinct.

9. * *pumilus*. Stem low and retrorsely pilose, 1 to 3-flowered; leaves of the same colour on both sides, amplexicaule, oblong-lanceolate and pinnatifid, segments irregularly lobed, ciliated and terminated with spines; calix large and partly globose, naked, scales appressed, lanceolate, acuminate, spiny. *C. odoratus*. Muhl. Catal. Hab. In the sandy fields of New Jersey, and in the vicinity of New York. Obs. Leaves large, the lowest 12 inches long, the mid-rib beneath densely pilose. Stem 1 to 2 feet high, erect or subdecumbent. Flowers reddish-purple, larger than those of any other North American thistle, and not inelegant. Pappus near 15 lines long. β. *Histrix*. Leaves densely margined with spines; stem simple, 1-flowered. Collected by W. Stuve, M. D. on the banks of the Hudson, in the vicinity of the city of New York.

10. *horridulus*. Rather low and branched; each calix enveloped by an involucrum, scales merely acute; flowers ochroleucous.

11. * *undulatus*. Stem low and few-flowered; leaves amplexicaule, pinnatifidly sinuate, and plicately undulated, on both sides tomentose, but beneath white, lobes bifid and spiny; calix subglobose, scales lanceolate, erect, and mucronate. Hab. On the calcareous islands of lake Huron, and on the plains of Upper Louisiana.—Leaves almost like some species of *Cynara*, but not remarkably large, more slenderly tomentose on the upper side; stem often 1, 2, or few-flowered, and 1 to 2 feet high. Flowers large, reddish-purple.

This vast genus, containing more than 100 species, is almost exclusively indigenous to Europe; a few species exist in Barbary, Egypt, Persia, Siberia and the Levant, there is also 1 doubtful species in India; Carduus appears properly to be confined to the temperate regions of the northern hemisphere.

539. LIATRIS. *Schreber.*

Calix oblong, imbricate. *Receptacle* naked. *Pappus* plumose, persistent, (often coloured). *Anthers* entire at the base. *Seed* pubescent, striate, and inversely conic.

Herbaceous perennials; roots tuberous or fibrous; leaves alternate, perfectly entire, often narrow, glandularly punctate; flowers spiked, or subcorymbose, purple; calix 5, 10, or 20-flowered.—(Style bifid, exserted; seed minutely stipitate at the base, striate, striæ about 10; integument of the seed multivalvular.)

§ 1. *Flowers spiked, roots tuberous.*

Species. 1. L. *spicata.* Calix about 10-flowered. 2. *pycnostachya.* 3. *graminifolia.* 4. *cylindracea.*

5. * *tenuifolia.* Slender and every where smooth; leaves filiformly-linear, very long and crowded, diminishing upwards into short bractes; raceme very long; peduncles filiform, and squamose; calix oblong, mostly 5-flowered, scales oblong and mucronulate. Hab. In the sandy forests of North and South Carolina. Tuber scarcely as large as a walnut. Stem simple, 2 to 3 or 4 feet high, and as well as the leaves smooth. Leaves almost like those of *Pinus palustris*, but flat and linear, near a span long at the root, where they are circularly crowded, and no broader than an ordinary sowing thread, gradually diminishing upwards, they become at length scarcely an inch long, and are, after the manner of the genus, covered with impressed punctures. Raceme from 1 to 2 feet long; peduncles nearly an inch. Florets purple, internally smooth, externally scattered, as usual, with brilliant resinous atoms. Pappus plumose, scarcely longer than the villous seed. A very singular and elegant species.

6. *heterophylla.* Calix 8 to 10-flowered. 7. *aspera.* 8. *pilosa*, β. *gracilis. L. gracilis.* Ph. 2. p. 508. This plant, with which I am acquainted, appears to be merely a smoother variety of *L. pilosa*, but even this plant has a pubescent stem. Calix 8 to 10-flowered.

9. * *resinosa.* Glabrous; leaves linear and crowded; flowers spiked, closely sessile; calix oblong, 4 and 5-

flowered, scales naked, elliptic-oblong, obtuse, appressed, resiniferous, at length hoary. HAB. In the Pine forests of North and South Carolina.—About 2 feet high, every where very smooth. Radical leaves often very long as in *L. heterophylla*, cauline numerous. Spike 6 to 12 inches long. Flowers bracteate, very closely sessile and erect. Scales of the calix resiniferous, at length appearing whitish and furfuraceous. Pappus about the length of the seed, which is large and villous. Florets purple, internally smooth.

10. *elegans*. Stem villous; leaves linear and scabrous; flowers pedunculate; calix about 5-flowered, scales pubescent, internal ones ligulate, coloured. 11. *sphæroidea*. Calix about 20-flowered? 12. *scariosa*. Calix about 20-flowered, subglobose.

13. *squarrosa*. Pubescent and scabrous; leaves linear, lower ones very long; peduncles axillary, 1-flowered; calix large, about 20-flowered, scales foliaceous, lanceolate-ovate, mucronate, rigid and spreading; segments of the florets linear, internally villous. HAB. From Virginia to Florida. About 12 inches high, and few-flowered. The calix unusually large, like that of the genus *Carthamus*. Florets of a bright violet-purple, deeply cleft, and with the segments internally villous, as in no other species of the genus, except *L. cylindracea*. Style very long and deeply cleft, pubescent. Pappus plumose, purplish, about 20-rayed, rays more than twice the length of the pubescent and subcylindric seed.

§ II. *Flowers subcorymbose or fastigiate; roots fibrous.*

14. *paniculata*. PH. Georgia. 15. *paniculata*. Corymb paniculate, coarctate; stem and 5-flowered calix, somewhat viscidly pilose and scabrous; leaves ovate-lanceolate, subacute, and nerved; stem simple. HAB. From Virginia to Florida. Flowers very small.

16. *odoratissima*. Corymb paniculate, stem smooth, simple, and partly naked; leaves smooth, obtuse and glaucous, radical ones oblong-ovate, cauline amplexicaule; calix about 10-flowered. HAB. From Virginia to Florida. (*Vanilla-plant.*) Leaves when dry exhaling the scent of Vanilla, which continues unimpaired for several years, of a thick and opaque consistence, and distinctly nerved, those of the stem very obtuse, the upper ones minute. Calix mostly consisting of a double series of obtuse glandular scales.

17. * *corymbosa*. Stem solitary, simple and hirsute; leaves lanceolate-oblong, obtuse, nearly smooth, upper ones very short; corymb partly simple, about 20-flowered,

peduncles hirsute, nearly naked, 1 to 5-flowered; flosculi about 20 in the same calix, scales smooth, oblong-oval, obtuse. Hab. From North Carolina to Florida; in open swamps, common. *L. tomentosa?* Mich. Flor. Am. 2. p. 93. but it by no means accords with his description or name.—Root perennial, fibrous, fibres thick. Stem about 2 feet high, terete, more or less hirsute and simple, summit somewhat attenuated, corymbiferous. Leaves nearly smooth, or somewhat pubescent, cauline about an inch long, diminishing upwards. Peduncles partly filiform, 2 to 3 inches long. Calix large and hemispherical; scales smooth, about 3 series, membranaceously marginated. Florets pale purple.

18. *bellidifolia.* Low and nearly smooth; stems aggregated; radical leaves spathulate-lanceolate, obtuse, 3-nerved, cauline sublinear; stem paniculately branched, branches subfastigiate, 1 to 5-flowered; calix smooth and hemispherical, containing about 20 florets, scales oblong, obtuse, the lower ones loose and partly spreading. Hab. Abundant on the sand-hills of Wilmington, North Carolina, &c. —Root tubercular, sending out long and thick, simple fibres. Stems about 12 inches high, many growing up from the same root; branches commencing about the middle, sometimes lower, each about a span long, but often shorter. Scales of the calix foliaceous. Flowers purple. Pappus in this and the preceding scarcely appearing plumose, without being examined through a lens; seed distinctly stipitate at the base.

A North American genus. The tuberous rooted species rank amongst the numerous, real or pretended remedies administered for the bite of the Rattle-snake. To the taste and smell the roots appear impregnated with turpentine, and the species are for this reason called "Pinette de Prairie" by the Canadian boatmen. It is also probably from the same cause that *L. spicata* proves diuretic.

540. VERNONIA. *Schreber.*

Calix ovate imbricate. *Stigma* bifid. *Receptacle* naked. *Pappus* double; exterior short and paleaceous, interior capillary.

Herbaceous or shrubby; leaves simple, frequently scabrous, serrated or entire on the margin; flowers terminal, corymbose, rarely spiked, with the flowers secund, generally purple. (Seed subcylindric, shortly stipitate at the base, 10-striate, striatures smooth, or minutely strigose;

pappus through a lens scabrous, often coloured; in the following species purple.)

SPECIES. 1. V. *noveboracensis.* Common from Canada to Virginia. 2. *prælta.*

3. * *altissima.* Leaves lanceolate, serrate, scabrous; stem smooth; calix small and hemispherical, scales appressed, ovate, acute, ciliate, awnless. HAB. Near Savannah in Georgia, and throughout the states of Ohio and Kentucky, on the margins of streams and swamps, very common, and constant to the above character, which may perhaps, at the same time, designate nothing more than the true *V. prælta,* but certainly not the plant so described by Willdenow, Michaux, Pursh, and Persoon.—Stem 6 to 12 feet high, leaves very long, nearly smooth on both sides, though scabrous; stem smooth and brown. Flowers very numerous and small; inner scales of the calix obtuse, without points, external merely acute, and with the points appressed. *v. s.* Anonymous, in Herb. Muhl. OBS. In all the above species the seeds are almost perfectly smooth.

4. *fusciculata.* 5. *angustifolia.* From Carolina to Florida.

6. * *scaberrima.* Leaves linear-lanceolate, acute, closely sessile and very scabrous, nearly entire; corymb subumbellate, few-flowered; scales of the calix lanceolate and naked, filiformly acuminated. HAB. From South Carolinia to Florida. OBS. Stem about 2 feet high, simple, slender, hirsute below, smooth above. Leaves about 2 inches long, varying in breadth, mucronately acute, now and then remotely serrulate, sessile, sometimes subamplexicaule, approximating but not crowded. Corymb small, from 5 to 10 or more flowered. Calix scales filiformly terminated as in *V. noveboracensis.*

7. *oligophylla.* OBS. Stem nearly naked, about 18 inches high; corymb irregularly branched or paniculate; scales of the calix lanceolate, acuminate. HAB. In North and South Carolina; to me a very rare plant. Growing in low and swampy Pine forests. NOTE. In species 5, 6, and 7, the striatures of the seed are strigosely pubescent, seen through a lens, and the pappus more distinctly scabrous; these consequently approach to the genus *Liatris,* but possess the double pappus.

An American genus, with the exception of *V. anthelmintica* of India, the 10 other species comprising the genus are indigenous to the tropical regions of America.

541. KUHNIA. *Willdenow.*

Calix imbricate, cylindric. *Receptacle* naked.

Pappus plumose. *Seed* pubescent, multistriate.

Habit similar to *Eupatorium*. Leaves alternate; flowers ochroleucous.

Species. 1. K. *eupatorioides*. 2. *Critonia*. On the banks of the Schuylkill, near Philadelphia, but rare. Obs. Leaves punctate and glandular on the under side. Seed numerously striate, cylindric, with a corneous cicatrice at the base, and connected to the smooth receptacle by a minute stipe, integument valvular, 10-parted; pappus consisting of about 24 rays.—The only species of the genus.

542. EUPATORIUM. *L.*

Calix simple or imbricate, oblong. *Style* long and semibifid. *Receptacle* naked. *Pappus* pilose, or more commonly scabrous. *Seed* smooth and glandular, quinquestriate.

Shrubby or herbaceous; leaves mostly opposite, in a few species verticillate or alternate, generally entire, seldom trifid, pinnatifid or pseudopinnate; flowers mostly corymbose, very rarely paniculate; calix 3 to 5, 6 to 12 or more than 20-flowered, colour of the flower purple, or white, rarely blue, (as in *E. cœlestinum*.)—Integument of the seed smooth, but glandular, separable constantly into 5 minute valves, the angles connected by 5 fibrous ligatures, which are also common to many other genera. In many of the species, (and in all more or less apparent), there is a circular cicatrice at the base of the seed, surrounding a minute stipe, by which the seed is attached to the receptacle.

Species. 1. E. *faniculaceum*. 2. *coronopifolium*. Flowers in both these species paniculate, in 2 the leaves are pinnatifid, and in No 1, pseudopinnate and filiform. They possess the habit of *Artemisia*, but the calix and seeds of this genus, from which they appear inseparable. 3. *hissopifolium*, Pluk. Amalth. t. 395. f. 6. 4. *linearifolium*. Leaves nearly entire. 5. *sessilifolium*. 6. *truncatum*. 7. *album*. Indigenous also to Japan. 8. *lanceolatum*. 9. *teucrifolium*. 10. *cuneifolium*. 11. *melissoides*. 12. *rotundifolium*. 13. *pubescens*. 14. *ceanothifolium*. 15. *altissimum*. 16. *amoenum*. Ph. 17. *trifoliatum*. 18. *falcatum*. 19. *purpureum*. Obs. Stem smooth and glaucous, fistulous. 20. *maculatum*. 21. *punctatum*. A mere variety of the following? 22. *verticillatum*. 23. *perfoliatum*. 24. *cœlestinum*. Calix from 30 to 40-flowered. 25. *aromaticum*. 26. *ageratoides*. 27. *serotinum*.

This extensive genus of near 80 species is almost peculiarly American, extending beyond the tropics as far as Peru and Paraguay. In Europe there is but a single species with 3-parted leaves, 1 in China, 2 in Japan, 3 at the Cape of Good Hope, 1 in Guinea, another at Mozambique, 1 in Syria, and 2 of doubtful genus in Australasia.

543. MIKANIA. *Willdenow.*

Calix 4 or 6-leaved, equal, 4 or 6-flowered. *Receptacle* naked. *Pappus* pilose.

A genus scarcely distinct from *Eupatorium.* Stems twining or erect. Leaves opposite, ovate, cordate or hastate; flowers corymbose or spiked, corymbs paniculate, axillary, or terminal. Flower and seed as in *Eupatorium.*

Species. 1. M. *scandens.* Flowers in some plants fragrant. 2. * *pubescens.* Stem twining pubescent, leaves cordate and acuminate, angularly toothed, and on either side, as well as the calix, pubescent, lobes divaricate, equal. Hab. In Carolina and Georgia. Flowers pale purple, odorous. Very nearly allied to the preceding.

A genus of 15 species, principally indigenous to the tropical regions of America, there is also 1 species in India, 1 in the Isle of Bourbon, 1 at Sierra Leone, and another at the Cape of Good Hope.

544. CHRYSOCOMA. *L.* (Goldy-locks.)

Calix imbricated, oblong or hemispherical. *Style* scarcely exserted. *Receptacle* naked. *Pappus* pilose, scabrous, rays crowded and unequal. *Seed* pubescent.

Shrubby or herbaceous; leaves alternate and entire, often narrow; flowers mostly corymbose and terminal, yellow, rarely purple; calix 3 or 4, 5, or more than 20-flowered, in *C. Linosyris*, &c. hemispherical, in all the North American species oblong, small, and attenuated at the base, the scales are likewise rigid and carinate. Notwithstanding this diversity of aspect, the genus appears to be perfectly natural, and presents gradations from one extreme to the other.

Species. 1. C. * *graveolens.* Shrubby; leaves linear, 3-nerved, smooth and impunctate; branches whitish, pulverulently tomentose; flowers corymbosely fastigiate and crowded; calix angular and smooth, 5-flowered. Hab. On the banks of the Missouri in denudated soils; common.

C. dracunculoides. PH. 2. p. 517. OBS. stem shrubby and much branched, from 6 to 8 feet high. Leaves narrow and numerous, about 2 or 3 inches long, only 1 or 2 lines wide. Flowers numerous, in terminal, flattish clusters, of a brilliant yellow. Scales of the calix rigid, and obtusely carinate. Style bifid and pubescent, exserted. Seed villous. The scent of the whole plant strong and disagreeable somewhat like that of Rue.

2. *nauseosa.* Pallas. Herbaceous; leaves narrow, linear, and as well as the calix subtomentose; corymb loose; calix 5-flowered. HAB. On the banks of the Missouri; rare.

3. *nudata.* Herbaceous; every where smooth, radical leaves spathulate-lanceolate, 3-nerved; cauline scarcely any, linear; stem nearly naked; corymb compound, fastigiate; calix oblong, 3 or 4-flowered. HAB. On the margins of swamps from Virginia to Florida.

4. * *virgata.* Herbaceous and every where smooth; leaves all narrow and linear, stem virgately branched, branches corymbiferous, fastigiate; calix oblong, 3 or 4-flowered, scales glutinous and appressed. HAB. On the borders of swamps in New Jersey, near the sea-coast. OBS. Nearly allied to *C. nudata,* but distinct, and resembles more *Solidago tenuifolia* with which it might easily be confounded. The stem is about 18 inches high and branched nearly from the base. Leaves 1 to 2 inches long, about a line wide, smooth and thickish, nerveless, somewhat remote. Calix and florets bright yellow. Seed villous; pappus unequal.

A genus of about 22 species, principally indigenous to the Cape of Good Hope, North America, and Siberia; there is also 1 species in Europe, 1 in Syria indigenous to Mount Horeb, and 2 to New Holland.

545. CACALIA. *L.*

Calix cylindric, oblong, the base only somewhat caliculate. *Receptacle* naked. *Pappus* pilose.

Shrubby or herbaceous; leaves often succulent, in others flat; flowers in terminal corymbose panicles, purple, white, or ochroleucous. Calix in 4 indigenous species 5-leaved, 5-flowered, and not caliculate; pappus very white, scabrous and abundant, deciduous from the connecting torus. Seed smooth, producing 10 striæ as in *Senecio,* from which genus *C. suaveolens,* with a many-flowered calix, does not appear to be distinct.

SPECIES. 1. C. *atriplicifolia.* The receptacle in this

and the 2? following producing a single chaffy scale from the centre. 2. *reniformis.* Common on the banks of the Susquehannah and Potomac rivers.

3. * *tuberosa.* Root tuberous, stem herbaceous; leaves petiolate, ovate, obtuse, 5-nerved, entire; flowers corymbose, subfastigiate; calix 5-flowered, naked, 5-leaved, leaflets carinate. HAB. On shady hills near Natchez, on the banks of the Missisippi, and also around St. Louis, where it was discovered by Mr. J. Bradbury, F. L. S. OBS. Root a round tuber, nearly similar to a small turnip. Stem 4 to 6 feet high. Lower leaves thickish, all entire on the margin. Flowers nearly white. The plant not glaucous. This species flowered in the garden of Messrs. Frasers in London, in the summer of 1813. from roots which I had collected at Natchez.

4. * *lanceolata.* Herbaceous; stem and leaves on the under side glaucous; leaves ovate-lanceolate, acute, nearly entire, and 3-nerved, lower ones petiolate, the upper sessile, corymb few-flowered; calix 5-leaved, naked, leaflets flat; flosculi 5. HAB. In Georgia and Florida.—Dr. Baldwyn. OBS. Stem simple and slender, about 3 feet high. Leaves gradually diminishing in size upwards, the larger ones now and then producing 1 or 2 dentures on either side about the middle. Corymb simple. Probably this is the species mentioned in Michaux's note under *C. atriplicifolia.* Fl. Am. 2. p. 96, as growing in the Illinois territoty. It approaches very near to the preceding; but is a much smaller plant and glaucous, besides the specific difference. 5. *suaveolens.* A Senecio. Flowers ochroleucous. Tube of the florets globose at the base. Seed small.

All the species in this Catalogue, except the last, appear properly referrible to the genus *Kleinia,* having a simple, equal, 5-leaved calix. At the same time the aspect of *K. porophyllum* appears to be very different.

546. SPARGANOPHORUS. *Gærtner.*

Calix subglobose, imbricate, scales recurved at the point. *Receptacle* naked. *Seed* crowned with a small subcartilaginous cup.

An heteromorphous and probably unnatural genus, containing only 3 species. In *S. Struchium* of Jamaica the flowers are glomerated, axillary and sessile, with the florets all trifid, and the cup of the seed quadricrenate; in *S. Vaillantii* of India, the flowers are sessile and lateral, and the cupula of the seed perfectly entire. *S. verticillatus,* which is aquatic, produces setaceously linear leaves ver-

ticillated in 6's, stem terminated with 1, more rarely 3 pedunculated, hemispherical flowers, with the margin of the seed campanulate and 5-toothed.

Species. 1. S. *verticillatus*. Flowers pale purple. Hab. From New Jersey to Florida. (Common in Sussex county, Delaware.)

547. HYMENOPAPPUS. *L'Heritier.*

Calix many-leaved, spreading: leaflets suboval, coloured. *Receptacle* naked. *Pappus* paleaceous, many-leaved (5 to 8?), segments very short and obtuse, awnless.

Herbaceous; leaves pinnatifid, alternate; lower ones sometimes opposite; flowers subcorymbose.

Species. 1. H. *scabiosæus*. 2. *tenuifolius*. Ph. Obs. Biennial; root fusiform; stem erect and grooved, canescently tomentose in common with the leaves. Leaves alternate, irregularly subbipinnatifid, segments filiformly-linear, entire, thickish and convex. Flowers greenish-white, fastigiately paniculate, as in many species of *Senecio;* the calix scarcely spreading. Hab. On gravelly hills, near the banks of the Missouri; common.

The two species here enumerated appear at present to constitute the genus; *H. anthemoides* with a double pappus, and linear decurrent leaves, ought to be separated.

548. * POLYPTERIS. †

Calix many-leaved, spreading; leaflets suboval, coloured. *Receptacle* naked. *Pappus* paleaceous, about 12-leaved; leaflets rigid and cuspidate, the length of the seed.

Herbaceous; leaves alternate and entire; flowers corymbose, distinct.

P. integrifolia.

Descript. Perennial. Stem erect and terete, slightly scabrous, 3 or 4 feet high, branches fastigiate, corymbose. Leaves all alternate, approximate, linear-lanceolate, shortly petiolate, entire on the margin, and on both sides very scabrous; 2 to 4 inches long, and about 5 or 6 lines wide. Peduncles by 3's, sometimes trichotomous, 1 to 2

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† (Many-winged.) In allusion to the conspicuous and copious foliaceous pappus.

inches long and naked. Calix from its spreading and the minuteness of the base or receptacle, resembling an involucrum much more than in *Hymenopappus;* scales or leaflets disposed partly in 2 rows, from 12 to 15, the exterior smaller, the larger oblong-elliptic, membranaceous, and whitish. Flosculi numerous; the tube pubescent, border campanulate, 5-cleft; segments long, linear and reflected. Tube of the stamina entire at the base, exserted. Style bifid, scarcely exserted; stigmas linear-oblong, pubescent. Seed blackish, subquadrangular; inversely conic, attenuated downwards, a little scabrous but not villous, about 2 lines long; pappus 12 to 14 leaved, paleaceous, leaflets linear-lanceolate, exactly the length of the seed, and somewhat lacerate, having a rigid setaceous nerve, naked or cuspidate towards the extremity, and externally pubescent. HAB. On the banks of the Altamahah.—Dr. Baldwyn.

549. MELANANTHERA. *Michaux.*

Calix imbricate, leaflets ovate, appressed, subequal. *Receptacle* paleaceous, scales carinate, the lower part embracing the florets. *Pappus* consisting of 4 or 5 unequal unarmed awns.

Herbaceous: leaves opposite; peduncles 1-flowered, solitary, axillary and terminal. Florets white, stamina nearly black.

SPECIES. 1. M. *hastata.* Leaves hastately 3-lobed. HAB. Abundant round Savannah in Georgia, growing in wastes as if merely naturalized.—A second species is noticed by Michaux as indigenous to the West India Islands.

550. MARSHALLIA. *Willd.* TRATTENIKIA. *Persoon.*

Calix imbricate, scales sublanceolate, incumbent. *Receptacle* paleaceous. *Pappus* of 5 membranaceous, acuminate, nerveless scales.

Herbaceous; leaves alternate, entire, for the most part longitudinally nerved; stem simple or branched, stems arid, branches terminating in 1-flowered peduncles; flowers pale violet-purple, externally pubescent. Receptacular paleæ foliaceous, at length rigid, exserted; seed obconic, pentangular, integument double, the exterior valvular, the interior brownish and membranaceous.

SPECIES. 1. M. *lanceolata.* 2. *latifolia.* 3. *angustifolia.* HAB. From North Carolina to Florida; in open swamps.—A North American genus.

551. SANTOLINA. *L.* (Lavender Cotton.)

Calix imbricated hemispherical, scales carinate, with scariose points. *Receptacle* paleaceous. *Pappus* none.

Suffruticose or herbaceous; leaves mostly minute, in some species imbricated, in a few others pseudobipinnate or mutifidly dissected; flowers often solitary and terminal, pedunculate or ramuline. Scarcely a natural genus?

Species. 1. S. *suaveolens*. Ph. Hab. In Northern California.—M. Lewis. This plant, introduced by the late Governor Lewis, became a weed in the garden of Mr. M'Mahon, where Mr. Pursh, no doubt, saw it in a living state. Is it not much more nearly allied to *Anthemis* than to *Santolina*, notwithstanding the absence of radii, which do not always constitute a generic distinction?

A genus of about 12 species, almost exclusively indigenous to the South of Europe.

Order II.—POLYGAMIA SUPERFLUA.

(Florets of the disk bisexual, of the ray feminine; all fertile.)

† *Florets discoid; those of the ray obsolete.*

552. TANACETUM. *L.* (Tansey.)

Calix imbricated, hemispherical, scales acuminated. Rays of the *corolla* obsolete, trifid. *Receptacle* naked. *Pappus* submarginate.

Herbaceous, rarely suffruticose, leaves simple, or pseudopinnate; flowers corymbose, yellow.

Species. 1. T. *vulgare*. Naturalized. 2. * *huronense*. Leaves pseudobipinnate, incisely serrate, under side partly tomentose; pedicells enlarged; flowers larger; radii irregular, 4 and 5-cleft. Hab. With *Artemisia canadensis* on the sandy shores of Lake Huron, near Michilimakinak; abundant. Obs. Perennial. Nearly allied to *T. vulgare*, and about the same magnitude. Flowers corymbose, citron-yellow, and much larger than in the common species; rays entire, and also 4 and 5-cleft.

A genus of 18 species, almost peculiar to the Cape of Good Hope and the Levant, with 1 species in Siberia, and another indigenous to Europe.

553. ARTEMISIA. *L.* (Wormwood, Southernwood, &c.)

Calix imbricated, scales rounded, connivent. *Rays* of the corolla none. *Receptacle* subvillous, or nearly naked. *Pappus* none.

Shrubby or herbaceous; leaves mostly multifid, flowers often racemose.

§ 1. *Leaves simple.*

Species. 1. A. **longifolia.* Stem simple and herbaceous; leaves mostly entire, linear-lanceolate, acuminate, margin reflected, under side white and tomentose; flowers cylindric-ovate, erect, racemose and somewhat conglomerate, sessile. Hab. In rocky situations, on the banks of the Missouri, from the confluence of White River to the Mountains? Obs. Very odorous. Stems several, simple, rarely suffruticose; leaves very long, and almost linear, pubescent on both sides, but beneath tomentose; flowers small; receptacle naked.

2. * *serrata.* Stem tall and herbaceous; leaves lanceolate, acuminate at either extremity, margin serrate, upper side smooth, under tomentose and white, flowers paniculate, partly glomerate, erect; calix small, cylindric-ovate, and nearly smooth. Hab. Near the Prairie du Chien, on the banks of the Missisippi, also on the banks of the Missouri, in open alluvial soils. Stem 5 or 6 feet high; flowers very small. Leaves 6 to 8 inches long, and an inch wide, sharply but not very regularly serrate.

3. * *columbiensis.* Shrubby and canescent; leaves linear-lanceolate, acute and flat, on either side equally canescent, all of them very entire; flowers oblong, glomerate, sessile and axillary, all hermaphrodite.—Hab. On the arid and saline hills which border the Missouri and the lesser streams, commencing about 30 miles below White River; and continuing to the Mountains (or Northern Andes), it occurs still more abundantly on the barren plains of the Columbia river; in these regions, I am credibly informed, that it furnishes the savages with the sole article of fuel or of shelter, which they meet with in wandering over these woodless deserts. It is the plant which was known to the party of Lewis and Clarke by the name of "Wild Sage," and appears to be *A. cana.* of Pursh. Fl. Am. 2. p. 521. Obs. Stem 6 to 8 or 12 feet high, much branch-

ed. The whole plant highly aromatic, but with the scent and bittterness, peculiar to this genus. Florets 5 or 6 in each calix, all hermaphrodite. Style bifid, short, stigmas fringed at the summit and channelled on the inner side, characters common to several other species which possess the naked feminine flowers.

4. * *Gnaphalodes.* Canescently tomentose; stem simple and herbaceous; leaves linear-lanceolate, nearly entire, on either side tomentose; flowers conglomerate, pedicellate, nutant, and racemose; calix oval-oblong; feminine florets 6 to 7. Hab. On dry savannahs about Green Bay, Lake Michigan, and on the banks of Fox river, and the Missouri. Flowering in September. *A. integrifolia?* Ph. Obs. Perennial. Stems 1 to 2 feet high. Florets brown. Odor and taste similar to that of *A. Absinthium.*

5. * *ludoviciana.* Stem simple and herbaceous; lower leaves incise, subpinnatifid, the upper lanceolate and entire, on both sides pubescent, beneath tomentose; flowers ovate, erect and sessile; calix pubescent, panicle simple.—Hab. On the banks of the Missisippi, near St. Louis; also on the alluvial plains of the Missouri. Obs. Perennial. Stem about 2 feet high. Lower stem leaves lanceolate, irregularly and divaricately laciniate, segments entire, oblong-lanceolate and acute.

6. * *cernua.* Stem herbaceous and much branched; radical leaves trifid, lower ones laciniated, at first canescently pubescent, uppermost and ramuline entire, linear-lanceolate, and smooth; racemes paniculate, nutant; flowers pedicellate, subglobose, inclined; calix scariose.—Hab. In Louisiana. Abundant in the shrubby savannahs around St. Louis, and on the banks of the Missisippi and Missouri. *A. nutans.* T. N. in Fras. Catal. *A. Dracunculus.* Ph. 2. p. 521. *A. dracunculoides.* P. in Suppl. 2. p. 742. Obs. Stem erect, exceedingly branched and smooth, 6 to 8 feet high, sometimes apparently suffruticose; branches slender and nodding. Radical leaves cuneate, short and trifid, succeeding ones twice trifid or more compound; upper leaves like those of *A. Dracunculus*, but neither aromatic nor agreeably scented. It appears to be very nearly related to *A. nutans* of the Don.—

7. *chinensis.* North-West-coast.

§ 11. *Leaves compound; stem paniculate.*

8. *Sontonica?* Ph. 9. *sericea.* Willd. Gmel. Sib. p. 131. t. 64. f. 1. *A. frigida.* Ph. 2. p. 521. Obs. Stems low, many from the same root, diffuse, when flowering adscendent, erect, and somewhat branched, racemose, about a foot high; flowers large and hemispherical, somewhat nodding. Leaves pseudopinnate, covered with a silky

white tomentum, segments trifid, linear, almost filiform and acuminate. Receptacle villous. HAB. On the summits of the highest gravelly hills of the Missouri; commencing to appear about Plum creek. Scent and bitterness similar to that of *A. Abronatum.*

10. *biennis.* Abundant in the suburbs of St. Louis and St. Charles, on the Missouri, but does not continue any considerable distance up that river. Has it not been introduced from Spain? 11. *annua?* HAB. On the island of Michilimakinak in Lake Huron. A smaller plant than the preceding which it greatly resembles, but is annual.

12. *canadensis.* Stem herbaceous and paniculate, mostly erect; radical leaves subpseudopinnate, somewhat deciduously tomentose, cauline pseudopinnate, segments subsetaceous, incise, flat, and nearly smooth; flowers partly glomerate and sessile; calix subglobose, scales oval, scariose; flosculi numerous. HAB. Abundant on all the sandy shores of the St. Laurence, lakes Erie, Huron, Michigan and Superior; also on the hills of the Missouri, around the Mandon towns to the Mountains? *A. campestris.* PH. Fl. Am. p. 522. It possesses considerable affinity to *A. campestris,* but the flower is much larger, hemispherical and sessile, with scariose scales, it is also a much larger plant. OBS. Stem sometimes decumbent at the base, commonly erect, 3 or 4 feet high, smooth and mostly brown; lower and radical leaves covered with a slender cotton-like tomentum, unequally spread; upper leaves nearly smooth.

13. *caudata.* Stem simple and herbaceous, densely and pyramidally paniculate; radical and lower cauline leaves pseudobipinnate pubescent; upper pseudopinnate, seg- segments subsetaceous, alternate, divaricate, somewhat convex; flowers pedicellate, erect, globose-ovate. HAB. On the islands of Egg-harbour, N. Jersey, and in the barren woods of North Carolina. I have never seen this plant near the Missouri nor in any part of Louisiana, and believe Michaux's habitat to be erroneous. It is very nearly allied to *A. canadensis;* variable in magnitude; in Carolina I found it 6 feet high; on the strand of New Jersey scarcely 2 feet.

14. *vulgaris.* The American plant, from imperfect specimens in my possession, will I believe prove a very distinct species;—the lobes of the leaves are obtuse; on the under side, very densely tomentose, and white, above also covered with impressed punctures. This plant which may not be that of Michaux, I observed without flowers, in various parts of North Carolina, in the most sequestered forests. 15. *spithamea.* PH. In Labrador.

The rest of this extensive genus of more than 80 species is principally indigenous to Siberia, the warmer parts of Europe, Persia and the Levant; there are also a few species in Barbary, at the Cape of Good Hope, in India, China and Japan. *A. sericea* of the Missouri is also common to Siberia, and *A. biennis* to the south of Europe.

554. BACCHARIS. *L.* (Groundsel-tree.)

Calix imbricate, cylindric, scales ovate, subcoriaceous. *Feminine* florets intermixed with the hermaphrodite. *Receptacle* naked. *Pappus* pilose.

Shrubby, rarely herbaceous; flowers often fastigiate, in some species dioicous.—Pappus simple, very long; seed smooth, 10-striate.

Species. 1. B. *angustifolia.* 2. *glomeruliflora.* 3. *halimifolia.*

Principally a tropical genus and indigenous to America; a few species exist in India and at the Cape of Good Hope. The large subgenus Molina, appears to be, with a single exception, peculiar to South America, extending as far as the Straits of Magellan.

555. CONYZA. *L.* (Flea-bane.)

Calix imbricated, scales sublinear or ovate, often subscariose. *Radii* none; feminine florets marginal, and 3-toothed, mostly numerous. *Receptacle* naked. *Pappus* simple and capillary, of few rays.

Herbaceous or shrubby; leaves entire, in a few species decurrent upon the stem; flowers mostly corymbose or terminally paniculate; rarely spiked.—Feminine flowers fertile, hermaphrodite mostly sterile. Seeds smooth or pubescent, minute; pappus rather short, consisting (in the following species) of from 20 to 30 rays. Scarcely distinct from *Gnaphalium.*

Species. 1. C. *marylandica.* Peculiar to salt-marshes, from New York to Carolina. It differs from the following in being annual, and in having both the calix, and ovate acute leaves pubescent; the form and proportion of the calix is the same; it is also a smaller plant. 2. *camphorata.* Ph. 3. *bifrons.*

4. *pycnostachya.* "Black Root" of Georgia. Root tu-

berous, as large as a Potatoe. Leaves lanceolate, subdenticulate, decurrent on the stem, beneath tomentose; flowers in a subsessile, cylindric, dense spike; florets all fertile, feminine few; seed pubescent; tube of anthers exserted. Flowers whitish, all the others are pale purple; none of them appear to be congeners with *C. squarrosa.*

This extensive genus of near 80 species is principally indigenous to India and its islands, with a few species in Africa, America, and Europe.

556. **GNAPHALIUM.** *L.* (Cud-weed. Everlasting.)

Calix imbricated, marginal scales rounded, scariose, shining and coloured. *Radii* none; feminine florets marginal, entire, mostly numerous. *Receptacle* naked. *Pappus* pilose, or scabrous.

Shrubby or herbaceous; leaves alternate, mostly tomentose and canescent; flowers commonly terminal, glomerate or corymbose; calix persistent, scales yellow, reddish, or white. Flowers in many species all hermaphrodite; in 2 dioicous. A genus scarcely distinguishable from the preceding, except by habit.

Species. 1. G. *margaritaceum.* 2. *polycephalum.* 3. *purpureum.* 4. *plantagineum.* Hermaphrodite flowers conglomerated by 6's. 5. *alpinum.* 6. *sylvaticum.* 7. *americanum.* 8. *uliginosum.* 9. *germanicum.*

A genus of 120 species, most of which are indigenous to the Cape of Good Hope, there are also a few species in Europe, in India, and in South as well as North America.

†† *Flowers radiate, or with the florets of the margin ligulate.*

557. **ERIGERON.** *L.* (Flea-bane.)

Calix imbricated, subhemispherical, in fruit often reflected. *Rays* of the corolla linear, very narrow, and numerous. *Receptacle* naked. *Pappus* double, exterior minute, interior pilose, of few rays, (12 to 25?)

Herbaceous; stems simple or branched, flowers solitary, axillary and terminal, subcorymbose or fastigiately paniculate; radii white, or purplish, rarely destitute of

pappus. Seed very small, rather smooth, oblong, and compressed; pappus simply pilose, deciduous, not much longer than the seed, exterior pappus minute and paleaceous.

§ 1. *Stem simple.*

Species. 1. E. *alpinum.* 2. * *pumilum.* Hirsute; stems aggregated, 1-flowered, leaves oblong-linear, entire and sessile; flower large and hemispherical, before flowering nutant; calix very hirsute. Hab. On the plains of the Missouri. Flowering in May. *E. hirsutum.* Ph. 2. Suppl. p. 742. but this name has been previously employed for another species. Obs. Stems several from the same root, often, indeed, connected at the base, 4 or 5 inches high, 1-flowered. Leaves 2 inches, more or less, nearly linear, attenuated downwards, scarcely 2 lines wide. Flower naked, (or pedunculate) white, and large as a Daisy; rays as long as the calix, narrow and numerous. Pappus double, internal short, about 12-rayed.

3. * *asperum.* Hirsutely scabrous; stem about 2-flowered, slender; leaves lanceolate-acute and entire; flower hemispherical, white. Hab. On the plains of the Missouri. Flowering in August. Stem solitary, scarcely 12 inches high, covered with short and very hispid hairs in common with the leaves. Leaves narrow; radical ones spathulate-lanceolate. Peduncles 2 or 3, subterminal, the lateral one longest, after the manner of *E. nudicaule.* Rays numerous, white. Pappus double, interior simply pilose, of about 20 rays, much longer than the smooth seed, slightly rufescent.

4. *nudicaule.* Considerably allied to the preceding, but with the radical leaves smooth, the stem slender and remarkably naked, peduncles proliferous, and few, the primary ones subfastigiate. Flowers small and hemispherical, nearly white. Pappus double.

5. * *ambiguum.* Pubescent and somewhat scabrous; stem terete, leafy and attenuated, few-flowered; leaves elongated, oblong-linear; lower ones subserrulate towards the middle; flowers small and yellowish, by pairs, partly axillar and terminal; calix hemispherical. Hab. In Georgia. May this be *E. caroliniauum?* certainly not *E. hyssopifolium* of Michaux; but the stem is simple and not paniculated, and about 18 inches high. Leaves 2 to 4 inches long, 2 to 4 lines wide, sessile, and attenuated downwards. Flowers about 8 or 10, more or less, small, and pale yellow. Pappus double?

6. * *glabellum.* Perennial; leaves linear-lanceolate, entire, smooth and acute, radical long petiolate, spathulate-lanceolate and nerved; upper part of the stem and

hemispherical calix pubescent; stem 3 to 5-flowered, peduncles axillar and terminal. Hab. On the plains of the Missouri, (around Fort Mandan, abundant) Flowering in August. Stem 12 to 18 inches high, simple, smooth below; lower leaves of the stem much attenuated below, 3 or 4 lines wide, smooth; peduncles about 2 inches long, pubescent; flower the size of a Daisy, pale blue; rays very numerous. Seeds smooth; pappus double, exterior whitish, interior short, simply pilose and rufescent.

7. E.? *bellidifolium.* Canescently hirsute; radical leaves obovate, subserrate, stem leaves remote, oblong-ovate, amplexicaule, entire; stem 3 to 5-flowered; radii nearly twice the length of the hemispherical calix. Hab. From Canada to Virginia, and on the mountains of Carolina; common.—Perennial. Flower usually large, blueish. Pappus *simple*, of about 30 rays. Nearly allied to *Aster*. 8. *quercifolium.* †. 9. *purpureum.* 10. *E.? compositum.* Ph. Some other genus?

§ 11. *Stems paniculate or branched.*

11. *philadelphicum.* Pappus double. 12. *strigosum.* Pappus double. 13. *heterophyllum.* Rays without pappus! pappus of the hermaphrodite florets double, the inner of about 15 rays. 14. *hyssopifolium.* 15. *longifolium.* What genus?

* Cænotus. † *Calix* oblong, in fruit reflected. *Rays* of the flower very numerous and minute. *Receptacle* naked. *Pappus* pilose, simple.

Annual plants, divaricately branched; flowers very copious and inconspicuous; radii composed of more than a simple series, more numerous than the florets of the disk, after the manner of *Conyza* and *Gnaphalium;* hermaphrodite florets mostly 4-cleft; pappus pilose, of 12 to 15 rays, persistent, the minute exterior pappus of *Erigeron* wanting; seed oblong, compressed, 2-edged. Tube of the discal florets inflated as in many species of Erigeron.

16. *canadense.* Stem erect, hirsutely pilose, and much branched, branches paniculate; leaves linear-lanceolate, ciliate; radical toothed. Hab. A most common weed, extending throughout North America and Europe.

17. * *pusillum.* Erect, low and slender; stem smooth; panicle nearly simple, peduncles almost naked, filiform and divaricate; leaves lanceolate-linear, all entire, margin

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† From κοινος, *common*, or *vulgar;* C. canadensis, being one of the most common of all weeds in North America.

scabrous; discal florets 4-cleft. HAB. In New Jersey and Pennsylvania, common; passing for a minute variety of the preceding, from which it differs in several particulars which are sufficiently constant. From 4 to 6 inches high, the preceding from 2 to 6 feet; in this the panicle is simple with a fastigiate tendency, the ramuli naked, or merely squamose, and elegantly divaricate, each perfecting 2 or 3 flowers.

8. *divaricatum*. Decumbent; divaricately and diffusely branched, ramuli fastigiate; leaves subulate; discal florets 4-cleft. HAB. In Kentucky; also abundant around St. Louis, Louisiana, on the margin of the Missisippi; and more or less along the course of that river to New Orleans. Very distinct from the preceding by its diffuse and decumbent stem, which scarcely exceeds 6 inches in height, but spreading out 1 or 2 feet.

The genus Erigeron, now comprising about 50 species, extending through both hemispheres as far as the Straits of Magellan, will probably be retrenched, if ever carefully revised. From the number of species, which I have examined at least patiently, I am convinced that in this, as in many other natural genera, we must seek for character under the microscope. In every genuine species of Erigeron, we may, I think, confidently expect the presence of a double pappus, a distinction which is not altogether invisible to the naked eye in such species as have the pilose crown coloured, the small, external paleaceous rays being then readily distinguishable by their whiteness. The paucity of rays in the pilose pappus, which are scarcely scabrous through an ordinary lens, their pale colour, together with the form, diminutive size and comparative smoothness of the seed, will be found useful characters when contrasted with Chrysopsis, which also possesses a double pappus, and in some of its extremes approximates to Erigeron.

558. INULA. *L.* (Flea-bane.)

Calix squarrose or imbricate. *Rays* of the corolla numerous, yellow. *Anthers* each bisetose at the base. *Receptacle* naked. *Pappus* simple.

Flowers terminal, often corymbose.

SPECIES. 1. I. *Helenium*. Naturalized in many parts of the state of New York.

* Chrysopsis.† *Calix* imbricated. *Rays* of the corolla mostly yellow. *Anthers* naked at the base. *Receptacle* naked. *Pappus* double, exterior paleaceous, minute, interior scabrous, many-rayed. *Seeds* obovate, villous.

Herbaceous; flowers fastigiate, subcorymbose, stem simple or paniculately branched; radial florets rarely ever more numerous than in *Aster*, to which this subgenus is very closely related.--Scales of the calix unequal, rigid, subcarinate, and pointed; anthers naked, or not bisetose at the base. Minute exterior, paleaceous pappus, white, the interior conspicuously scabrous, (through a common lens) often fuscous or rufescent, consisting of more than 40 rigid rays. ‡

Species. 2. *gossypina.* From Virginia to Florida. Abundant throughout the Pine-barrens of North Carolina, particularly near Wilmington.--Perennial; leaves all entire, radical ones spathulate-lanceolate, cauline cuneate-oblong, obtuse, with a point, lanuginous, in common with the whole plant, except the corolla; peduncles fastigiate, corymbose, 1-flowered; flower bright golden-yellow, larger than that of *C. mariana;* radial florets about 25. Pappus rufescent, rigid and conspicuously scabrous; external minute, paleaceous, simple and white; seed obovate, villous. The aspect of this species is more like that of the European *Inula* than any other in this Catalogue, but the anthers are not bisetose at the base.

3. * *trichophylla.* Corymb simple; leaves entire, oblong, obtuse, subamplexicaule, lanuginously pilose, and scabrous on the margin, diminishing upwards; fastigiate peduncles and hemispherical calix smooth. Hab. In North and South Carolina and Georgia. It appears to be an intermediate species betwixt the preceding and *C. mariana.* Obs. Perennial; upper leaves oblong-lanceolate, green, and sparingly lanuginous; stem 12 to 18 inches high, simple, nearly smooth, attenuated upwards, 3 to 6, or 9-

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† In allusion to the prevailing yellow colour of the flowers.

‡ Note. *Inula dysenterica* and *I. Pulicaria* also possess a double pappus, but in these the anthers are bisetose at the base, and the rays of the pilose pappus in the first about 24, and in *Pulicaria* only 8 or 10; the radial florets are also very numerous and linear. In the following species, I have observed the pappus to be simple; viz. *Inula Helenium, I. britannica, I. germanica, I. oculus Christi, I. odora, I. Vaillantii, I. crithmifolia, I. suaveolens, I. japonica, I. squarrosa,* and *I. hirta;* in most of these the anthers are also bisetose.

flowered, flowers large as the preceding, and of the same colour; calix remarkable for its smoothness. Pappus double; seed elliptic-obovate, villous.

4. *mariana.* Corymb simple: stem and leaves for the most part sericeously sublanuginous; leaves sessile, nearly equal in size, oblong-elliptic, subovate, obtuse, distantly denticulate; fastigiate peduncles and calix viscidly pubescent. β. *falcata. I. fulcata?* Ph. Corymb coarctate, many-flowered, simple or compound; stem and leaves sericeously sublanuginous; leaves sessile, nearly equal, oblong-lanceolate, canaliculate, acute and spreading; margin remotely denticulate; fastigiate peduncles and calix viscidly pubescent. Hab. In New Jersey, common; scarcely a distinct species from the preceding; the flowers are more numerous, and the leaves opaque and remarkably channelled; flowers bright yellow and abundant, corymb sometimes effuse, but usually crowded; rays oblong, tridentate. Pappus double, seed obovate and villous.

5. *graminifolia.* Corymb compound; stem and leaves covered with an appressed sericeous pubescence; leaves entire, linear-lanceolate, erect and acute; calix oblong, glandularly pubescent. *Erigeron nervosum,* Willd. Hab. From Delaware to Florida.

6. *argentea.* Every where sericeous; corymb compound; leaves entire, lanceolate-linear, ereet and very acute; calix turbinate, pubescent, but not glandular. Hab. From Virginia to Florida. Very nearly allied to the preceding which it generally resembles, it is, however, narrower leaved, and ought therefore to have been considered the *graminifolia* of Michaux, but the calix is not glandular; the leaves of Persoon's *argentea* are then those of Michaux's plant. The pubescence in these 2 species is extremely singular, appearing like white silk laid evenly and longitudinally along either surface of the leaf; the radial florets are also only 8 or 10 in number; the pappus distinctly double, and the seeds obovate and villous.

7. *villosa.* Subdecumbent and hirsutely villous; leaves entire and sessile, linear-oblong, subspathulate, acute, lower part ciliate, margin scabrous; stem branched, branches subcorymbose, flowers fastigiate. Hab. On the plains of the Missouri; from its confluence to its source? *Amellus villosus.* Ph. 2. p. 564. Obs. Perennial: stems many from the same root, producing a double pubescence, both villous and pilose; rays golden-yellow, about 25, entire, and linear-oblong. Pappus double; seed obovate, villous.

8. *scabra.* Biennial; stem hispid and branched; branches subcorymbose; lower leaves petiolate, subdentate, the up-

per sessile, and oblong-ovate, all scabrous, on the upper side, as well as the peduncles and calix, somewhat viscidly glandular. HAB. Around Savannah, in Georgia; common.—Stem more irregularly branched than in any other genuine species; flower branches terminal, in old plants also axillary; radical leaves suboval, conspicuously petiolate; flowers yellow, rather small. Pappus reddish-brown, and scabrous, the exterior paleaceous crown white. Anthers simple at the base, not setose. This species continues flowering into December, in the vicinity of Savannah.

10. * *divaricata.* Biennial: somewhat hispid and scabrous; leaves lanceolate-linear, subserrate, acute, attenuated downwards, uppermost sessile, and ciliate towards the base; panicle dichotomously divaricate, corymbose; peduncles and calix viscidly pubescent. HAB. In the vicinity of Savannah in Georgia; common. Discovered by Dr. Baldwyn. Flowers smaller than in any other species, bright golden-yellow. Leaves narrow, 2 or 3 inches long, only 2 or 3 lines wide; upper part of the stem often smooth, but the peduncles entirely or towards the extremity viscidly pubescent; inflorescence dissimilar to that of any other species in this Catalogue. Exterior pappus obsolete, interior reddish-brown and very scabrous.

§ 11. *Flowers not yellow.*

11. *linariifolia. Aster linariifolius* Pappus double, seeds villous; flowers also corymbosely fastigiate, but blueish or violaceous! 12. *linifolia. Aster linifolius.* Stem corymbosely branched, scabrous; leaves linear; flowers white; exterior pappus obsolete? Nearly allied to *Aster paucifloras.*

13. * *alba.* Leaves oblong-lanceolate, entire and scabrous, attenuated below; stem simple, ramuli nearly naked, 1-flowered, corymbosely fastigiate; flowers white; calix smooth. HAB. On the plains of the Missouri, near Fort Mandan, &c. Fl. August. About 12 inches high and rather slender, with the aspect of *Ptarmica.* Perennial: stem slender; leaves scabrous, as in *C. linariifolia,* but not pubescent, pappus short; radial florets linear-oblong; scales of the calix thickish; receptacle flat and naked, with impressed favulose punctures.

14. * *obovata.* Shortly and somewhat softly pubescent; leaves broadish, obovate, obtuse and entire, sessile, margin scabrous; corymb nearly simple, peduncles 1 or 2-flowered, axillar and terminal; calix pubescent, about half the length of the pappus. HAB. Abundant in the vicinity of Savannah in Georgia, on the bushy margins of

swamps.—Perennial. Stems pubescent, terete and simple, many from the same root, 2 or 3 feet high. Leaf 15 to 20 lines long, 8 to 12 broad, on the upper side pulverulently pubescent, beneath partly villous, reticulately veined. Corymb partly unequal, few-flowered. Calix almost simple, very short, as in the 2 following species. Radial florets somewhat ochroleucous, about 10; tubular florets the same colour. Anthers not bisetose. Pappus reddish, double, interior less scabrous and rigid than in any preceding species, but similar to the following. The whole plant is bitterish to the taste. This species after flowering sends up infertile stems with broader leaves. *Solidago novæboracensis*, of Herb. Muhl.

15. *humilis*. *Aster humilis*, Willd. Hort. Berol. t. 67. *A. cornifolius*, Willd. *A. infirmus*, Mich. Obs. Rays about 8; calix only about the length of the seed. Pappus double; seed at first pubescent, at length nearly smooth and very large. A species scarcely distinct from the following.

16. *amygdalina*. *Aster amygdalinus*. Flowers yellowish-white as in the preceding, rays 10 or 12, smaller; stem tall, and leafy to the summit; branches corymbosely fastigiate, many-flowered. Pappus double. Anthers in this and the preceding not setose at the base.

This genus, or subgenus, appears to be peculiar to North America. After a careful examination of near 50 species of *Aster*, the above, sufficiently remarkable in habit, were all that possessed the double pappus. Among the foreign species, I find a double pappus in *Aster chinensis*, but after such a long series of cultivation it is not now possible to conceive its original aspect, still it may very properly be considered as admissible into this genus.

559. ASTER. *L.* (Star-wort.)

Calix imbricated, the lower scales partly foliaceous and often spreading. *Radial* florets generally more than 10, rarely fewer, violaceous or white. *Receptacle* naked. *Pappus* simple, pilose.

Herbaceous, seldom shrubby; leaves entire; flowers fastigiate or paniculate. Seed more or less pubescent, rarely smooth; pappus of many rays, pilose, scarcely scabrous, sometimes coloured. (The smaller flowered paniculate species present a series so intimately connected and polymorphous as to elude the botanist in his attempts to draw specific characters. *A. foliolosus*, *A. coridifolius*;

A. Tradescanti, *A. recurvatus*, *A. eminens*, *A. laxus*, *A. polyphyllus*, *A. junceus*, *A. lanceolatus*, *A. dracunculoides*, *A. fragilis*, *A. miser*, *A. divergens*, *A. diffusus*, and *A. pendulus*, are a host of polymorphous varieties which may be reduced to 3 or 4 species!)

† *Leaves entire.*

Species. 1. A. *hyssopifolius*. 2. *solidaginoides*. Rays often 8. 3. *tortifolius*. 4. *nemoralis*, *A. ledifolius*, Ph. Leaves linear-lanceolate, attenuated at the base, partly scabrous; branches filiform, fastigiate, 1-flowered; calix loosely imbricated, hemispherical, leaflets acute; rays numerous. Hab. In the swamps of New Jersey, somewhat rare. Stem simple, 12 to 18 inches high, fragile and thickly set with leaves, which are somewhat revolute on the margin, and now and then minutely bidentate; flower large and pale violet. 5. *graminifolius*, Ph.

6. * *pauciflorus*. Stem low and simple, few-flowered, (3 to 6); leaves linear and smooth, those of the stem subulate and subamplexicaule; peduncles axillar and terminal, about 1-flowered, and in common with the calix viscidly pubescent. Hab. On the margins of saline springs, near Fort Mandan, on the Missouri. Flowering in August. Stem 6 to 12 inches high, on the lower part very smooth. Radical leaves long and linear, somewhat carnose, channelled. Peduncles rarely perfecting more than 1 flower. Calix hemispherical, about equal with the disk; leaflets nearly all equal and acute. Radial florets about 15, white, lanceolate-oblong. Pappus scabrous.

7. * *flexuosus*. *A. sparsiflorus ?* Ph. 2. p. 547. Very smooth: stem low and flexuous, subdichotomous; leaves very long and thick, lower ones partly lanceolate-linear, acute, attenuated downwards, upper subulate, all erect; ramuli 1-flowered, subfastigiate, leafy; scales of the calix lanceolate, acuminate, appressed; rays numerous, shorter than the calix. Hab. In the salt-marshes of New Jersey and New York. Perennial: stem from 6 to 18 inches high, generally flexuous; leaves smooth on the margin; branches axillary, often commencing from the base, simple or subdivided, often 2-flowered. Flowers few and large, the rays whitish, or pale purple, oblong and rather short. Florets of the disk very numerous. Pappus capillary; seed nearly smooth, with 5 striæ.

8. *subulatus*. Annual; smooth, and small-flowered; stem fistulous, and branched from the base; branches paniculated, ramuli subracemose; leaves long and linear, very acute, with the margin scabrous, uppermost subulate; calix subcylindric, scales subulate; radial florets minute.

Hab In the salt-marshes of Long Island near New York, and in New Jersey. This species ought perhaps to be transferred to *Conyza*, to which genus it bears a near affinity; the female florets being very small, obscure purple, more numerous than the hermaphrodite ones, and arranged in a compound series; it is also annual; still it resembles in some respects the preceding species, the seed is almost exactly similar. It grows about 2 feet high, and is extremely branched, the branches somewhat fastigiated; leaves 4 or 5 inches long, 2 to 4 lines wide.

9. *paludosus.* Stem simple, leaves linear and subulate, amplexicaule, erect, entire, and very smooth, margin scabrous; branches pubescent, axillar and terminal, leafy, 1-flowered; calix large and squarrose. Hab. From Cape May county, N. Jersey, to Florida, on the margins of open swamps. Stem 1 to 2 feet high, smooth nearly to the summit, 3 to 5-flowered; flowers very large and elegant, the rays bright blue and numerous. Inner scales of the calix coloured. Pappus as in the preceding, capillary, ferruginous, seed also oblong and smooth.

10. *pilosus.* 11 * *biennis.* Low and much branched, subdecumbent, pulverulently pubescent, stem canescent; leaves sessile, linear, entire, uniform, points abruptly acute, radical ones spathulate; branches few-flowered, flowers subfastigiate; calix imbricate, scales linear-lanceolate, setaceously mucronulate; radial florets about 20. Hab. On denudated argillaceous soils, from the Arikarees to Fort Mandan. Flowering from August to October. *A. canescens.* Ph. 2. p. 547. Obs. Root biennial. Stem about a foot high, numerously and divaricately branched; branches 2 to 5-flowered, more or less. Flowers purplish-blue, as large as a Daisy. Scales of the calix in 3 or 4 series, summits greenish and pubescent. Rays entire, longer than the disk. Pappus scabrous.

12. *tenuifolius. A. ericoides.* Willd. *A. dumosus.* Willd. 13. *multiflorus. A. ciliatus.* Willd. 14. *sparsiflorus.* Mich. and Willd. not of Ph. Scarcely distinct from the following. 15. *foliolosus.* β. *A. coridifolius.* Willd. 16. *squarrosus.* Leaves cordate, minute, and scabrous.

17. *concolor.* Obs. Roots often tuberous in sandy soil.

18. *sericeus.* Leaves lanceolate-ovate, sessile, entire, sericeously tomentose; stem erect, low and slender, upper part branched, branchlets 1-flowered, subfastigiate; calix foliaceous, partly squarrose. Hab. Common over the plains of Upper Louisiana, throughout the Illinois territory to the borders of Lake Michigan, and on all the banks of the Missisippi nearly to Natchez. A low and truly

herbaceous, but very elegant species; flowers large, bright violet-purple. Stem 12 to 18 inches high.

19. **montanus*. Leaves linear-lanceolate, sessile, entire, subsericeously villous, obsoletely 3-nerved; stem erect and somewhat slender; branches 1-flowered; calix foliaceous, hemispherical, leaflets linear-lanceolate, acute and erect. HAB. On the mountains of Tennessee and North Carolina; rare. (Near Ashville and Morganton.) Nearly allied to the preceding, but distinct. Stem often perfectly simple, also branched, 1 to 2 feet high, branches not fastigiate, shorter than the summit. Leaves not tomentose, scarcely canescent. Flowers violet-purple, twice the size of the preceding, somewhat exceeding those of *A. grandiflorus*, and containing about 25 rays. In the preceding the rays are from 18 to 20. 20. *reticulatus*. PH.

21. *salicifolius*. 22. *æstivus*. 23. *novæ angliæ*, γ. *spurius*, Persoon, is the natural aspect. Leaves lanceolate, amplexicaule, entire, auriculate at the base; stem pilose and paniculate; branchlets mostly 1-flowered, subfastigiate; scales of the calix loose, linear-lanceolate, about equal with the disk. HAB. From Canada to Pennsylvania. This is the plant commonly misnamed *A. grandiflorus*. Flowers large, and of a deep purplish-blue; rays very numerous and linear. Stem 4 to 6 feet.

24. *cyaneus*. 25. *grandiflorus*. 26. *caroliniamus*. Stem trailing shrubby or suffruticose. Seed oblong, smooth, 10-striate; pappus reddish.

27. * *oblongifolius*. Herbaceous; stem and leaves minutely scabrous; leaves sublanceolate-oblong, partly amplexicaule, without pubescence; stem low and divaricately branched, branchlets 1 or few-flowered, subfastigiate; calix hemispherical, foliaceous, and squarrose, leaflets linear-oblong, acute. HAB. On the banks of the Missouri. Stem scarcely more than 12 inches high, compoundly and rigidly branched; leaves of the branchlets smaller, all appearing smooth and partly obtuse, but scabrous to the touch; flowers terminal as in *A. biennis*, pale purple, middle sized, smaller than those of *A. caroliniamus*, to which species it appears distinctly allied; calix remarkably foliaceous, scabrously glandular. Seed villous. 28. *phlogifolius*. 29. *patens*.

†† *Leaves cordate and ovate; serrate.*

30. *undulatus*. *A. diversifolius*. Mich. 2. p. 113. 31. *sagittifolius*. 32. *paniculatus*. Scarcely different from No. 30. 33. *cordifolius*. *A. heterophyllus*. Willd. 34. *corymbosus*. 35. *macrophyllus*.

† † † *Leaves lanceolate and ovate, lower ones serrate.*

——Flowers fastigiate or corymbose.

36. * *nudiflorus.* Stem simple and smooth; leaves sessile, ovate-lanceolate, subacuminate, and all sharply serrate, upper surface scabrous; corymb simple, few-flowered; peduncles pubescent, naked, mostly 1-flowered; calix hemispherical, closely imbricated, shorter than the disk, scales linear-oblong, and ciliate. HAB. In the swamps of N. Jersey; rare. Detected by W. Stuve, M. D. Stem 2 or 3 feet high. Leaves about 3 inches long, and an inch wide, the lower ones acuminate, and cuneate at the base, the uppermost oblong-ovate, acute, and not much smaller. Peduncles 3 to 5, mostly 1-flowered, 3 or 4 inches long, lateral ones longest. Flower large, pale violet-purple, with many rays which are longer than the calix. Nearly allied to the following. 37. *Radula.*

38. *peregrinus.* 39. *strictus.* Scarcely distinct apparently from the following. 40. *surculosus.* Stem simple, low and slender, minutely pubescent; lower leaves linear-lanceolate, entire, or subserrate, above scabrous, upper ones linear, amplexicaule; corymb 3 to 5-flowered, somewhat naked; calix imbricated, subsquarrose, scales ciliate, linear-oblong, inner ones obtuse; rays about 20. HAB. On the margins of open bushy swamps and Savannahs, in Tennessee, North Carolina and Virginia. Nearly allied to the following, but smaller and slender. Stem 12 to 18 inches high. Root stoloniferous and creeping. Radical leaves spathulate, or oblong-lanceolate, sometimes near a span long, with the sheath ciliated. Flowers rather large, of a bright violet-purple; inner scales of the calix often coloured. The habit of this plant is very much like that of a corymbose Liatris; the pappus is also scabrous, but the seed smooth. It appears to be *A. elegans* of Willdenow.

41. *spectabilis.* Leaves oblong-lanceolate, partly scabrous, and subamplexicaule, lower ones serrate in the middle, branches corymbose, calix hemispherical, somewhat glandularly pubescent, foliaceous and squarrose, leaflets ciliate, cuneate-ovate, and partly acute. HAB. In New Jersey, common. Corymb, 10 to 15-flowered, the branches 2 or 3-flowered, subpilose; flowers blue and large. The viscidly pubescent calix and peduncle, with the numerous flowers, and the approximating equality of the leaves, distinguish this species readily from the preceding; the hemispherical calix and numerous rays (more than 20), likewise separate it from the following. β. **bellidifolius.* Leaves oblong-obovate, serrate; corymb nearly simple, or with the branchlets mostly 1-flowered. N. Jersey. Stem never pilose as well as glandular above.

42. **gracilis.* Leaves oblong-lanceolate, incisely and remotely serrulate, acute, subamplexicaule, nearly smooth, margin scabrous; stem minutely pubescent, summit corymbose; peduncles filiform, 2 and 3-flowered, lateral pedicells longer; calix cylindric, imbricated, partly squarrose, scales linear-oblong, partly acute; rays about 12, longer than the calix. HAB. In the Savannahs of Kentucky and Tennessee. Distinctly allied to the preceding and also to the following. OBS. Stem slender as in *A. surculosus*, 12 to 14 inches high, purplish. Leaves about 2 inches long, somewhat spathulate, entire, or serrulate, opaque and nerveless. Corymb 6 to 11-flowered, (I have before me 4 specimens each of them 11-flowered), lateral peduncles longer and divaricate, central flowers almost sessile. Flowers pale blue and small, but twice the size of the following.

43. *conyzoides.* Leaves cuneate-oblong, acute, opaque, 3-nerved, serrate, uppermost nearly entire; stem simple, smooth and rigid, summit corymbose; flowers glomerate, sessile; calix cylindric, subsquarrose; rays 5, shorter than the calix. HAB. From Pennsylvania to Florida. β. **plantaginifolius.* Leaves 3-nerved, cuneate-ovate, acute, and sessile, subserrate, radical spathulate; stem slender, upper part pubescent, corymbose; flowers distinct, pedicellate; calix partly turbinate, somewhat squarrose; rays about 5, as long as the calix. HAB. In the forests of New Jersey. A plant every way smaller than the preceding, and much fewer flowered. Seeds of both villous. Probably a distinct species?

44. *thyrsiflorus.* +. 45. *serotinus.* 46. *puniceus.* 47. *floribundus.* 48. *novi belgii.* Scarcely distinct from the preceding 49. *acuminatus.* 50. *dracunculoides.*

——Flowers paniculated.

51. *amplexicaulis.* 52. *adulterinus.* 53. *lævigatus.* 54. *versicolor.* 55. *mutabilis.* 56. *lævis.* 57. *concinnus.* 58. *bellidiflorus.* 59. *tardiflorus.* 60. *blandus.* 61. *Tradescanti.* 62. *recurvatus.* An extremely polymorphous and uncertain species; panicle erect or curved, divaricate. 63. *eminens.* 64. *laxus.* Scarcely distinct from the preceding. 65. *simplex.* 66. *polyphyllus.* 67. *junceus.* β. *A. lanceolatus.* 68. *fragilis.*

69. *miser.* Leaves sessile, cuneate-lanceolate, very acute, serrate and scabrous, minutely pubescent; calix imbricate, smooth, leaflets acute; disk of the corolla equal with the rays; stem villous. HAB. In moist meadows, near Philadelphia; common. Stem low and rigid, often simple; flowers in short simple leafy, and axillary racemes, partly secund and sessile, the racemes sometimes conglo-

merately condensed, so as to be shorter than the leaves, often produced nearly from the base to the summit of the stem; rays very small and white, discal florets becoming purple.—Such appears to be *A. miser*, of Linnæus, but probably not that of Aiton, as *smooth* leaves appear to be altogether imcompatible with this well marked species. It is also distinct from the *A. miser* of Herb. Muhl.

70. *divergens.* β. *A. diffusus.* γ. *A. pendulus.*

This genus, consisting of more than 100 species, is almost exclusively indigenous to North America and the Cape of Good Hope, a few species exist in Australasia, in China and Japan, there are likewise 2 species peculiar to Siberia, and 9 or 10 to Europe.

560. SOLIDAGO. *L.* (Golden-Rod.)

Calix imbricated, scales closed. *Radial florets* about 5, yellow. *Receptacle* naked, punctate. *Pappus* simple, pilose.

Herbaceous; stem often tall; flowers small, racemose and yellow, racemes paniculated, erect or secund; calix oblong or subcylindric, mostly coloured; radial florets equal with or shorter than the calix, often 5, sometimes 7, 9, and from 12 to 20. Seeds mostly smooth, also pubescent. The scrobiculate receptacle prevails as much in the preceding as in the present genus. In *S. bicolor* only, the rays are nearly white.

† *Racemes secund.*

Species. 1. S. *canadensis.* 2. *procera.* 3. *serotina.* 4. *gigantea.* 5. *ciliaris.* 6. *reflexa.* 7. *lateriflora.* 8. *aspera.* 9. *altissima.* 10. *rugosa.* A mere variety of the preceding. 11. *villosa.* 12. *scabra.* 13. *nemoralis.* 14 *patula.* 15. *ulmifolia.* 16. *arguta.* 17. *juncea.* 18. *elliptica.* 19. *asperata.* Herb. Banks. mss. 20. *odora.* 21. *recurvata.* 22. *retrorsa.*

23. *pyramidata.* Ph. Scarcely distinct from the preceding. Obs. Stem 4 to 6 feet high; leaves oblong, subovate, acute, margin remotely serrulate, scabrous, nearly smooth, midrib on the under side pubescent, stem roughly pilose, summit virgate; branches small-leaved, paniculate, recurved, racemes filiform, secund, pubescent; peduncles squamose; flowers small, liguli minute. Seed smooth.

24. *lævigata.* Obs. Stem erect and smooth, about 6 feet high, summit virgate; leaves lanceolate, carnose, every where smooth; racemes leafy, secund; peduncles filiform and squamose, smooth or pubescent, 1 to 3-flowered; calix multibracteate, scales carnose, acute; rays elongated, about 10.

25. *limonifolia.* Persoon. *S. mexicana,* Aiton, but not in-

digenous to Mexico. Obs. Racemes not virgated, paniculate, secund, nearly naked, and not exserted; peduncles mostly 1-flowered, calix with fewer bractes; flowers larger, peduncles equally pubescent, rays about 10. Receptacle punctate, margins of the alveoli, in this as well as in the preceding pubescent.

26. *sempervirens*. Obs. Stem tall, erect and smooth; leaves linear-lanceolate, very acute, partly acuminate, subcarnose, smooth and entire, margin scabrous; racemes loose, filiform, axillary, secund and suberect; peduncles squamose, pubescent, longer than the calix; rays elongated, 5 or 6. Seed pubescent.

†† *Racemes erect.*

27. * *speciosa*. Stem tall and smooth, simple or virgately branched; leaves lanceolate, entire, somewhat carnose, scabrous on the margin, the lower very broad, radical ones subserrate; racemes terminal, erect and compound, pubescent; peduncles mostly shorter than the calix; rays elongated about 5; seed smooth. Hab. In shady woods, on the banks of the Schuylkill, also in New Jersey; near Philadelphia, but rare. *S. sempervirens*. Mich. *S. integrifolia?* Persoon, 2. p. 449. Allied to *S. petiolaris*. Stem often 6 feet high, smooth and sulcate. Lowest leaves a span long, and 3 inches broad, irregularly and remotely subserrate, upper leaves very entire, gradually diminishing upwards, in dry and shady situations, membranaceous and veined, in gardens subcarnose and smaller, with the veins partly obliterated, racemes also numerous, but always rigid, terminal and erect. Flowers larger than the preceding, with the calix also coloured (which in the preceding is green); rays bright yellow, unusually broad. The seeds in this species are perfectly smooth, in our *sempervirens* pubescent. This is one of the most ornamental plants of the genus.

28. *paucifloscula*. 29. *bicolor*. 30. *petiolaris*. 31. *stricta*.

32. *virgata*. Mich. Obs. Stem smooth and simple, attenuated, summit racemose; raceme mostly solitary, compound, peduncles erect, smooth, and filiform, squamose; leaves smooth, lanceolate-oblong, partly obtuse, erect, diaphanously punctate, and scabrous on the margin, lower ones subserrate, the upper small and entire.—In open swamps around Wilmington, North Carolina. Stem remarkably attenuated, more so than in the following, to which it is nearly allied, 4 to 5 feet high; the leaves gradually diminishing upwards to 3 or 4 lines in length, and about 2 in breadth; lowest leaves linear-lanceolate, 2 or 3 inches long, remotely but regularly serrulate. Flowers small.

To add to the error of Michaux, Mr. Pursh says that the leaves are very entire. In any other species, less singular, the identity would have been impossible. *S. humilis* appears to be a variety of this species.

33. * *pulverulenta.* Stem tall, perfectly simple, and in common with the leaves and peduncles pulverulently pubescent; leaves sessile, impunctate, lower ones elliptic, serrate, the upper much smaller, obovate and entire, margin scabrous; raceme erect, solitary, compound, spiciform; scales of the calix thickish, partly acute; rays elongated, about 10. HAB. In Georgia and Florida.—Dr. Baldwyn. —A species which might almost be confounded with the preceding, though quite distinct. Stem 3 or 4 feet high, attenuated, sometimes reddish. The lower leaves are acute, and somewhat resemble those of *Spiræa salicifolia.*

34. *erecta?* Herb. Banks, MSS. Stem simple, 1 or 2 feet high, partly villous in common with the peduncles and under side of the leaves; leaves all nearly equal, entire, elliptic-lanceolate, subpetiolate, acute, and strongly veined; racemes erect, axillar and terminal, 3 or 4 inches long, peduncles filiform, pubescent, naked; scales of the calix acute. HAB. In open swamps near Wilmington, North Carolina. It may possibly be distinct from *S. erecta*, as nothing certain can be derived from such vague descriptions. This species is remarkably low, and singular for the equality of the leaves, which are 2 or 3 inches long, scarcely an inch wide, and subpetiolate.

35. *livida.* 36. *hirta.* 37. *lithospermifolia.* 38. *hispida.* 39. *cæsia.* Stem glaucous. 40. *flexicaulis.* 41. *macrophylla.* Scarcely distinct from the following. 42. *glomerata.* Lower leaves broad oval, and acuminate, serrate. Nearly allied to *Aster.*

43. * *squarrosa.* Robust; stem thick and pubescent above; leaves smooth, lower ones very broad, spathulate-oval, serrate, acute, margin scabrous, the upper sessile, lanceolate-elliptic, entire; racemes glomerate, rigid and pubescent: calix squarrose! many-flowered, rays elongated, 10 or 12. HAB. On the rocky banks of the Rariton, near New Brunswick, (New Jersey,) &c. According to Muhlenberg's Catalogue, it exists also in Pennsylvania and Georgia. Allied to *S. stricta.*—Stem thick, 2 to 3 feet high, always simple; lower leaves dilated, upper much smaller, very acute, subacuminate, sometimes slightly scabrous on the upper side along the mid-rib. Flowers nearly as large as those of *S. rigida:* racemes axillary, thick and crowded, forming a compound spike. Seeds smooth. This is one of the finest species, and distinguished from all others by its squarrose calix.

44. *Virgaurea.* 45. *viminea.* 46. * *puberula.* Stem simple and terete, somewhat pubescent; leaves lanceolate, entire, on each side minutely pubescent, attenuated at either extremity, radical ones subserrate; racemes spiked, axillary, erect and condensed; peduncles pubescent; scales of the calix linear-lanceolate, acute; rays elongated, about 10. Hab. In the sandy fields of New Jersey, near Amboy, &c. Stem brownish, 1 to 2 feet high, simple, and pulverulently pubescent, as are also the leaves in a smaller degree; racemes shorter than the lower leaves, collected into a leafy spike, 4 to 6 inches in length; rays conspicuous and of a bright golden-yellow. The whole aspect of the plant is that of *S. nemoralis*, the inflorescence and upper attenuation of the leaves apart.

47. *multiradiata.* 48. *elata.* 49. *rigida.* The largest flowered species in North America.

* Euthamia.† *Calix* cylindric-ovate, closely imbricated, scales agglutinated. *Radial* florets 10 to 20, very small, yellow. *Receptacle* setose. *Pappus* simple. *Seed* villous.

Herbaceous; stems numerously branched, leaves narrow and very entire, longitudinally nerved; flowers terminal, glomerated, glomeruli fastigiate, corymbose. Calix resinosely viscid. A subgenus, or rather genus, reciprocally allied to *Solidago* and *Chrysocoma.*

50. *graminifolia. Chrysocoma graminifolia,* Lin. *Solidago lanceolata,* Aiton. Stem and branches marginately angular, angles and nerves on the under side of the leaves minutely hispid; leaves lanceolate-linear, entire, 3 to 5-nerved, margin scabrous; rays 15 to 20, minute, scarcely exserted. Hab. From Canada to Virginia.

51. *tenuifolia. S. tenuifolia,* Ph. 2. p. 540. Stem low and more numerously branched, angular, and as well as the leaves smooth; leaves narrow linear, numerous, margin subciliately scabrous, the upper surface covered with resinous atoms, obsoletely 3-nerved; rays about 10, distinctly exserted. Hab. From New Jersey to Florida. Axills of the leaves in imperfect plants often foliose.

Solidago is exclusively a North American genus, with the exception of 5 or 6 species in Europe, and 2 near Canton in China. The arborescent species of St. Helena and New Zealand will probably be excluded from this genus, if ever carefully examined.

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† In allusion to the crowding of the flowers.

561. * BRACHYRIS. †

Calix cylindric-ovate, closely imbricate, scales agglutinated. *Radial* florets about 5; discal florets also 5. *Receptacle* naked. *Pappus* short and palcaceous, leaflets 5 to 8, persistent.

Vegetation almost exactly similar to that of *Euthamia tenuifolia.*

B. *Euthamiæ. Solidago Sarothræ.* Ph. 2. p. 540.

Obs. Perennial. Stems numerous, marginately angular and scabrous, 6 to 12 inches high, fastigiately branched and corymbose. Leaves proximate, narrow linear, entire, punctate, and scabrous on the margin; branchlets dichotomous. Flowers terminal, often glomerated by 3s, small, and yellow. Scales of the calix subcarinate, partly acute, with greenish foliaceous points, resinosely glutinous. Rays 5, entire, nearly as long as the calix. Discal florets the same number, tubular, 5-toothed. Seed somewhat inversely conic, pubescent; pappus paleaceous, about the length of the seed, 5 to 8-parted, leaflets unequal, linear and subacute. Hab. On the arid hills of the Missouri, from the Arikarees to the Mountains? The whole plant possesses a strong balsamic but disagreeable scent, and is used medicinally by the aborigines, operating powerfully as a diuretic.

562. DONIA. *R. Brown.*

Calix hemispherical, imbricated, squarrose and glutinous. *Radial* florets numerous, (30 to 35, yellow). *Receptacle* naked, scrobiculate. *Pappus* setaceous, setæ 3 or 4, deciduous, somewhat paleaceous.

Suffruticose, or biennial; leaves serrated, resinosely punctate; flowers terminal, fastigiate. Seeds obovate, smooth.

Species. 1. D. *squarrosa.* Ph. Obs. Biennial or suffruticose. Stem 3 or 4 feet high, erect or spreading, white or purplish; branches fastigiate, few-flowered, ramuli 1-flowered. Radical leaves spathulate-obovate, obtuse, stem leaves oblong, acute, serrate, amplexicaule, smooth and reticulately veined, glandularly punctate.

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† From βραχυς, *short*, and αχυρον, *a chaffy scale;* the pappus being short and paleaceous.

Flowers large and yellow. Calix hemispherical, closely imbricated, the scales terminating in foliaceous revolute points, abundantly secreting a resinous fluid which often by its tenacity prevents the expansion of many of the radial florets. Rays linear-lanceolate. Seed obovate, compressed, smooth. Pappus consisting of about 4 deciduous chaffy setæ. Receptacle flat, naked, cellularly punctured. Hab. On rocky calcareous hills near the lead-mines of the Meremek, Missisippi, a few miles from St. Louis.—Mr. J. Bradbury: also abundant on the broken banks of the Missouri. In these situations it is a biennial, cultivated in London it becomes suffruticose, even when exposed to the climate. May it not be a variety of *D. glutinosa*, deteriorated in the term of its duration by the severity of the climates into which it has gradually been extended? Although arranged in a different order of the Linnæan system it appears by no means indistinctly allied to the genus *Carthamus*, and the order of Cinarocephalæ.

563. ARNICA. *L.*

Calix hemispherical, leaflets equal, mostly in a simple series? *Radial* florets often producing 5 filaments destitute of anthers. *Receptacle* naked. *Pappus* simple, scabrous.

A polymorphous and divided genus? Some of the species caulescent and also shrubby; those of Europe and North America, with a few others, often scapigerous, scapes 1-flowered, sometimes producing 1 or 2 pair of opposite leaves; flowers mostly yellow.

Species. 1. A. *montana.* β. *fulgens.* *A. fulgens.* Ph. 2. p. 527. Scarcely dissimilar to specimens of the alpine variety in the Banksian herbarium. Hab. On the margins of marshy springs and in depressed situations, from the Arikarees to Fort Mandan, and probably as far as the Mountains. Flowering in July. Flowers bright yellow. Obs. Minutely pubescent. Scape about 12 inches high, mostly with 2 pair of leaves, terminated by 1 rarely 3 flowers. Leaves oblong-lanceolate, 3 to 5 nerved; summit of the caudex tomentose. Calix a simple series of leaflets, somewhat hirsute. Tube of the florets pilose; rays without filaments; seed hirsute, slender. *A. plantaginea*, of Pursh from the specimen which I have seen, appears also a mere variety of the above.

2. *Doronicum.* 3. *nudicaule.* *Doronicum nudicaule.* Mich. 2. p. 121. *A. Claytoni.* Ph. 4. *maritima.*

A genus principally indigenous to Europe and the Cape of Good Hope, there are also 2 species in South America, 2 in Japan, 1 in Arabia Felix, and a shrubby species, or something else, in New Zealand.

564. SENECIO. *L.* (Ragwort.)

Calix cylindric, subcaliculate: scales sphacelate at the points. *Receptacle* naked. *Pappus* simple, capillary, and copious.

Suffruticose or more commonly herbaceous; leaves entire or pinnatifid; flowers mostly corymbose or terminal; yellow or rarely purple. A few species are destitute of rays.

Species. 1. S. *vulgaris.* Introduced. 2. *hieracifolius.* Seeds pubescent. 3. *elongatus.* Ph. 4. *pauciflorus.* Ph. 5. *pauperculus.* 6. *gracilis.* Ph. 7. *obovatus.* 8. *Balsamitæ.* 9. *aureus.* 10. *Cymbalaria.* Ph. A starved variety of the preceding? 11. *canadensis.* 12. *lobatus,* Persoon. Common around New Orleans. 13. *Kalmii. Cineraria canadensis.* Obs. Nearly all the North American species of this genus are imperfectly or minutely caliculate, and to separate them on this ground appears arbitrary and unnatural, as they are perfectly homogenous.

14. *integrifolius. Cineraria integrifolia.* Common also to Europe. β. *heterophylla.* A variety of the preceding? *C. heterophylla.* Ph. 2. p. 528. The stem leaves of the American S. *integrifolius* are always more or less toothed at the base.

15. * *integerrimis.* Smooth; stem simple and attenuated; leaves perfectly entire; radical ones long petiolate, lanceolate, acute, cauline sessile, acuminate, uppermost minute; corymb simple, 8 to 12-flowered? peduncles 1-flowered, rays shorter than the hemispherical caliculate calix. Hab. In depressed and moist situations on the plains of the Missouri, near the Great Bend. Flowering in June. Flower large and yellow. Stem 12 to 18 inches high. Lower leaves thickish and somewhat carnose, very smooth, uppermost minute, slightly tomentose; corymb coarctate. Seeds smooth. Nearly allied to *S. aquaticus.*

A genus of more than 140 species principally indigenous to Europe and the Cape of Good Hope.

565. TUSSILAGO. *L.* (Colt's-foot, Butter-bur.)

Calix simple, scales equal, even with the disk and submembranaceous. *Feminine* florets ligu-

late or tubular. *Receptacle* naked. *Pappus* simple, sessile. (Flowers mostly polygamous, dioicous.)

Leaves radical, often large; scapes squamose, 1-flowered, or thyrsoidly spiked, mostly appearing before the leaves.

Species. 1. T. *frigida*. 2. *sagittata*. Herb. Banks, mss. 3. *palmata*. *v. v.* On the islands of Lake Huron, near Michilimakinak, in Fir woods, (*Abies Canadensis*). The leaves considerably resemble those of *Podophyllum peltatum*.

A genus almost exclusively European, with the above, 2 species in Siberia and 1 in Patagonia, excepted.

566. ZINNIA. *L.*

Calix ovate-cylindric, imbricate. *Rays* 5, persistent, entire. *Receptacle* paleaceous. *Pappus* 2 erect awns.

Herbaceous; leaves opposite, rarely verticillate; flowers solitary, terminal; rays red or yellow.

Species. 1. Z. *multiflora*. A doubtful native.

A genus of 5 species, all probably indigenous to Mexico, with the exception of Z. *pauciflora* of Peru.

567. BOEBERA. *Willdenow.*

Calix double, exterior many-leaved; interior 8-leaved. *Receptacle* naked. *Pappus* pilose.

Annual; leaves opposite, pseudopinnate, and as well as the calix glandular; peduncles 1-flowered, dichotomal and terminal. Inner calix about 12-leaved, exterior or involucell about 8-leaved, spreading. Rays about 8. Pappus pilose, short. Nearly allied to *Tagetes*.

Species. 1. B. *glandulosa*. A common weed on the banks of the Missisippi and Missouri to the Mountains, in denudated soils.—Stem decumbent and much branched. Flowers small and yellow; calix campanulate, and as well as the leaves, beset with the same fœtid resinous glands as *Tagetes* and diffusing a similar Rutaceous odor.—The only species of the genus.

568. *TRICHOPHYLLUM. †

Calix oblong-cylindric, many-leaved, equal.

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† The copious pubescence, particularly distinguishing these plants from the genus *Tagetes*.

Radial florets oblong. *Receptacle* naked. *Pappus* paleaceous, minute, 5 to 8-leaved, leaflets obtuse, awnless.

Herbaceous; leaves alternate? or opposite, palmately pinnatifid, tomentose or villous; peduncles 1-flowered, dichotomal and terminal.

Species. 1. T. *lanatum*. *Actinella lanata*, Ph. 2. p. 560. Every where whitely and lanuginously tomentose; leaves alternate, those of the stem subpalmately pinnatifid, of the branches linear and entire; peduncle elongated, the summit thicker. Hab. Near the sources of Columbia river. M. Lewis. Flowering in June and July. *v. s.* in Herb. Lambert.—Perennial; stem erect and branching, about a foot high. Leaves alternate? (perhaps not constantly so) those of the stem elongated, narrow at the base, dilated and divided pinnatifidly above, divisions ligulate and somewhat toothed, uppermost entire. Calix oblong-cylindric, composed of a simple series of leaves, about 12 to 14, linear-lanceolate, acute. Rays about the same number, oblong, bidentate. Pappus 5 to 8-leaved. Seed pentangular? glabrous, attenuated downwards.—The flowers are bright yellow, and in form and character strongly resemble those of the genus *Tagetes*.

2. * *oppositifolium*. Decumbent and much branched, shortly and canescently pubescent; leaves opposite, all palmately trifid, segments ligulate, simple, or divaricately subdivided; peduncle filiform, mostly dichotomal, scarcely longer than the leaves. Hab. On denudated sterile hills, near Fort Mandan; abundant. Flowering in July and August.—Perennial? stem diffuse, 6 to 12 inches high, grooved; oppositely branched. Leaves petiolate, trifid, canescent, pubescence very short, segments about an inch long, thickish and opaque, the lateral ones mostly bifid, the central one often trifid, all somewhat obtuse and linear. Peduncle slender, 1 to 2 inches long, a little thicker under the calix. Calix oblong-cylindric, simple, leaflets 5 to 8, oblong-ovate, erect; rays about the same number, very short. Pappus paleaceous, 5 to 8-leaved, minute, leaflets partly obtuse and somewhat lacerate. Seed nearly smooth, rather long, and attenuated downwards, or inversely conic. Receptacle small and naked.—The whole of this plant is very sensibly bitter and destitute of aroma.

There is nothing in the habit of this genus which would lead us to suppose it allied to *Actinella* of Jussieu, and scarcely more in the generic character. In *Actinella* the

calix is very short, flat, and horizontally spreading; the leaflets of the paleaceous pappus awned, and the seeds villous; the leaves are also alternate and entire. The proximate affinity of the present genus is to *Tagetes*.

569. **BOLTONIA.** *Schreber.*

Calix imbricated. *Rays* numerous. *Receptacle* conic, punctate. *Seeds* flat and marginated. *Pappus* consisting of many minute setæ, with 2 of them opposite and mostly elongated.

Herbaceous; leaves entire; stems divaricately branched; peduncles terminal, 1-flowered. Rays pale violet.

Species. 1. B. *glastifolia.* The leaves when bruised smell something like Fennel. 2. *asteroides.*—The only species of the genus.

570. **BELLIS.** *L.* (Daisy.)

Calix hemispherical; leaflets equal. *Seed* obovate. *Receptacle* naked, conic. *Pappus* none.

Leaves radical; scapes 1-flowered; rays white or purple. The caulescent species ought probably to be separated.

Species. 1. B. *integrifolia.* No botanist has yet collected this plant since Michaux. Is it not an Eclipta?

571. **CHRYSANTHEMUM.** *L.* (Ox-eye.)

Calix hemispherical, imbricate; innermost scales scariose. *Receptacle* naked. *Pappus* none.

Stem simple or branched; leaves simple or pseudopinnate; flowers terminal, solitary or corymbose.

Species. 1. C. *Leucanthemum.* Introduced, and now abundantly naturalized in the middle states. 2. *arcticum.* In North California.

572. **PYRETHRUM.** *Gærtner, Smith.* (Feverfew.)

Calix hemispherical, imbricate, scales partly acute, with scariose margins. *Receptacle* naked. *Pappus* marginal.

Stem branched; leaves entire or pseudopinnate; peduncles branched, corymbose or solitary.

Species. 1. P. *serotinum.*—An European genus.

573. STARKEA. *Willdenow.*

Calix imbricated. *Receptacle* hirsute. *Pappus* simple, sessile, scabrous.

Herbaceous; leaves entire or pseudopinnate; flowers corymbose.

Species. 1. S.? *pinnata.* Subtomentose; stem erect and corymbosely branched; leaves partly pseudopinnate, ultimate segments minute and subulate; receptacle subpaleaceous. *Amellus spinulosus*, Ph. 2. p. 564. Hab. On the plains of the Missouri, common. Flowering in August and September. Obs. Stem 1 or 2 feet high, erect; the whole plant covered with a slender tomentum. Leaves rigid, 1 and a half to 2 inches long, pseudopinnate, segments pinnatifid, ultimate divisions subulate, 1 to 2 lines long. Ramuli 1-flowered, fastigiate. Calix closely imbricated, much shorter than the pappus, scales acute. Rays yellow, oblong, minutely bidentate. Anthers entire at the base. Pappus somewhat ferruginous, rigid, scabrous, copious and unequal. Receptacle favose, subpaleaceous, palæa short and acuminate.—Nearly allied to *Chrysopsis*, and scarcely of this genus? Certainly not *Amellus*. Is it not allied to *Erigeron pinnatifidum*, *E. pinnatum*, or to the pinnate leaved *Asters*, *A. aurantius*, and *A. pinnatus*.

The only genuine species of *Starkea* is indigenous to the mountains of Jamaica.

574. ECLIPTA. *L.*

Calix many-leaved, subequal. *Discal* florets mostly 4-cleft. *Rays* very narrow and numerous. *Receptacle* setose. *Pappus* none. *Seed* rugose, 2-edged, subquadrangular.

Herbaceous annuals; stem weak and branched, and as well as the leaves mostly strigose; leaves entire, opposite; flowers obscure, whitish, peduncles axillar and terminal. Allied to *Bellis*. Stems furnished with an elastic, filiform centre, similar to that of *Stellaria* and *Alsine*. Sap blackening in the air.

Species. 1. E. *erecta.* Indigenous also to India and Egypt. Its juice is said to dye wool of a black colour. 2. *procumbens.* 3. *brachypoda.*

A tropical genus of 7 species, indigenous to India and

America, extending into the warmer parts of the United States. Growing generally on the banks of rivers.

575. SIEGESBECKIA. *L.*

Exterior *calix* 5-leaved, spreading, interior many-leaved, pentangular subequal. *Rays* only on one side of the flower. *Receptacle* paleaceous. *Pappus* none. *Seed* partly 4-sided.

Herbaceous; leaves opposite, asperate, somewhat 3-nerved; flowers pedunculate, axillary and terminal.

Species. 1. S. *laciniata*. 2. *flosculosa*. North California.—A genus of 4 species, 1 indigenous to India, 2 to America, and 1 to Iberia.

576. PHAETHUSA. *Gærtner.*

Calix imbricated. *Rays* 1 to 3. *Receptacle* paleaceous. *Seeds* hispid. *Pappus* none.

Herbaceous; leaves opposite, entire, 3-nerved, branches corymbose.

Species. 1. P. *americana*. ⊣. A very doubtful plant.

577. VERBESINA. *L.*

Calix many-leaved, leaflets disposed in a double series. *Rays* about 5. *Receptacle* paleaceous. *Pappus* 2-awned.

Herbaceous or shrubby; leaves more or less scabrous, alternate or opposite; flowers axillary or terminal and corymbose.

Species. 1. V. *virginica*. Flowers white; stem naked.
2. *Siegesbeckia*. Leaves opposite.
3. * *laciniata*. Stem grooved, naked; leaves sessile, sinuately lacniated, subpinnatifid, attenuated at either extremity, and acute; branches corymbose; flowers white; calix subimbricate; seeds immarginate. Hab. In South Carolina. *v. s.* In Herb. Muhl. Perhaps *Siegesbeckia laciniata*, of Lamark.

A genus of 17 species, principally indigenous to India and the warmer parts of America. The North American species are nearly allied to *Ximenesia*, in which the seeds of the disk are also flat and minutely bisetose, but the calix and numerous rays of this plant serve as important distinctions.

578. ACMELLA. *Richard.*

Calix simple, leaflets few. *Receptacle* oblong, paleaceous. *Seeds* 4-sided, truncate at the summit, naked.

Herbaceous, stems mosty procumbent, leaves opposite, entire; peduncles solitary, 1-flowered, axillary and terminal. Flowers yellow. Rays oblong.

Species. 1. A. *repens. Spilanthus repens.* Mich. 2. *occidentalis?* Hab. On the banks of the Missisippi near New Orleans. Obs. Stem repent, somewhat pubescent. Leaves ovate, crenate, obsoletely 3-nerved, smooth and petiolate; peduncle axillary and grooved, about 3 inches long; rays 5 to 8?; calix minute. Resembles a small *Rudbeckia.*

A genus of 5 or 6 species indigenous to the warmer parts of America, not essentially distinct from *Heliopsis* either in habit or character.

579. ANTHEMIS. *L.* (Mayweed, Chamomile.)

Calix hemispherical, subequal. *Rays* more than 5. *Receptacle* paleaceous; paleæ flat, with rigid acuminated points. *Pappus* none or marginal.

Herbaceous; leaves mostly multifid; ramuli usually 1-flowered; rays white or yellow, rarely wanting.

Species. 1. A. *nobilis.* Common Chamomile. Naturalized near Lewistown, Delaware. 2. *Cotula.* May-weed. Introduced, but now every where a common weed in wastes.

A genus of about 35 species, almost exclusively indigenous to Europe.

580. ACHILLEA. *L.* (Millfoil.)

Calix ovate, imbricate. *Rays* 5 to 10, roundish. *Receptacle* paleaceous. *Pappus* none.

Herbaceous, seldom suffruticose; leaves multifid or rarely undivided; flowers corymbose; rays white, reddish or yellow.

Species. 1. A. *Millefolium.* Naturalized. 2. *tomentosa.* Upper Louisiana. Ph. 3. *asplenifolia.* A variety of *A. Millefolium?* 4. *Ptarmica.* Sneezewort. From Canada to New York. Ph.

A genus of near 50 species, almost exclusively indigenous to Europe and the Levant.

581. TETRAGONOTHECA. *L'Heritier.*

Calix 1-leaved, 4-sided, 4-parted, very broad. *Receptacle* paleaceous. *Pappus* none.

Herbaceous; leaves opposite, entire; peduncles 1-flowered, dichotomal and terminal.

Species. 1. T. *helianthoides.* Hab. In the pine woods of Virginia, Carolina, and Georgia. Stem 2 to 3 feet high. Flowers yellow.—The only species of the genus, allied to *Polymnia.*

582. HELIOPSIS. *L'Heritier.*

Calix imbricated, scales subovate, lined. *Rays* large and linear. *Receptacle* paleaceous, conic, palæa lanceolate. *Seeds* 4-sided. *Pappus* none.

Herbaceous; leaves opposite, ovate, 3-nerved; peduncles 1-flowered, dichotomal and terminal. Calix nearly simple.

Species. 1. H. *lævis.* Hab. From New York to Florida; often near fences, thriving by exposure. Flowers golden yellow.—The only species of the genus?

583. BUPHTHALMUM. *L.*

Calix foliaceous. *Receptacle* paleaceous. *Pappus* 4-toothed, or an obsolete margin. Angles of the *seed* partly marginated, particularly those of the ray.

Shrubby or herbaceous; leaves entire, opposite and alternate; flowers mostly terminal.

Species. 1. B. *frutescens.* On the sea-coast of Carolina and Florida. Angles of the seed 3 or 4, acute, summit suberose, obsoletely toothed, surface granulated and somewhat scabrous. Chaff of the receptacle rigid, carinated and cuspidate in the fruit, squarrose. 2. *angustifolium.* Herb Banks. mss. 3. *sagittatum.* Ph. Not a *Buphthalmum?*

A genus of more than 20 species indigenous to America as far as Paraguay, Europe, the Levant, Egypt, Arabia, China and the Cape of Good Hope. A group probably not very natural.

584. HELENIUM. *L.* (American Sneezewort.)

Calix simple, many parted. *Rays* of the flower semitrifid. *Receptacle* naked, globose; the rays only paleaceous. *Seed* villous; *pappus* paleaceous, about 5-leaved, leaflets awned.

Herbaceous; leaves alternate, decurrent; flowers terminal, pedunculate, subcorymbose.—Discal florets 4 and 5-toothed, externally viscid and glandular; anthers bisetose, or bifid at the base as in *Inula;* it appears, however, both by external and sensible properties more nearly allied to *Galardia.*

Species. 1. H. *autumnale.* Very common. Flowers large and bright yellow; the whole plant is intensely bitter, with something of the aroma of *Anthemis nobilis*, and would probably answer all its medicinal properties. 2. *canaliculatum.* +. 3. *quadridentatum. v. v.* Near New Orleans.

A North American genus, indigenous to river marshes.

585. ACTINELLA. *Jussieu.*

Calix many-leaved, subequal, flat. *Rays* (8 to 20), 3-toothed, wider towards the extremity. *Receptacle* naked, hemispherical. *Pappus* paleaceous, 5 to 8-leaved, leaflets awned.

Stemless or caulescent and suffruticose; leaves entire, alternate; scape or terminal peduncle elongated, naked, 1-flowered.—Flower concolor (yellow.) Diskal florets very short, viscidly glandular? tube minute; anthers entire at the base; seeds villous. Nearly allied to *Galardia*, but the rays are distinctly styliferous, and the receptacle naked.

Species. 1. A. *acaulis.* Scape naked, 1-flowered; leaves linear-spathulate, entire, villous; rays 8 to 10. *Galardia acaulis*, Ph. Fl. Am. 2. p. 743.

Obs. Perennial. Roots fibrous, aggregated in dense tufts, Leaves circularly aggregated, linear-spathulate, punctate, sericeously villous in common with the scape and calix, axills of the membranaceous sheathes conspicuously pilose, (length 2 to 3 inches, breadth 3 or 4 lines.) Scape 8 to 12 inches long. Leaflets of the calix oblong-lanceolate, subequal, irregular, about 2 series, densely villous. Flowers bright yellow, as large as those of Chamomile. Rays 8 to 10, 3 or 4 lines long and 2 broad, expanding towards the extremity, rather deeply 3-toothed. Discal

florets minutely 5-toothed, viscid. Seed short and obconic, shorter than the chaffy calicle. Pappus about 5 or 6-leaved, awned.† Receptacle hemispherical, naked. HAB. On high gravelly hills near Fort Mandan, Missouri. Flowering in June and July.

Of this genus, which does not appear to have any natural affinity with *Hymenopappus*, there is a second species indigenous to Buenos Ayres.

ORDER III.—POLYGAMIA FRUSTRANEA.

(Discal florets bisexual; rays neutral, sterile.)

586. *LEPTOPODA.‡

Calix simple, many-parted. *Rays* 20 or more, semitrifid, broader at the summit. *Receptacle* naked, hemispherical. *Pappus* paleaceous, 8 to 10-leaved, awnless.

Herbaceous; stem 1-flowered, peduncle very long; leaves alternate, decurrent, very entire and smooth; flower entirely yellow.

L. *Helenium. Galardia fimbriata?* Mich. Flor. 2. p. 142.

OBS. Perennial. Very smooth. Stem attenuated, and grooved, about 2 feet long. Peduncle 12 inches, a little enlarged under the calix. Leaves few, linear-lanceolate, entire and very smooth, decurrent, lower ones 6 to 8 inches long, attenuated downwards, slightly punctate and thickish, only 3 or 4 lines broad, the uppermost sessile, linear, and not more than 2 inches long. Calix short and simple like that of *Helenium*, segments foliaceous and

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† The *number* of paleaceous leaflets crowning the seeds of many syngenesious genera, will often be found to constitute more essential generic distinctions, than many others which are constantly adduced; in some genera these leaflets are about 5, in a smaller number 6 to 8, or 8 to 10, and in others 12 to 15. Notwithstanding their minuteness, they appear to hold the relative importance of the divisions of the calix, in which number is indisputably important.

‡ So called in allusion to the elongated peduncle.

acute. Rays neutral, more than 20. Tube of the discal florets minute, border viscidly glandular, 4 and 5-toothed. Stigmas obtuse. Seed smooth and subcylindric; paleaceous leaflets oblong, obtuse, somewhat lacerated.—A genus much more nearly allied to *Helenium* than *Galardia*, but connecting both. Hab. In the open swamps of Carolina and Georgia.—The leaves are somewhat sweetish to the taste.

587. GALARDIA. *Fougeroux. Juss. Willd.*

Calix many-leaved, flat, subequal. *Rays* semitrifid and broader towards the summit. *Receptacle* setose, hemispherical. *Pappus* paleaceous, leaflets 8 to 10, awned.

Herbaceous; stem simple or branched from the base; leaves alternate, lower ones incisely toothed; flowers solitary, terminal, long pedunculate, particoloured, the disk brownish-red, rays partly yellow. Seed densely pilose towards the base.

Species. 1. G. *bicolor.* In the open Pine forests of Georgia and South Carolina. β. *aristata.* Ph. Scarcely specifically distinct from the preceding, but requires further comparison. Indigenous to the grassy hills of the Missouri; abundant near Fort Mandan, and from thence to the Mountains. In a native state the stem is generally 1-flowered. Root perennial. This variety bears the climate of England without protection, and ripens seeds.—The only species of the genus.

588. * BALDUINA.†

Calix imbricated, foliaceous, and squarrose. *Rays* subtrifid. *Receptacle* hemispherical, corneous, cellular! *Seeds* immersed. *Pappus* paleaceous, awnless, erect, about 10-leaved.

Herbaceous; stems 1 or many-flowered, flowers pedunculate, terminal, yellow; leaves alternate, very entire.

Species. 1. B. * *uniflora.* Stem mostly 1-flowered, angular and sulcated; leaves partly carnose, spathulate-linear, entire and smooth, radical ones ovate; pappus

† Dedicated as a just tribute of respect for the talents and industry of William Baldwyn, M. D., late of Savannah in Georgia; a gentleman whose botanical zeal and knowledge has rarely been excelled in America.

about the length of the seed. Hab. In open grassy swamps from the maritime parts of Virginia to Florida. Obs. Root small and fibrous, perennial. Stem simple, 1 to 3 flowered, minutely pubescent, 3 or 4 feet high. Leaves few, upper ones acute, all of them short, about from 1 to 2 inches long, and except the radical ones only 2 or 3 lines wide, very entire. Peduncle enlarged towards the extremity. Calix partly hemispherical, consisting of many series of shortish, imbricated, squarrose leaves Rays many, neutral, golden-yellow, externally pubescent, dilated towards the extremity, and deeply 3-toothed or partly trifid. Discal florets very numerous, glandularly pubescent, 5 or rarely 4-toothed, the base very singularly indurated and corneous. Anthers *bisetose* at the base. Stigmas subperfoliate. Receptacle corneous, very deeply and remarkably favose so as entirely to include the seed with its pappus! the cells 2 to 3 lines deep; intersections of the margins toothed. Seed sericeous, inversely conic; leaflets of the pappus, linear-oblong, partly acute and entire, connivent in a cylinder, as long as the seed.

2. * *multiflora*. Stem branched, many-flowered, smooth and striated; leaves narrow linear, subcarnose and smooth; segments of the calix and teeth of the corneous cellular receptacle acuminated; pappus very short, cupulate. Hab. On the sand-hills of the Altamaha, West Florida.—Dr. Baldwyn. Obs. Perennial? stem 3 or 4 feet high, terete, considerably branched above, branches 1 to 4-flowered; flowers fastigiate, pedunculate, terminal. Leaves scattered, sessile, very narrow, often 2 inches long, and scarcely a line wide, smooth, and somewhat succulent. Ramuli 1-flowered; flowers pale yellow, much smaller than the preceding, (about the size of those of *Anthemis Cotula*); branches and smooth calix glandular; peduncle 3 or 4 inches long, angular and grooved, leafy below, (or a continuation of the branchlet.) Calix squarrose, imbricated, segments lanceolate, acuminate, foliaceous. Discal florets 4 and 5-toothed, dentures viscidly glandular, base of the tube *corneous* (as in the preceding). Anthers bisetose at the base. Stigmas long and perfoliate, or enlarged about the middle, smoothish and fusiform beyond.† Receptacle as in the preceding, but the intersections acuminately toothed. Seed immersed, sericeous, inversely and acuminately conic. Pappus paleaceous, much shorter than the seed; leaflets awnless, connivent in the form of a cup,

† A stigma somewhat similar exists in some species of *Corcopsis*.

or entire margin, very obtuse, about 10.—A very distinct genus, but evidently allied to *Galardia*. †

589. **HELIANTHUS.** *L.* (Sunflower.)

Calix imbricated, subsquarrose, foliaceous. *Receptacle* paleaceous, flat. *Pappus* paleaceous, 2-leaved, caducous.

Herbaceous, rarely shrubby, often tall; leaves scabrous, opposite, alternate or rarely verticillate; flowers axillary or terminal, sometimes very large, disk in some species dark brown.—Tube of the discal florets distinct, very short and narrow.

Species. 1. H. *tubæformis*. Hab. On the banks of the Missouri, particularly in the vicinity of the aboriginal stations, being often cultivated by them for the seed which is dried and ground into meal for food. Nearly allied to *H. annuus*.

2. *atrorubens*. Common throughout Upper Louisiana. 3. *lætiflorus*. 4. *pubescens*. 5. *divaricatus*. 6. *frondosus*. 7. *trachelifolius*. 8. *longifolius*, Ph.

9. * *pauciflorus*. Leaves opposite, linear-lanceolate, acuminate, serrate, nearly smooth; stem naked, trichotomous, few-flowered; calix closely imbricated; leaflets ovate. Hab. In Lower Louisiana.—Leaves sometimes ternately verticillate, very long, paler beneath and somewhat pubescent; ray and disk nearly the same colour. 4 or 5 feet high.

† *Upper leaves alternate.*

10. *giganteus*. β. * *crinitus*. Leaves approximate, and long, linear-lanceolate, acuminate, nearly entire, subses-

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† To the following very natural group of genera, *Helenium*, *Leptopoda*, *Actinella*, *Galardia*, and *Balduina*, I would propose the name of Galardiæ; presenting the following general character.

Common calix many-leaved, foliaceous, subequal or imbricated. Radial florets semitrifid or 3-toothed, neutral or styliferous. Discal florets viscidly glandular, 4 and 5-toothed, tube minute. Receptacle hemispherical or globose, naked or more rarely setose, punctate or very deeply favose. Seeds obconic, mostly villous. Pappus paleaceous; leaflets 5 to 10, naked or awned, united at the base.

Herbaceous, (one species of *Actinella* shrubby); leaves alternate, entire, rarely all radical; flowers terminal, pedunculate.

sile and scabrous, equally green on both sides; flowers fastigiate, numerous; calix squarrose, segments linear; rays linear, very numerous. Hab. In Upper Louisiana, on the banks of rivers; probably to the sources of the Missouri. Disk yellow; flowers often nearly double. 11. *altissimus*. 12. *strumosus*. 13. *prostratus*. 14. *decapetalus*. 15. *multiflorus*. 16. *mollis*. 17. *macrophyllus*. Scarcely distinct from *H. decapetalus*. 18 *angustifolius*.

A genus of about 30 species exclusively indigenous to North and South America, with the exception of *H. cochinchinensis* and *H. indicus* of India and Egypt, scarcely distinct from *H. annuus*.

590. RUDBECKIA. *L.*

Calix subequal, mostly consisting of a double series of leaflets. *Receptacle* paleaceous, conic. *Pappus* a 4-toothed margin.

Herbaceous; leaves alternate, entire, lobed or pinnatifid; flowers terminal; disk often dark, rays yellow, rarely brown, in *R. purpurea* purple.—Stigma often obtuse.

Species. 1. R. *purpurea*. Obs. Stem nearly smooth. Root perpendicular. Rays imperfectly styliferous. Scales of the receptacle acuminated; calix imbricated, squarrose. *β*. **serotina*. Stem hispid; root horizontal; flowers later; rays bidentate. Flowers purple. Hab. On the plains of Lower Louisiana. 2. *amplexifolia*.

3. *lævigata?* Ph. Obs. Leaves subcoriaceous, very smooth and lucid; radical spathulate-ovate, obtuse, those of the stem not acuminated; peduncles few, long, and naked; flowers fastigiate; disk oblong. Hab. In the Pine forests of Georgia. 4. *discolor*. Ph. 5. *spathulata*. Leaves very smooth and entire, spathulate-ovate, and amplexicaule; stem smooth, 1 or few-flowered; rays of the corolla 3-toothed. Hab. In the mountains of Carolina. *v. s.* In Herb. Muhl.

6. *gracilis*. Herb. Banks, mss. Slender and pubescent; stem 1 to 3-flowered, peduncles very long; leaves spathulate-ovate, remotely denticulate. Hab. In Pine forests from Virginia to Florida. Calix spreading; disk conic, brown. 7. *aristata*. 8. *fulgida*. 9. *hirta*. 10. *aspera*, Persoon, *R. radula?* Ph. 11. *triloba*. Obs. Scales of the receptacle awned. *β*. *subtomentosa*, Mich.

12. *columnaris*. Hispid; stem nearly simple, 1 or few-flowered, peduncles very long; radical leaves nearly entire, cauline pinnatifid, segments linear-lanceolate; calix simple, 5 to 8-leaved, rays 5 to 8; disk cylindric, elon-

gated. HAB. On the plains of Upper Louisiana. Flowering in July. Perennial. 1 to 2 feet high. Rays sometimes brown-red, as in *Tagetes patula*. 13. *laciniata*. 14. *digitata*. 15. *pinnata*.

A North American genus, with the exception of *R. nudicaule* of Monte Video, which appears to be scarcely distinct from *R. spathulata*. The seeds of *R. purpurea* are pungently aromatic.

591. BIDENS. *L.* (Bur Marygold, Spanish Needles.)

Calix subequal, caliculate. *Rays* often wanting. *Receptacle* paleaceous, flat. *Pappus* 2 or 4 reflected or erect and retrorsely scabrous awns. *Seed* 4-sided.

Herbaceous, rarely shrubby; leaves mostly opposite, often pseudopinnate; flowers axillary or terminal.

SPECIES. 1. B. *cernua*. 2. *chrysanthemoides*. 3. *frondosa*. 4. *connata*. 5. *pilosa*. 6. *bipinnata*. Called Spanish Needles; the seeds being very troublesomely tenaceous.

Almost exclusively an American genus, extending into the tropical regions as far as Peru, there are also 2 species in Europe and 2 in India.

592. COREOPSIS. *L.*

Calix double, both many-leaved. (8 to 12), interior equal, subcoriaceous and coloured. *Receptacle* paleaceous, scales flat. *Seed* compressed, emarginate, bidentate, dentures rarely awned.

Herbaceous; leaves mostly opposite, pseudopinnate, ternate or rarely entire; flowers fastigiate, terminal, or also dichotomal; rays yellow, seldom red, or white, sometimes 3-lobed.—Scales of the receptacle and the seed parallel; seed somewhat incurved, not sheathed.

† *Leaves opposite, undivided.*

SPECIES. 1. C. *lanceolata*. 2. *crassifolia*. 3. *arguta*. PH. Apparently a variety of the following. 4. *latifolia*.

5. * *rosea*. Small and very smooth; stem mostly simple; leaves linear, entire, axills leafy; flowers few, long pedunculate, dichotomal and terminal; rays red, unequally 3-

toothed; seed very entire, naked. HAB. In open grassy swamps, from New Jersey to Georgia.—Root perennial: stem about 12 inches high, smooth, simple, or somewhat branched. Leaves very smooth, about 2 inches long, opposite and connate at the base, which is partly ciliated, axills producing leaves or abortive branchlets. Flowers pale red, and rather small, often only 3, more rarely 6 or 8; peduncle filiform, about 3 inches long; rays about 8, obsoletely tridentate, middle denture or lobe large. Exterior calix very small, interior 8-leaved; disk partly saffron-yellow. Seeds entire, not emarginated, naked. Flowering in August.

†† *Leaves opposite, divided.*

6. *aristata.* A Bidens? 7. *trichosperma*, β. *aurea?* ×. *C. aurea*, Aiton. 8. *auriculata.* 9. *tripteris.* 10. *semifolia*, β * *rigida.* Leaflets linear-lanceolate, margin scabrous; exterior calix about 12-leaved. HAB. In Georgia.

11. * *palmata.* Stem low, simple and compressed, mostly 1-flowered; leaves opposite, sessile, and somewhat coriaceous, palmately 3-lobed, smooth, margin scabrous, segments linear-oblong, obtuse, entire or subdivided; outer and inner calix 8-parted; seeds oblong-elliptic, naked. HAB. On the open plains of the Michigan Territory, Illinois and Lower Louisiana.—Stem perfectly simple, about 12 inches high, deeply and regularly striated, 1 to 3-flowered. Leaves 1 to 2 inches long, cuneate at the base, towards the summit divaricately 3-cleft, lower ones subdivided, lateral segments unequally bifid, central lobe trifid. Flower yellow, rather large.

12. *trifida.* 13. *tenuifolia.* 14. *verticillata.* 15. *mitis.*

††† *Leaves alternate.*

16. *acuta.* PH. 17. *gladiata.* Petals dilated, trifid, Stem simple, slender, about 2 feet high; leaves thick. 18. *angustifolia.*

19. * *nudata.* Stem low and simple, summit dichotomous; leaves smooth, subulate-linear, very remote, upper ones minute; rays red, obsoletely 3-toothed; seed naked. HAB. Near St. Mary's in West Florida.—Dr Baldwyn. Stem striated, smooth and round, 2 or 3 feet high, with scarcely more than 2 conspicuous leaves, the lower of which is 4 or 5 inches long, and filiformly narrow, the upper about an inch long, the uppermost 3 or 4 lines Flowers red, dichotomous, 4 perhaps to 6; peduncles 4 or 5 inches long. Exterior calix minute.—Allied to *C. rosea*, but remarkable for the paucity of leaves. 20. *aspera.* PH.

An American genus of about 30 species extending into

the southern hemisphere as far as Peru, with the exception of 2 species of doubtful genus said to be indigenous to Canton in China.

593. * ACTINOMERIS. †

Calix simple, many-leaved, foliaceous, subequal. *Rays* remote, elongated, (4 to 8). *Receptacle* small and paleaceous, the leaflets embracing the margin of the seed. *Seed* compressed and marginated, with the summit persistently 2-awned.

Tall and herbaceous plants, with entire, decurrent and alternate scabrous leaves; flowers corymbose, rays yellow, 3 or 4 times the length of the calix.—Discal florets like those of *Helianthus*, and *Verbesina*, partly ventricose, with a short distinct and narrow tube; stigmas also similarly subulate. Seeds transversely embraced by the leaflets of the receptacle. A genus apparently intermediate with *Verbesina* and *Helianthus*, but without any shadow of affinity to *Coreopsis*. The calix and rays remove it from *Verbesina;* from *Helianthus*, notwithstanding an approximation in some measure by the calix and discal florets, it is easily distinguished by the flat and marginated seed, furnished with transverse sutures and persistent awns.

Species. 1. A. * *squarrosa*. Leaves broad lanceolate, serrate; corymb paniculated; calix spreading, loose; disk subglobose, in fruit squarrose. *Coreopsis alternifolia*, L. *β. procera*? *C. procera*, Aiton. *γ. alba*. Flowers white, without rays. Is it of this genus?

2. *Helianthoides*. Leaves lanceolate, acute, serrate, under side canescently villous; corymb simple, coarctate. Hab. In the open forests of Ohio, Kentucky, Tennessee and Lower Louisiana.—Stem distinctly alated as in the preceding; leaves attenuated above; flowers few and larger, from 4 or 5, probably to 10 or 11; rays about 8, (in the preceding 3 and 4), golden-yellow; calix foliaceous, much like that of *Helianthus*, but nearly a simple series of segments; leaflets linear-lanceolate, partly spreading, seed persistently bisetose, flat. 3. *alata*. *Coreopsis alata*, Ph. 2. p. 567. but in this the leaves are opposite.

To this genus appears to belong *Coreopsis alata* and *C. ovata* of Mexico.

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† From ακτις, *a ray*, and μερις, *a part;* the flower being imperfectly radiated.

594. CENTAUREA. *L.* (Knapweed, &c.)

Calix various. *Rays* funnelform, irregular.
Receptacle setose. *Pappus* simple, often pilose.

Generally herbaceous; leaves alternate, simple or pinnatifid; flowers terminal.

Species. 1. C. *Cyanus.* (Blue-bottle). Not very commonly naturalized. 2. *nigra.* 3. *jacea.* 4. *benedicta.* 5. *calcitrapa.* All naturalized, not indigenous.

A vast and compound genus indigenous to Europe, Barbary, Egypt, the Levant and Siberia. In the southern hemisphere only a single doubtful species has been hitherto discovered by Commerson at Monte Video.

Order. IV.—POLYGAMIA NECESSARIA.

(Radial florets only fertile.)

595. CHAPTALIA. *Ventenat.*

Calix subimbricated, many-leaved. *Feminine florets* of two kinds, in 2 series, external radiate, internal naked. *Discal florets* bilabiate. *Receptacle* naked. *Pappus* capillary.

Scapes 1-flowered; leaves radical, entire, usually tomentose beneath.—Pappus mostly stipitate.

Species. 1. C. *integrifolia.* Leaves oblong-obovate, retrorsely denticulate, beneath tomentose; flower nutant. Hab. From Virginia to Florida, near open sandy swamps. —Root perennial, fibrous. Leaves covered on the under side with a cotton like tomentum; scape tomentose, much longer than the leaf. Calix oblong, formed of nearly a simple series of leaflets, a few of the external ones shorter. Rays narrow, 15 or 20; external discal florets in a single row, feminine without corolla; internal hermaphrodite, bilabiate, upper lip 3-toothed, lower bifid. Anthers each conspicuously bisetose at the base.

An American genus of 7 or 8 species nearly allied to Perdicium, extending to Monte Video.

596. SILPHIUM. *L.*

Calix squarrose, scales broad and foliaceous. *Receptacle* paleaceous. *Seed* flat, obcordate, emarginate, bidentate.

Herbaceous, often tall; stem cylindric or angular; leaves alternate, opposite, or rarely verticillate, entire or pinnatifid; flowers fastigiate, axillar and terminal, yellow.—Hermaphrodite and sterile discal florets producing as in *Alcina* a simple subclavate style; dentures small and pubescent. Seeds marginated.

Species. 1. S. *laciniatum.* 2. *compositum.* 3. *terebinthinaceum.* 4. *perfoliatum.* 5. *connatum.* 6. *Asteriscus,* β. * *scabrum.* Leaves opposite or alternate, oblong-lanceolate, subcrenate, acute, sessile and scabrous; calix subciliate. 7. *pumilum,* β. *tomentosum. S. tomentosum,* Ph. Leaves alternate, cordate-ovate, crenate, obtuse, under side canescently villous; stem subtomentose; calix spreading; seeds naked. 8. *integrifolium.* 9. *lævigatum.* Ph. 10. *trifoliatum.* 11. *ternatum.* 12. *atropurpureum.* A variety of the preceding. 13. *elatum,* Herb. Banks, mss. Not defined. 14. *reticulatum,* ibid. Destitute of character.

A North American genus.

597. POLYMNIA. *L.*

Calix double; exterior 4 or 5-leaved; interior 10-leaved, leaflets concave. *Receptacle* paleaceous. *Pappus* none.

Herbaceous; stems tall; leaves opposite and alternate, mostly lobed or subpinnatifid; flowers terminal, rays small, pale yellow.

Species. 1. P. *canadensis.* 2. *Uvedalia.* Stem very tall. Seeds large. Styles of the discal florets partly bifid.

A North American genus, with the exception of a third species in Abyssinia.

598. PARTHENIUM. *L.*

Calix 5-leaved. *Rays* very small. *Receptacle* paleaceous, minute; exterior scales dilated. *Seed* obovate, minutely 3-awned.

Herbaceous; leaves alternate, simple or pinnatifid; flowers corymbose, terminal.—The 5 external scales of the receptacle very broad, shielding the same number of mi-

nute radial florets; rays emarginate, each connected at the base with 2 masculine sheathed florets.† Style of the imperfect discal florets entire.

Species. 1. P. *integrifolium*. A second species of this genus with a low and decumbent stem and subpinnatifid villous leaves grows around St. Louis, Louisiana, and a third very distinct from No. 1. also exists in the open forests of Tennessee; but of these I possess neither notes nor specimens.

A North American genus with the exception of one species in the warmer parts of America.

599. CHRYSOGONUM. *L.*

Calix 5-leaved. *Receptacle* paleaceous. *Pappus* 1-leaved, 3-toothed. *Seed* surrounded by a 4-leaved calicle.

A low herbaceous plant with opposite leaves; flowers mostly terminal, yellow.

Species. C. *virginiamum*. The only species of the genus.

600. BALTIMORA. *L.*

Calix cylindric, many-leaved. *Rays* 5. *Receptacle* paleaceous. *Pappus* none. *Seed* triquetrous.

Herbaceous; leaves opposite, asperate, 3-nerved, flowers subpaniculated, terminal.

Species. B. *recta*. † Probably as Mr. Pursh remarks, not indigenous to the United States.—Of this genus there is a second species with white flowers, of uncertain locality.

601. GYMNOSTYLES. *Jussieu.*

Calix many-leaved, the leaflets disposed in a single order. *Feminine florets* apetalous. *Seeds* compressed, partly toothed at the summit, awned with the persistent style.

Small and partly stemless herbaceous plants with diffuse branchlets; flowers solitary and sessile.

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† A somewhat similar arrangement appears to exist in *Silphium pumilum* to which this genus is allied.

Species. 1. G. *stolonifera?* *Hippia stolonifera*, Persoon, 2. p. 497. Hab. Commonly diffused over the maritime parts of South Carolina. S. Elliott, Esqr. Obs. Smooth; stem repent; leaves setaceously pinnatifid; flowers sessile to the root.

A small genus of 3 species, 1 indigenous to the Cape of Good Hope and another to India; the above is also common to Portugal.

602. IVA. *L.*

Calix about 5-leaved, or 5-parted. *Feminine florets* of the ray 5, naked. *Receptacle* setosely paleaceous. *Seed* obovate, naked.

Herbaceous or shrubby; leaves 3-nerved, mostly carneous, opposite and alternate; flowers spiked or paniculated, axillar and terminal.

Species. 1. I. *ciliata.* 2. * *Xanthifolia.* Annual; leaves opposite, petiolate, cordate-ovate, acuminated, doubly serrate, softly villous, beneath canescent; spikes paniculated, naked; calix 5-cleft. Hab. In arid soils, near Fort Mandan, &c. on the banks of the Missouri. Obs. Plant very large, 5 or 6 feet high, with leaves nearly of the size and form of *Xanthium Strumarium*, but covered with a soft and almost velvet-like villus; upper leaves ovate; flowers extremely numerous, in a diffuse panicle. Calix 5-cleft, divisions ovate-lanceolate, acuminate. Style of the discal florets simple; stigma subcapitate. Fertile florets 5, naked. Receptacle subsetaceous.—Flowering in August.

3. *imbricata.* Calix imbricated; scales coriaceous, whitish, 5 or 6. Feminine florets, apetalous, style long, minutely sheathed at the base. Radical and younger leaves opposite and serrated; floral and upper stem leaves alternate and entire.

4. *axillaris.* Ph. Obs. Perennial and herbaceous; 6 to 12 inches high and smooth; leaves mostly opposite, cuneate-oblong, obtuse, 3-nerved, very entire, margin subciliate, scabrous; flowers axillary, solitary and nutant; yellowish-green. Feminine florets, apetalous; receptacle subsetosely foliaceous. Style of the discal florets simple, stigma subpeltate, fringed. Hab. In arid and saline soils on the banks of the Missouri. Flowering in May. 5. *frutescens.* Called Marsh-Elder.

A North American genus with the exception of *I. annua* indigenous to the tropical regions of the same continent

603. AMBROSIA. *L.* (Bitter-weed.)

Monoicous.—Masc. *Calix* 1-leaved. *Anthers* approximate, but not united. *Receptacle* naked. —Fem. *Calix* 1-leaved, entire or 5-toothed, 1-flowered. *Corolla* none. *Nut* formed from the indurated calix, 1-seeded.

Tall herbaceous and mostly annual plants; leaves rough, the lower mostly opposite, the upper alternate, bipinnatifid, trifid, or rarely entire; flowers in long terminal and proximately axillar spikes, upper flowers masculine numerous, the lower fewer, feminine, glomerated, clusters 2 to 5-flowered, tribracteate.

Species. 1. A. *integrifolia.* 2. *bidentata.* 3. *trifida.* 4. *elatior.* 5. *artemisifolia.* 6. *paniculata.* 7. *heterophylla.* 8. * *tomentosa.* Perennial; stem low; leaves bipinnatifid, under side white and tomentose; spikes solitary. Hab. In Upper Louisiana on the banks of the Missouri; rare. Only 1 or 2 feet high.

A North American genus, with the exception of 1 species in Peru and another indigenous to the sea-coasts of the Levant.

604. XANTHIUM. *L.* (Clott-burr.)

Monoicous.—Masc. *Calix* imbricated. *Anthers* approximate, but not united. *Receptacle* paleaceous.—Fem. *Calix* a 2-leaved involucrum, 1-flowered. *Corolla* none. *Utriculus* muricated, bifid. *Nut* 2-celled.

Herbaceous and annual; leaves entire or 3-lobed, alternate, smooth or asperate; (in *X. spinosum* the leaves are subtended by large and trifid spines); flowers spiked, axillar and terminal, spike short, above masculine.

Species. 1. X. *Strumarium.* Indigenous to the remotest parts of Upper Louisiana. 2. *orientale.* 3. *spinosum.* At this time naturalized from Savannah in Georgia to Georgetown in the District of Columbia. *v. v.*

A genus of 4 species indigenous nearly in common to Europe, Siberia, India and America.

Order V.—POLYGAMIA SEGREGATA.

(Each of the florets furnished with a calix.)

605. ELEPHANTOPUS. *L.* (Elephant's foot.)

Partial calix 4-flowered. *Florets* 5-cleft, ligulate, hermaphrodite. *Receptacle* naked. *Pappus* setaceous.

Herbaceous or rarely shrubby; leaves entire, villous or pilose; calices by 3's, surrounded by a 3-leaved common involucrum, long pedunculate, terminal and subcorymbose or spiked.

Species. 1. E. *caroliniamus.* Leaves oval, narrowed at the base, and with the branching stem pilose. Hab. In Maryland and Virginia. β. * *simplex.* Stem simple and as well as the leaves and involucrum more densely pilose, calix pilose; (in the preceding smooth and glandular.) Hab. In Carolina and Georgia. E. *tomentosus.* Ph. A species which does not appear to have been discovered in the United States. Obs. Pappus consisting of from 5 to 8 erect and fragile bristles.

A genus of 6 species indigenous to tropical America, with the exception of 1 in India.

Class XVIII.—GYNANDRIA.

I. MONANDRIA.

† "*Anther* adnate, subterminal and persistent.—*Pollinia* (masses of pollen) affixed by the base, composed of angular particles elastically cohering." R. Brown? Hort. Kew. 5. p. 188.

606. ORCHIS. *L.*

Corolla ringent, upper leaflet vaulted. *Lip* dilated, the base beneath calcarate. *Pollinia* (anthers, *L.*) 2, terminal, adnate.

Roots bituberous or palmate; flowers spiked. Lip of the corolla mostly trifid, rarely entire.

Roots palmated.

Species. 1. O. *ciliaris*. Pluk. Amalth. p. 162. t. 432. f. 5. 2. *blephariglottis*. 3. *cristata*.

4. * *integra*. Lip oblong, entire, longer than the inner petals; spur longer than the germ, acute at the point; stem leafly, bractes shorter than the flowers. Hab. In the swamps of New Jersey. Nearly allied to *O. ciliaris* and with flowers of the same orange-yellow colour, but somewhat smaller.

5. * *nivea*. Lip linear-oblong, entire, longer than the inner petals; spur filiform, equal, longer than the germ; segments of the corolla spreading; spike short and oblong; lower leaves linear and very long, cauline subulate. Hab. Betwixt St. Mary's and Satilla river, West Florida.—Dr. Baldwyn, who favoured me with a specimen under the above name. Flowers clear white, rather small. Lower leaves narrow, a span long, upper ones disproportionately small; bractes shorter than the germ. Genitaliferous column remarkably small in proportion, not half so large as the preceding, the pollinia are consequently subsessile. Spike rather dense, 2 or 3 inches long.

6. *flava*. Lip ovate, entire, partly crenulate; spur attenuated, filiform and about the length of the germ; spike crowded; bractes longer than the flowers. Hab. In New

Jersey, Z. Collins. *v. s.* In Herb. Collins and Muhlenberg. Flowers pale orange-yellow, rather small. Spur widening above.

7. psycodes. O. lacera. Mich. 2. p. 156. 8. *clavellata.* β. *tridentata. O. tridentata.* Willd. 9. *viridis.* 10. *bracteata.* 11. *obsoleta.*

12. * *huronensis.* Lip lanceolate, acuminate, entire and incurved; petals subulate and connivent; spur about the length of the lip, incurved; petals flat; stem leafy. Hab. In wet places on the islands of Lakes Huron and Michigan. Obs. Root palmate; leaves oblong, obtuse; bractes acuminated; spike dense, flowers greenish and small. Flowering in August and September.

13. *spectabilis.* Pluk. Amalth. 163. t. 432. f. 4. Obs. Root palmate, mostly 2-leaved; scape acutely pentangular, sometimes producing a leaf, few-flowered; bractes large and lanceolate; spur thick and obtuse, compressed, subclavate, about the length of the germ; segments of the petaloid calix all connivent and adhering, never expanding of a blueish purple; lip white, broad ovate and entire. Pollinia clavate, pedicellate, concealed within the lateral cucullate cells of the genitaliferous column, grains of the pollen agglutinated by the base.

Roots fasciculated.

14. *fuscescens.* 15. *rotundifolia,* Swartz. *O. orbiculata,* Ph. *v. v.* On the Alleghany mountains, Pennsylvania, and on the banks of Lake Erie. 16. *dilatata. v. v.* In Franklin county, Pennsylvania, &c. 17. *virescens* 18. *hyperborea.* 19. *obtusata.* Herb. Banks. 20. *rotundifolia.* ibid. 21. *fimbriata.* 22. *incisa.* Pluk. Amalth. t. 434. f. 6. 23. *fusa.* Apparently a variety of the preceding.

A genus of near 90 species, principally indigenous to Europe, Northern Africa, the Levant and North America; there are also a few species at the Cape of Good Hope, in India, China and Japan.

607. HABENARIA. *Willd.* Orchis. *L.*

Corolla ringent. interior petals biparted. *Lip* dilated, the base, beneath calcarate. *Glands of the pollen* naked and distinct. *2 sterile processes* arising from the base of the anther.

Roots fibrous or creeping; flowers spiked; stems leafy; lip setaceously 3-parted.

Species. 1. H. **Michauxii. Orchis quinqueseta,* Mich. 2. p. 155. Lip 3-parted, lateral segments setaceous; spur

twice the length of the germ; petals biparted, the lower segment setaceous; leaves oval, acute, bractes acuminate. —Nearly allied to *H. macroceras.* Willd. *v. s.* In Herb. Muhl. Flowers white.

2. * *repens.* Root creeping; leaves and bractes lanceolate, acute; lip 3-parted, lateral segments setaceous; spur scarcely the length of the germ, adscendent; inner petals biparted, the lower segment setaceous. HAB. On the margins of ponds near Savannah in Georgia and in Carolina; subaquatic. OBS. Root perennial, fibrous, creeping, base of the stem also radicant; fibres lanuginous. Stem leafy, about 12 inches high. Leaves oblong-lanceolate, approximate, in the spike diminishing to bractes, which are about equal with the flowers. Spike linear, 3 to 5 inches long. Flowers yellowish-green, numerous, but not dense. Outer segments of the calix glandularly mucronulate, upper segments vaulted; the 2 inner petals bifid nearly to the base, with the divisions so unequal and divaricate as to appear unconnected, the upper one linear and acute, the lower setaceous: *lip* 3-parted, the central portion shorter and linear, the 2 lateral setaceous.

†† "*Anther* persistent, parallel with the stigma.—*Pollinia* affixed to the summit of the stigma, the particles farinaceous or angular." R. BROWN.

608. **GOODYERA.** *R. Brown.* NEOTTIA. *Willd.*

Corolla ringent; the 2 lower petals placed under the gibbous lip, which is undivided above. The *column* (or style) free. *Pollen* angular.

Roots creeping; leaves radical, reticulated with discoloured veins; flowers densely spiked.

SPECIES. 1. G. *repens.* 2. *pubescens.*

The only species of the genus, the 1st. also indigenous to Europe.

609. **NEOTTIA.** *Swartz. R. Brown.*

Corolla ringent; the 2 lower petals placed under the lip, which is beardless; interior leaves connivent. *Column* apterous. *Pollen* farinaceous.

Nearly allied to the preceding genus, and almost similar in habit.

SPECIES. 1. N. *tortilis.* 2. *cernua.* In these and *N.*

spiralis of Europe the spike is spirally contorted; not altogether congeners probably with Neottia, which is almost exclusively indigenous to tropical America.

610. CRANICHIS. *Swartz.*

Corolla pentapetalous, resupinate, subringent. *Lip* behind, vaulted. *Anther* as in *Neottia*.

Roots fasciculated; stems simple, leafy or nearly naked; flowers spiked.

Species. 1. C. * *multiflora*. Elliott. "Roots fasciculated, terete; leaves radical, oblong-oval and lanceolate; scape naked, many-flowered; petals partly connivent." Hab. "In rich oak lands in St. John's Parish, South Carolina."—*Elliott.*

A small genus, all except the above confined to the island of Jamaica.

611. LISTERA. *R. Brown.* Ophrys. *Smith, &c.*

Corolla irregular. *Lip* pendent, bifid. *Column* apterous. (minute); the *anther* inserted at its base. *Pollen* farinaceous.

Roots fasciculate, carnose; stem mostly bifoliate, raceme lax; flowers obscurely coloured.

Species. 1. L. *pubescens*. *Epipactis pubescens*. Ph.

2. *cordata*. *Ophrys cordata*, Mich. Obs. Root fasciculated, fibres simple, thick and carnose. Stem partly pentagonal, bifoliate towards the middle, about a span high. Peduncle and upper part of the scape viscidly pubescent. Leaves roundish-cordate, veined, smooth, callously mucronulate. Raceme about 7 to 15-flowered; flowers distant, bractes obvallate, minute, obtuse; pedicell about twice the length of the germ. Petals 5, nearly all reflected, green, 3 of them ovate and concave, the 2 interior longer, and closely convolute; lip half an inch long, brownish-purple, and deeply bifid, with a minute tooth in the centre of the bifurcation, bidentate at the base, where there exists a small excavation; segments of the lip linear and acute; somewhat divaricated, the margin near the base reflected. Genitaliferous column minute. Anther persistent. Capsule oval. Hab. In moist shady woods, New Jersey, (near Philadelphia.) 3. *convallarioides*.

††† *Anther* terminal, inserted, persistent. *Pollen* farinaceous or angular. R. Brown.

612. POGONIA. *Juss. R. Brown.* ARETHUSA. *L.*

Petals 5, distinct, without glands. *Lip* sessile, cucullate, internally crested. *Pollen* farinaceous.

Roots fasciculated, the fibres simple and carnose: scapes mostly bifoliate, 1-flowered; leaves rarely approximating verticillately at the summit of the scape; external petals often very long and linear, the 2 internal then shorter and connivent; lip abruptly alated from the base, the centre crested, terminating in a simple dilated lobe with a crenulated or eroded margin. (In *P. ophioglossoides* the petals are all nearly of the same colour and magnitude.)

SPECIES. 1. P. *ophioglossoides.* 2. *divaricata.* 3. *verticillata.* OBS. Root fasciculated, fibres simple and carnose. Scape about 12 inches high, terete, brownish, and as in *P. divaricata* slightly glaucous. Leaves terminal, verticillated in 5's, very smooth, with many nerves, cuneate, oval-lanceolate, and somewhat acute, 2 of the leaves distinctly interior. The 3 external petals linear, 2 to 2 and a half inches long and channelled, colour greenish-brown; the 2 interior petals connivent and longer than the lip, oblong, obtuse, paler than the outer petals, and scarcely 1 third their length, internally marked with 2 elevated lines. Lip horizontal, channelled, alated from the base, and unconnected with the column, alated margins inflected or cucullate, terminating abruptly below the dilated extremity of the lip; centre of the lip papillosely crested; extreme limb smooth and dilated, broader than long, pendent, and undulated. Genitaliferous column shorter than the lip, incurved, solid and subclavate. Anther 2 celled, horizontal, operculate, and persistent, unguiculately articulated behind, received into a lacunose margined depression at the summit of the column. Pollen pulverulent. *P. medeoloides*, PH. appears to be merely a variety of this species.

A North American genus.

613. *TRIPHORA.† ARETHUSA. *Swartz. Willd.*

Petals 5, distinct, equal and connivent, without glands. *Lip* unguiculate, cucullate. *Column* spathulate, complanate, and apterous. *Pollen* farinaceous.

Root a pendulous oblong tuber; stem many-flowered;

† Derived by ellipsis from the trivial name *trianthophoros*, of Plukenet, Mant. 100. t. 348. f. 6.

leaves short and amplexicaule; flowers axillary and pedunculate, pendulous, or erect and fastigiate.

Species. 1. T. *pendula*. *Arethusa pendula*. Willd. sp. pl. 4. p. 82. Ph. Flor. Am. 2. p. 590.

Obs. Root a cylindric-oblong, and pendulous fleshy tuber of a white colour. Stems often in clusters, cylindric and succulent, about a span high, often pubescent at the base. Leaves 6 or 7, remote and very short, about half an inch long, amplexicaule, ovate and acute, 5 to 7-nerved, pale green. Flowers 3 or 4, pale blueish-purple; peduncles axillary and terminal, about the length of the germ, after inflorescence pendulously recurved; petals linear-lanceolate, equal in length, the 2 inner a little broader, connivent, never expanding. Lip before, about the length of the petals, spathulate and cucullate, conspicuously unguiculate, the centre above the claw a little rough but not crested; proper lip or middle lobe oval and entire. Genitaliferous column linearly spathulate and unconnected, not much shorter than the whole lip, flat, (not solid and truncately clavate as in *Pogonia*) perpendicular, marginated, the inner surface marked with an elliptic glandular and secreting cicatrice. Anther 1-celled, semicordate and vertical, unguiculately articulated behind, colour a brilliant and deep violet-purple. Pollen farinaceous, the 2? masses separated superficially by 2 internal lamellæ. (In the preceding genus there are both these lamellæ and a proper dissepiment.) Capsule cylindric-oblong. Hab. Mostly parasitic round the roots of Beech trees, from New York to Kentucky, (very abundant near Cincinnati, on the Ohio), I have also collected it near Savannah in Georgia. —A second species (*Arethusa gentianoides*) appears to exist in the island of Jamaica. The whole habit and character is at variance with *Pogonia*. It makes an artificial approach towards *Cymbidium hiemale* of Willdenow, (*Arethusa spicata* of Walter), but in this plant the anther is deciduous.

614. CALOPOGON. *R. Brown.* Cymbidium. *Willd.*

Petals 5, distinct. *Lip* behind, (or inverted), unguiculated; the lamina bearded. *Column* free. *Pollen* angular.

Root small and bulbous, nearly spherical; leaves radical, ensiform, arid; scape racemose; bracteæ minute; flowers reddish-purple, large.

Species. 1. *C. pulchellus. Cymbidium pulchellum.* Willd. Ph. 2. p. 592. A second species of this genus appears to exist in North and South Carolina, judging from hiveral vestiges; in these there is but a single ensiform radical leaf about 12 inches long, numerously striated and nearly obtuse; the scape is terete, 18 inches high, and 8 to 10-flowered; the lip appears to have been nearly similar to that of *C. pulchellus.* Root tuberous.

615. ARETHUSA. *R. Brown.*

Petals 5, connate at the base. *Lip* below growing to the column, cucullate above, and internally crested. *Pollen* angular.

Root bulbous, subglobose; scape leafless, 1-flowered.

Species. 1. A. *bulbosa.* Obs:. *A. pendula* and *A. verticillata* are retained in this genus by Sprengel and apparently also by R. Brown, but they do not appear to be congeners, and certainly do not accord with the present generic character of *Arethusa.*

†††† *Anther* terminal, moveable, deciduous. *Masses of pollen* at length cereaceous.

616. BLETIA. *Ruiz* and *Pavon. R. Brown.*

Petals 5, distinct. *Lip* sessile, cucullate; sometimes calcarate at the base. *Column* free. *Pollinia* 8 or 4 bilobed.

Roots bulbous, subglobose; scapes or stems simple, flowers racemose or rarely capitate; leaves mostly narrow or ensiform and arid, rarely wanting.

Species. 1. B. *verecunda. Cymbedium verecundum.* Willd. Hab. In Florida.

2. * *aphylla.* Leafless; scape terete, racemose, attenuated and squamiferous, scales ovate, alternate, numerous; lip spurless. Hab. In Carolina and Florida. *v. s.* In Herb. Muhl. and Baldwyn. A very singular species, with an incrassated scaly scape about a foot high, the upper part terminating in a raceme of brownish-purple flowers possessing all the characters of a genuine species, the lip divaricately veined, not produced at the base, and trifid as in *B. verecunda.*

A small genus principally indigenous to the West Indies and Peru.

617. CALYPSO. *Salisbury. R. Brown.*

Petals adscendent, secund. *Lip* ventricose, calcarate beneath towards the point. *Column* petaloidly dilated. *Pollinia* 4.

Bulb roundish; leaf solitary, radical; scape 1-flowered, leafless, sheathed towards the base and summit.

Species. 1. C. *americana.* Lip narrowed and subunguiculate at the base; spur semibifid exceeding the lamina, with the dentures acute; peduncle longer than the germ. R. Brown, Hort. Kew. 5. p. 208. Flower purple, somewhat resembling a species of *Cypripedium. v. v. sine fl.* on the island of St. Helena, near the outlet of Lake Michigan, in the shade of *Abies canadensis* attached to recent vegetable soil. (1811).

A second species of this singular genus is the *Cypripedium bulbosum*, of Linnæus, indigenous to Sweden.

618. *TIPULARIA. †

Petals spathulate, spreading. *Lip* entire, sessile, conspicuously calcarate below at the base. *Column* apterous, porrected, free. *Anther* operculate, persistent; *pollinia* 4, parallel.

Bulbs concatenated, horizontal. Leaf solitary, plaited and longitudinally nerved; flowers racemose, nutant, destitute of bractes.

T. discolor. Orchis discolor. Ph. 2. p. 586. *Limodorum unifolium,* Herb. Muhl. and Catal. p. 81.

Obs. Petals 5, greenish, spreading; the 3 exterior, oblong-obovate, the 2 interior narrower Lip entire, very short and concave, crenulate, situated before, calcarate at the base; spur entire, nearly twice the length of the germ, straight and filiform, partly carinated beneath. Genitaliferous column porrected, margined at the sides. Anther operculate, persistent; operculum articulated behind, furnished with 2 auxilliary valves, closing internally upon the 4 masses of pollen, masses solid and parallel, neither granular nor pulveralent.

A plant somewhat allied to *Corallorhiza*, and to *Orchis abortiva.*

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† So called from a fancied resemblance in the flower to insects of the genus *Tipula.*

619. **MALAXIS.** *Swartz. R. Brown.*

Petals 5, narrower than the lip, spreading or deflected. *Lip* flattened, undivided, sessile, (mostly situated behind). *Column* porrected. *Pollinia* 4, parallel, affixed to the summit of the stigma.

Roots round and bulbous; leaves liliaceous, radical, 2 or more; scapes angular, naked, many-flowered.

Species. 1. M. *liliifolia.* (Scape pentagonal, leaves a single pair, ovate.) Pluk. amalth. p. 162. t. 434. f. 9. Andrews Rep. i. 65.

2. *Correana* P. W. Barton, Prodr. Flor. Philad. p. 86. Obs. Leaves a single pair, ovate-lanceolate, scape marginally pentangular; petals revolute on the margin; lip oblong, channelled (green), somewhat shorter than the petals, apex cordately recurved. Hab. In the vicinity of Philadelphia.—Professor Barton. Nearly allied to *M. Loeselii* of Europe, with which it ought further to be compared, but certainly appears distinct; it is much larger, with the flowers smaller and more numerous, of a green colour with a tinge of yellow; capsule as in the preceding, attenuated downwards. Some specimens occur near a span high, and the leaves are often longer than the spike; roots round and bulbous, as well as the preceding often growing near the roots of trees, or in recent vegetable soil.

* Microstylis. *Lip* sessile and concave, erect, the summit truncate, and bidentate. *Column* minute. *Anthers* 2; pollinia 3.

Root bulbous; scape unifoliate, many-flowered, flowers minute, many of them abortive; capsules subglobose.

3. *ophioglossoides.* Pluk. amalth. t. 434. f 4. Obs. Scape about a span high, 1-leaved, producing a foliaceous sheath towards the base; leaf ovate, amplexicaule. Petals 5, connivent, only 1 of them deflected, the 2 interior filiform; lip about the length of the petals, erect, concave, broadest at the base, cucullate over the anthers, summit truncate, emarginate and divaricate, bidentate, producing also an intermediate denticulation. Column minute, scarcely visible. Anthers 2; the exterior whitish, producing 2 masses of pollen, the interior which is acute and pointed only 1. Hab. Near the roots of trees in New Jersey and Pennsylvania. Flowers green.

A small genus, almost exclusively indigenous to Europe, America, and India.

620. **CORALLORHIZA.** *Haller.* *R. Brown.*
CYMBIDIUM. *Willd.*

Petals equal and connivent. *Lip* mostly produced at the base. *Column* free. *Pollinia* 4, oblique (not parallel.)

Roots simply bulbous, or ramified and dentoidly squamose; leaf radical or none; scape leafless, sheathed, many-flowered, flowers nutant, obscurely coloured.—(To this genus Mr. R. Brown adds species furnished with an unconnected spur. The United States do not appear to afford any species with this singular and scarcely congeneric character; of the 3 enumerated below, one is destitute even of any protuberance at the base of the lip.)

SPECIES. 1. C. *innata*, R. Brown. *Cymbidium Corallorhizon*, Willd. sp. pl. 4. p. 109. Lip trifid; spur obsolete, every where adnate to the germ; leaves none; capsule obovate. HAB. In very shady woods, near the Falls of Schuylkill, five miles from Philadelphia; scarce; also in New Jersey. It flowers earlier than the following, and is considerably larger; petals oblong-lanceolate, connivent; lip inconspicuously produced at the base, bidentate below, the dentures inflected. Flowering from September to October.

2. *Odontorhiza.* Lip entire, oval and obtuse, margin crenulate; spur obsolete, every where adnate to the germ; leaves none; capsule subglobose. HAB. In New Jersey and Pennsylvania, abundant. *Cymbidium Odontorhizon*, Willd. —Root much branched, dentate; scape 8 to 10 inches high, attenuated and rather slender, roundish and bulbous at the base; sheathes ochreate, about 3 in number; flowers numerous, pendulous; petals brownish, connivent, and all inclined to the upper side of the corolla; lip dilated, white, and elegantly spotted with violet-purple, palate bidentate; base of the column marginated; capsule short and subglobose.

* APLECTRUM. † *Lip* unguiculate, not produced at the base. *Anther* situated below the summit of the column. *Pollinia* 4, oblique, lenticular.

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† From the flower not being calcarate or produced at the base; α, *without*, and πληκτρον, *a spur*.

Root concatenately bulbous, bulbs subglobose; leaf solitary, hiemal, plaited, arid; scape sheathed, many-flowered; flowers at length pendulous; germ attenuated, cylindric.

3. *hiemalis*. *Cymbidium hiemale*. Leaf solitary, ovate, striate; lip trifid, obtuse, with the palate ridged, central lobe rounded, crenulate. Hab. In shady woods amidst recent vegetable soil, from Canada to Carolina.—Scape about 12 inches high, clothed with 3 membranaceous sheathes; flowers brownish, at first erect, afterwards pendulous. Petals linear-oblong, connivent, distinct, all nearly equal in size and form. Lip unguiculate, distinct at the base, and about the length of the petals, dilated towards the extremity, trifid, ridged along the centre, the middle lobe rounded, with the margin undulated and crenulate. Column of an equal thickness and slightly curved, shorter than the lip; lid of the anther membranaceous, caducous; pollinia 4, lenticular and cereaceous, laterally attached to the summit of the column, at length deciduous.—This plant, much more nearly related to the present genus than any other with which I am acquainted, bears also a partial resemblance to *Cymbidium* of R. Brown, without, however, possessing any natural affinity, and is totally different in habit and geographical range.

621. EPIDENDRUM. *Swartz. R. Brown.*

The *column* longitudinally united with the claw of the lip into a tube (sometimes decurrent upon the ovarium). *Pollinia* 4, parallel, separated by complete persistent septa, each mass augmented at the base by a granulated elastic filament.

Parasitic upon the boughs and trunks of trees; leaves coriaceous, mostly solitary, binate or ternate, sometimes arising from an oblong bulb; scape many-flowered, simple or rarely divided.

Species. 1. *E. conopseum*. Stem simple, flowers spiked, erect, lamina of the lip 3-lobed, middle lobe retuse, interior petals narrower, leaves lanceolate. Hort. Kew. 5. p. 219. *E. Magnoliæ*, Muhl. Catal. p. 81. Hab. Mostly on the trunks of *Magnolia grandiflora*, from South Carolina to Florida, (in the vicinity of Savannah, Georgia, *v. v.*) —Roots succulently fibrous, creeping, clasping round the smoother barked trees; stems cespitose, simple, 2-leaved, 4 or 5 inches high; leaves striated, rigid and coriaceous;

scapes many-flowered; flowers yellow, petals spreading, linear and obtuse, the inner ones much narrower; lip obcordate, spreading, obtusely 3-lobed, scarcely the length of the tube.

An extensive genus, exclusively indigenous to the tropical parts of America, with the exception of a few species in India.

II.—DIANDRIA.

622. CYPRIPEDIUM. *L. Swartz. R. Brown.*

Lip ventricose, inflated, saccate. *Petals* 4, the under one bifid. The *column* terminating behind in a petaloid lobe.

Roots fibrous; leaves plaited, rarely radical, with the scape 1-flowered, stems leafy, producing from 1 to 3 purplish or yellow flowers.

Species. 1. C. *candidum*. 2. *parviflorum*. 3. *pubescens*. 4. *spectabile*. 5. *arietinum*. Petals 5, lip saccately calcarate, stem leafy. Hab. In Canada. 6. *humile*. Scape leafless, 1-flowered; leaves 2, radical.

Of this singular genus there are 3 other species in Siberia, 1 in Japan, and 1 in Europe.

III.—HEXANDRIA.

623. ARISTOLOCHIA. *L.* (Birthwort.)

Calix none. *Corolla* of 1 petal, ligulate, with a ventricose base. *Capsule* 6-celled, many-seeded, inferior.

Herbaceous or shrubby; stems erect or twining; leaves alternate, mostly cordate and entire, rarely 3-lobed; flowers axillary, the tube sometimes recurved.

Species. 1. A. *Sipho*. ("Dutchman's Pipe.") 2. *tomentosa*. Obs. Stem twining, ascending to the summits of the tallest trees; leaves roundish-cordate, beneath villous; peduncles solitary, without bractes; corolla densely villous, adscendent, border trifid, subequal, greenish-yellow, ori-

fice oblique and gaping, the margin elevated, dark purple, rugose, interior of the tube white, spotted with purple, stigmas 3, anthers immersed in the style. *A. hirsuta*, Muhl. Catal. p. 81. *v. v.* Abundant throughout Louisiana, and along the banks of the Missisippi, also on the mountains of South Carolina. 3. *Serpentaria.*

4. * *hastata.* Stem flexuous, simple and erect; leaves mostly subcordate-hastate, acute; peduncles nearly all radical, lip of the corolla ovate. *A. sagittata ?* Muhl. Catal. Pluk. almag. p. 53. phyt. t. 223. f. 2. HAB. On the mountains of Carolina. Nearly allied to *A. Serpentaria.* Leaves (in the specimen in Herb. Muhl.) attenuated, sublanceolate, auriculate, acute and pubescent. Perhaps a distinct species.

Of this genus of 41 or more species, 20 almost exclusively shrubby are indigenous to the tropical regions of America, some additional species have also, no doubt, been added by the researches of Humboldt, one of these described by that celebrated traveller indigenous to the borders of La Madalena, produces flowers of such extraordinary magnitude and tenacity as to afford hats for children; the remainder of the genus is principally indigenous to the south of Europe and the Levant.

IV.—DODECANDRIA.

624. ASARUM. *L.* (Asarabacca, Indian ginger.)

Calix subcampanulate, 3 or 4-cleft. *Corolla* none. *Anthers* adnate to the middle of the filaments. *Capsule* inferior, 6-celled, crowned with the calix.

Roots creeping, stems bifoliate, very low, producing a single dichotomal flower.

SPECIES. 1. A. *canadense.* 2. *virginicum.* 3. *arifolium.*

Of this genus there is another species indigenous to Europe.

CLASS. XIX.—MONOECIA.

ORDER. I.—MONANDRIA.

625. **ZOSTERA.** *L.* (Grass-wrack.)

Calix and *corolla* none. *Anther* ovate, sessile. *Germ* ovate, inserted upon an unilateral spadix. *Style* bifid. *Capsule* 1-seeded.

Marine plants, with alternate submersed linear leaves.

SPECIES. 1. Z. *marina.* Forming with *Ruppia* vast floating fields in the bay of Egg-harbour, New Jersey. Indigenous to the whole Atlantic ocean. Three other species are said to exist in the Red sea.

§26. **CAULINIA.** *Willd.* **FLUVIALIS.** *Persoon.*

Calix and *corolla* none. *Anther* sessile. *Style* filiform. *Stigma* bifid. *Capsule* 1-seeded.

SPECIES. 1. C. *fragilis.* 2. *flexilis.* (*Najas*, Michaux.) A small genus of aquatic plants, common also to Europe.

627. **ZANNICHELLIA.** *L.*

MASC. *Calix* and *corolla* none. FEMININE. *Calix* 1-leaved. *Corolla* none. *Germs* and *seeds* about 4.

Aquatic: flowers solitary, axillary.

SPECIES. 1. Z. *palustris.* Indigenous also to Europe, where there exists a second species.

628. **CHARA.** *L.*

Calix and *corolla* none. *Anther* globose, sessile. *Style* none. *Stigmas* 5. *Berry* 1-celled, many-seeded.

Aquatic: stems mostly leafless, branching, branches verticillate, numerously articulated, articulations dentate and often 1-flowered.

SPECIES. 1. C. *vulgaris*. 2. *foliolosa*. 3. *flexilis*.—A genus principally indigenous to Europe and India.

ORDER II.—DIANDRIA.

629. PODOSTEMUM. *Michaux*.

Calix and *corolla* none. *Stamina* 2, affixed to a common pedicell. *Germ* ovate. *Stigma* 1, sessile. *Capsule* 2-celled, 2-valved, many-seeded. *Seeds* minute.

A small demersed coriaceous aquatic, growing attached to rocks and stones; leaves multipartite, setaceous; flowers solitary, pedicellate.

SPECIES. P. *Ceratophyllum*. Mich. t. 44. Pluk. Phyt. t. 138. f. 1? HAB. In the Delaware, about Easton.—Z. Collins, esqr. In the Ohio, Holston, Kenhaway, French Broad, and in the Catawba river, near Morganton, North Carolina. *v. v.*—Capsule pedicellate, roundish, marked with 8 grooves.

ORDER. III.—TRIANDRIA.

630. TYPHA. *L.* (Reed-mace, Cat's-tail.)

MASC. *Ament* cylindric. *Calix* obsolete, 3-leaved. *Corolla* none. FEM. flowers below the masculine. *Calix* and *corolla* none. *Seed* 1, pedicellate, furnished with a pappus at the base.

Aquatics: leaves very long and linear; culm without nodes terminating in a dense cylindric spike.

SPECIES. 1. T. *latifolia*. 2. *angustifolia*. Both species also indigenous to Europe, where there are likewise 2 others.

631. SPARGANIUM. *L.* (Bur-reed.)

Ament globose. *Calix* 3 to 6-leaved. *Stigma* simple or bifid. *Nut* suberose, 1-celled, 1 or 2-seeded.

Aquatics: stems flexuous, leafy, many-flowered; upper capituli masculine.

Species. 1. S. *ramosum.* On the banks of the Delaware, common.—Stem branching; stigma linear, often bifid, longer than the style.

2. * *americanum.* Lower leaves equal with or exceeding the stem, which is nearly simple, the floral ones concave at the base and erect; stigma always simple, ovate-oblong, oblique, scarcely more than half the length of the style. *S. simplex?* Ph. 2. p. 34. Hab. In the vicinity of Philadelphia, common. Intermediate between *S. simplex* and *natans*, but entirely distinct.—Stem about 12 inches high, erect, simple, or a little divided at the base. Lower leaves carinate, floral ones concave at the base, expanding flat above. Feminine aments about 2 to 5, approximating, mostly sessile; male 6 to 9, sessile, partly contiguous by 3's. Calicine scales 3, 4, 5, and 6, scariose; spathulate, in the male much narrower. Style about the length of the germ. 3. *angustifolium.* +.

The 1st species is also indigenous to Europe, where there exists 2 others.

632. ZEA. *L.* (Maize, Indian Corn.)

Masc. *Calix* 2-flowered, 2-valved, awnless. *Corolla* glume awnless. Fem. *Calix* and *corolla* also 2-valved. *Style* 1, filiform, pendulous. *Seeds* immersed in an oblong receptacle.

Culm very tall and robust, leaves broad and spreading; masculine flowers paniculate, terminal; feminine spadices beneath, axillary, spathe many-leaved, convolute, fascicles of styles exserted, pendulous.

Species. 1. Z. *Mays.* Cultivated by the aborigines from time immemorial, probably indigenous to tropical America? β. * *præcox.* Stem very low; spathes arising also from the base of the culm; seeds mostly in 8 rows; styloid umbilicus obsolete. ("Early Mandan Corn.") Successfully cultivated by the aborigines of the Missouri to its sources, ripening in a climate where no other variety could exist.

Of this interesting genus there is said by the Abbé Molini to exist a second species in Chili.

633. CAREX. *L.* (Sedge.)

Flowers imbricated in an ament. Masc. *Ca-*

lix of a single scale. *Corolla* none. FEM. *Calix* also of 1 scale. *Corolla* ventricose, monopetalous, bidentate at the apex. *Stigmas* 2 and 3. *Nut* triquetrous, included in the persistent corolla, (or utriculus).

Grasses with triquetrous culms and carinated leaves bearing androgynous, monoicous or rarely dioicous spikes of flowers.

§ 1. Stigmas mostly 2.

† *Spikes dioicous.*

SPECIES. 1. C. *scirpoidea.* 2. *sterilis.*

† † *Spikes androgynous.*

——*Spike* 1, *the summit masculine.*

3 *cephalophora.* 4. *squarrosa.* β? *typhina.* Mich. 5. *Willdenowii.* 6 *polytrichoides. C. microstachya.* Mich. 7. *Fraseriana.* Bot. Mag 1391. 8. * *filifolia.* Spike simple, subcylindric, acute; fruit subglobose, orifice entire; scales retuse; leaves filiformly involute, subulate and squarrose, shorter than the culm. HAB. On the dry plains and gravelly hills of the Missouri, common. Cespitose; scarcely a hand-breadth high.

——*Spikes several, with the summits masculine.*

9. *arenaria.* 10 *bromoides.* 11. *retroflexa.* 12. *stipata.* 13. *muricata.* 14. *Muhlenbergii.* 15. *multiflora.* 16. *sparganioides* 17 *divulsa.* 18. *rosea.* 19. *paniculata.*

——*Spikes several, with the summits feminine.*

20. *leporina.* 21. *scirpoides.* 22. *lagopodioides.* 23. *ovalis.* 24. *scoparia.* 25. *curta.* 26. *remota.* 27. *festucacea.*

† † † *Spikes of distinct sexes.*

——*Male spike often solitary, the others feminine or partly androgynous.*

28. *saxatilis.* 29. *cæspitosa.* 30. *crinita.* 31. *acuta.*

§ II. Stigmas 3.

† *Spikes androgynous, with the summits masculine.*

32. *pedunculata.* 33. *ovata.*

† † *Terminal spikes male, the rest androgynous.*

34. *virescens.* 35. *hirsuta.* 36. *Buxbaumii.* 37. *trichocarpa.*

† † † *Spikes of distinct sexes.*

——*Male spike solitary, female ones sessile or with the peduncles included.*

38 *varia.* 39. *subulata.* 40. *marginata.* 41. *vestita.* 42. *tentaculata.* 43. *miliaris.* 44. *lupulina.* 45. *flava.* 46. *oligocarpa.* 47. **Collinsii.* Female spikes 3 or 4, subsessile, inclusely pedunculate, approximate, about 6-flowered; fruit subulate, ventricose, nerved and rostrate, orifice oblique, bicuspidate, cusps deflected; styles 2 or 3; scales ovate, acuminate, about one-third the length of the flower. HAB. In the most shady sphagnose swamps; New Jersey. OBS. About 12 to 18 inches high, smooth; culm very slender, obtusely triquetrous and leafy; lowest spike partly exserted; flowers distinct and spreading, smooth; cusps rigid and hooked back so as to become tenaceous. 48. *folliculata.* 49. *pubescens.*

——*Male spike solitary, female ones long pedunculate.*

50. *plantaginea.* 51. *anceps.* 52. *granularis.* 53. *conoidea.* 54. *tetanica.* 55. *laxiflora.* 56. *hystericina.* 57. *distans.* 58. *flexuosa.* 59. *digitalis.*

——*Male spike solitary, female ones pedunculate, sheathes almost none.*

60. *umbellata.* 61. **aurea.* Female spikes 3, approximate, filiform and erect, few-flowered, 2 of them pedunculate; fruit globose, obtuse, yellow and glaucous, orifice, obsolete, entire; bractes foliaceous. HAB. On the shores of Lake Michigan. The whole plant partly glaucous; culm very slender 4 to 6 inches high; leaves very narrow; bracte much longer than the spike; fruit smooth, bright yellow; stigmas 3. 62. *miliacea.* 63. *Pseudo-Cyperus.*

——*Male spikes several.*

64. *recurva.* 65. *pellita.* 66. *lacustris.* 67. *vesicaria.* 68. *bullata.*

This vast genus, comprehending more than 200 species, is almost exclusively indigenous to Europe and North America, a few species have been collected in the southern hemisphere, at the Cape of Good Hope, in India, China and Japan, there is also 1 at the Straits of Magellan.

734. SCLERIA. *Gaertner.* (Whip-grass.)

Calix glume 2 to 6-valved, many-flowered. *Stigmas* 1 to 3. *Nut* coloured, subglobose.

Leaves caricine; flowers paniculate, spiked or fasciculated.

SPECIES. 1. S. *reticularis.* 2. *verticillata.* 3. *interrupta.* 4. *hirtella* 5. *ciliata.* 6. *pauciflora.* 7. *triglomerata.*

The remainder of this genus of about 30 species is ex-

clusively indigenous to India and the tropical regions of America.

735. **COMPTONIA.** *Gærtner.* (Sweet-Fern.)

MASC. *Ament* cylindric, scales 1-flowered; *corolla* none. *Stamina* 3 or 4, filaments simple. FEM. *Ament* ovate. *Calix* at length 6-leaved. *Corolla* none. *Styles* 2. *Nut* oval, 1-celled.

A low and odorous shrub nearly allied to *Myrica Gale;* leaves oblong and sinuated, resembling the partial fronds of a fern.

SPECIES. C. *asplenifolia.*—The only one of the genus.

736. **TRAGIA.** *L.*

MASC. *Calix* 3-parted. *Corolla* none. FEM. *Calix* 5-parted. *Corolla* none. *Style* trifid. *Capsule* tricoccous, 3-celled. *Seed* solitary.

Stems shrubby or herbaceous, scandent or erect; leaves alternate, stipulate; flowers bracteate, axillary and spiked; female flowers at the base of the same spike, or in the same axill and distinct.

SPECIES. 1. *T. urens.* 2. *urticifolia.* 3. *macrocarpa.*

A tropical genus principally indigenous to India and the warmer parts of America.

ORDER IV.—TETRANDRIA.

737. **ALNUS.** *Willd.* (Alder.)

MASC. *Ament* composed of 3 flowered, cuneform truncated receptacles. *Calix* the scales of the ament. *Corolla* 4-parted. FEM. *Calix* scales 2-flowered. *Corolla* none. *Seeds* compressed, ovate, apterous.

Trees or shrubs, with alternate entire and stipulate leaves; aments axillary.

SPECIES. 1. A. *glutinosa.* In Canada, PH. 2. *crispa.* 3. *serrulata.*—Of this genus there are 2 other species indigenous to Europe.

738. **PACHYSANDRA.** *Michaux.*

Calix about 4-leaved. *Corolla* none. *Filaments* subclavate. *Styles* 3. *Capsules* 3-horned, 3-celled; cells 2-seeded.

Root creeping; stem very low and simple; leaves alternate, pubescent, without stipules; spikes nearly radical, the lower part feminine; flowers bracteate.

Species. P. *procumbens.* The only species of the genus indigenous to the Alleghany mountains. Scarcely distinct from *Tricera.*

739. **DIOTIS.** *Schreber.*

Masc. *Calix* 4-leaved, *Corolla* none. Fem. *calix* 1-leaved, 2-horned. *Style* biparted. *Seed* 1, villous, covered by the 2-horned calix.

Suffruticose, leaves alternate, entire; flowers axillary.

Species. 1. D. *lanata.* Ph. Obs. Stem suffruticose, 12 to 18 inches high, partly erect and lanuginous; leaves crowded, linear-sublanceolate, at first revolute on the margin, canescently lanuginous; flowers conglomerated, glomeruli axillary, masculine flowers superior. Hab. On the banks of the Missouri, in arid situations near the "Grand Detour." Flowering in June.

Of this genus there is a second species indigenous to Tartary and Arabia.

740. **BŒHMERIA.** *Willd.*

Mas. *Calix* 4-parted. *Corolla* none. *Nectary* none. Fem. *Calix* and *corolla* none. *Seed* 1, compressed.

Shrubby or herbaceous; leaves opposite or alternate, often oblique; flowers capitate. Nearly allied to *Urtica.*

Species. 1. B. *cylindrica.* 2. *lateriflora.*

A genus of 21 species, principally indigenous to tropical America and India.

741. **URTICA.** *L.* (Nettle.)

Masc. *Calix* 4-leaved. *Corolla* none. *Nectary* central, mostly cyathiform. Fem. *Calix* 2-valved. *Corolla* none. *Seed* 1, shining.

Herbaceous, rarely shrubby or arborescent, and often pungent plants; leaves stipulate, opposite or alternate; flowers spiked or glomerate, axillary, or sometimes partly terminal and cymose.

Species. 1. U. *pumila.* 2. *urens.* 3. *dioica.* These 2 last are merely naturalized. 4. *procera.* 5. *chamædrioides,* Ph. 6. *gracilis.* 7. *capitata?* Obs. Leaves opposite, ovate, acuminate, dentate and scabrous, petioles short; glomeruli spiked, spikes solitary, comose. Male calix 4-parted; stamina at first incurved, the anthers retained by a central ovoid gland, rising at length with an elastic spring; stigma 1; germ compressed, ovate. Hab. On the banks of the Delaware, near Philadelphia, common; often mistaken for a *Boehmeria.* 8. *divaricata.* 9. *canadensis.* These 2 last species afford a very strong hemp.

The principal part of this extensive genus, containing near 80 species, is indigenous to the tropical parts of America, with India and the islands of the Pacific, there are also species in Europe and at the Cape of Good Hope.

742. PARIETARIA. *L.* (Pellitory.)

Flowers polygamous.—Hermaphrodite. *Calix* 4-cleft. *Corolla* none. *Stamina* elastic. *Style* 1. *Seed* 1, superior. Fem. *Calix* 2-leaved. *Seed* covered by the dry and elongated calix.

Herbaceous; leaves alternate or opposite sometimes without stipules; flowers glomerate, axillary.

Species. 1. P. *pennsylvanica.* Also indigenous to Louisiana. 2. * *floridana.* Leaves roundish-ovate, obtuse, as long as the petiole and opaquely punctate; flowers glomerate, equal with the involucrum; stem erect. Han. Near St. Mary's, West Florida.—Dr. Baldwyn. Apparently intermediate between *P. pennsylvanica* and *P. lusitanica.* Leaves not minute, pilose, 3 or 4 lines wide, and with the filiform peduncle an inch long; involucrum inconspicuous; stem about 10 to 12 inches high.

A genus of about 18 species, indigenous to Europe, India, China, the Cape of Good Hope and the Levant.

743. MORUS. *L.* (Mulberry.)

Masc. *Calix* 4-parted. *Corolla* none. Fem. *Calix* 4-leaved. *Corolla* none. *Styles* 2. *Calix* becoming a berry. *Seeds* solitary.

Lactescent trees; leaves producing stipules, alternate

or nearly opposite; aments subcylindric, solitary and axillary, the female ones esculent.

Species. 1. M. *alba*. Cultivated. 2. *rubra*. 3. *scabra*. Willd.

A genus of about 10 species, indigenous to Persia, Siberia, India and its islands.

Order V.—PENTANDRIA.

744. SCHISANDRA. *Michaux*.

Calix 9-leaved, leaves disposed in 3 series. *Corolla* none. *Anthers* subsessile, cohereing at the points. *Berrys* 1-seeded, inserted upon an elongated filiform receptacle.

A twining shrub, with alternate and lanceolate-ovate leaves sometimes repandly denticulate; flowers axillary, solitary, scarlet; acini spiked.—Is not this singular genus more nearly related to *Rhagodia* of R. Brown than to *Menispermum*?

Species. S. *coccinea*. Hab. In Carolina and Georgia. *v. v.* In the vicinity of Savannah.

745. CROTONOPSIS. *Michaux*.

Masc. *Calix* 5-parted. *Corolla* of 5 petals. Fem. *Calix* 5-parted. *Corolla* none. *Stigmas* 3, twice bifid. *Capsule* 1-seeded.

A genus not probably distinct from *Croton* with which it ought to be compared. Leaves alternate, stellately pubescent and shining; flowers aggregated, the upper ones masculine.

Species. 1. C. *linearis*. Constituting the whole genus. Hab. In the swamps of New Jersey, Carolina and Illinois.

746. AMARANTHUS. *L.* (Amaranth, Prince's feather, &c.)

Calix 3 or 5-leaved. *Corolla* none. *Stamina* 3 or 5. *Styles* 3. *Capsule* 1-celled, 1-seeded, opening all round.

Flowers glomerated and axillary, or paniculate and terminal; stem often striate. (In *A. spinosus* there are 2 spines at the base of each leaf.)

Species. 1. A. *albus*. 2. *græcizans*. 3. *lividus*. 4. *Blitum*. 5. *viridis*. 6. * *pumilus*. Glomeruli axillary, flowers pentandrous, calix 5-leaved, concave; leaves ovate, obtuse, smooth and carnose, often retuse. Hab. On an island near Egg Harbour.—Mr. Rafinesque, New York. Med. Repos. 2. p. 360. No. 22. *v. v.* Probably upon the beach of the same island. Collected many years back by my friend Z. Collins, Esq. Scarcely 1 foot high, and somewhat decumbent; flowers green; growing with *Salsola, &c.* 7. *hybridus*. 8. *paniculatus*. 9. *sanguineus*. 10. *retroflexus*. 11. *hypochondriacus*. (Prince's-feather.) 12. *spinosus*.—This species is also indigenous to India.

A genus of near 40 species, almost exclusively confined to India and North America; there are also 3 species in Europe.

Order VI.—HEXANDRIA.

747. ZIZANIA. *L.* (American Rice.)

Masc. *Calix* none. *Corolla* 2-valved, awnless. **Fem.** *Calix* none. *Corolla* 2-valved, cucullate, awned. *Style* 2-parted. *Seed* 1, invested by the corolla.

Aquatic grasses, culm tall, the summit pyramidally paniculated, lower part of the panicle effuse, masculine, upper part erect, spiked and feminine. The flowers of both sexes sometimes intermixed.

Species. 1. Z. *aquatica*. Lambert in Lin. Trans. 7. p. 264, accompanied by a large and very accurate plate. 2. *miliacea*. †. 3. *fluitans*. Very small, and easily confounded with other aquatic grasses. *v. v.* Around Savannah in Georgia, pointed out to me by Dr. Baldwyn.

Another species of this genus is said to grow in Malabar.

ORDER VII.—POLYANDRIA.

748. CERATOPHYLLUM. *L.* (Hornwort.)

MASC. *Calix* many-parted. *Corolla* none. *Stamina* 16 to 20, very short. *Anthers* tricuspidate. FEM. *Calix* 6-leaved, imbricated. *Corolla* none. *Style* 1. filiform. *Nut* 1-seeded.

Aquatic plants with verticillated narrow leaves, dichotomous and many-parted; flowers axillary, solitary; fruit naked or spinose.

SPECIES. 1. C. *demersum.* Fruit with 3 spines. 2. *submersum.* Fruit spineless.—A genus of 2 species indigenous also to Europe.

749. MYRIOPHYLLUM. *L.* (Water Milfoil.)

Calix 4-cleft. *Petals* 4, caducous. *Stamina* 4, 6, or 8. *Germs* 4. *Styles* none. *Stigmas* pubescent. *Seeds* 4, coated.

Aquatics with verticillated and pseudopinnate leaves; flowers axillary, sessile and solitary; the upper verticills masculine, the lower feminine.

SPECIES. 1. M. *spicatum.* 2. *verticillatum.* HAB. From Canada to Carolina, also in Lower Louisiana. 3. *scabratum.* 4. *heterophyllum.*

*PTILOPHYLLUM.† Flowers all hermaphrodite. —*Calix* 4-cleft. *Petals* none. *Stamina* 4, very short; anthers roundish. *Styles* none. *Stigmas* minute, pubescent, subcapitate. *Seeds* 4, coated.

Aquatic: leaves alternate, pseudopinnate, the uppermost entire and serrate; flowers solitary, axillary, bibracteate at the base. Seed as in *Myriophyllum*, with which genus and *Proserpinaca* ‡ it appears intermediate.

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†"Feather leaf," from πτιλον, *a feather*, and φυλον, *a leaf*. This is the *Purshia* of Mr. Rafinesque, but scarcely more than a subgenus. *Onosmodium* of Michaux is now called *Purshia* by professor Sprengel.

‡The calix in this plant is frequently 4-cleft, and accompanied by 4 stamens, styles and germs.

Species. 5. * *ambiguum.* Stem floating, dichotomous: leaves petiolate, pseudopinnate, the lowest capillary, emerging ones pectinate, uppermost nearly entire, subserrate; anthers partly oblong. Hab. In the spring ponds of New Jersey, floating in extensive masses. *v. v. v. s.* In Herb. Collins. Obs. Stem diffusely dichotomous, floating, radicles often simple. Leaves attenuated below so as to appear petiolated, pectinately pinnatifid; immersed leaves divided into long capillary segments, divisions of the upper leaves short, setaceous and acute, from one to 5 pair; uppermost leaves often oblong-linear and nearly entire. Flowers axillary, solitary, sessile, bibracteate, bractes dentiform, acute. Germ quadrangular, angles terminating above in the segments of the calix. Calix 4-parted, divisions oblong-ovate, erect, concave, reddish. Stamina the length of the calix, sheathed by its segments, not exserted; filaments minute; anthers somewhat oblong. Styles none. Stigmas 4, roundish and villous or penicillate. Fruit 4 coated, cylindric-oblong seeds, furnished with internal sutures, and attached to a minute setaceous axis.

β. * *limosum.* Stem rooting, erect; leaves rigid, partly entire, or divided above, mostly trifid, segments setaceous and acute. Hab. On the mirey shores of the Delaware, also in New Jersey. This appears to be the *Purshia humilis* of Mr. Rafinesque, New York Med. Rep. 2. p. 361? Stem erect, 2 to 4 inches high, decumbent and radicant, attenuated upwards. Leaves rigid and spreading, very narrow, setaceous and acute, either simple, or irregularly divided towards the extremity into 2, but mostly 3 and sometimes 4 alternate and terete segments. Flowers as in the preceding, but the anthers are roundish. —The occurrence in some situations of pinnately divided leaves, as I have observed in New Jersey, proves this plant to be merely a variety of the former. In the herbarium they would by many be considered as distinct species.

Of the genus Myriophyllum, besides the above, there is 1 species in India, and 1 in New Holland; Nos. 1 and 2 are common to Europe.

750. SAGITTARIA. *L.* (Arrowhead.)

Calix 3-leaved. *Petals* 3. *Stamina* about 24. *Germs* many. *Capsules?* aggregated, 1-seeded, not opening.

Aquatic plants mostly producing sagittate leaves, occa-

sionally, or in a few species, altogether entire; flowers verticillated by 3's, the upper ones masculine, the lower fewer and feminine. Sap lactescent?

Species. 1. S. *sagittifolia.* β. *latifolia.* 2. *obtusa.* Masculine scape branched at the base. Sap lactescent, hardening into a white and hyaline gum. 3. *hastata,* Ph. β. *gracilis. S. gracilis,* Ph. 4. *pubescens.* Muhl. Catal. *v. s.* In Herb. Muhl. The whole plant is pubescent; but still apparently nothing more than a variety of *sagittifolia.* 5. *heterophylla.* 6. *lancifolia. S. falcata,* Ph. and β. *falcata,* Persoon, 2. p. 563. 7. *rigida,* Ph. 8. *graminea,* Mich. *S. simplex?* Ph. 9. *acutifolia,* Ph. Leaves acutely subulate, rigid, rarely natant; scape simple, longer than the leaves; flowers monoicous, all pedunculate, female ones 3, stamina 12 to 15. *S. acutifolia?* Lin. suppl. p. 419. (Also indigenous to Surinam.) Hab. Extremely abundant on the shores of the Delaware, below tide water mark.

10. * *pusilla.* Leaves linear, obtuse and short, the summits foliaceous; scape simple, shorter than the leaves; flowers monoicous, few; female flower solitary, deflected; stamina mostly 7. Hab. With the above, in the vicinity of Philadelphia. *Alisma subulata,* Ph. Probably not of Linnæus, whose synonymn accords better with *S acutifolia,* of Pursh. Obs. The whole plant only 1 to 3 inches high; leaves rarely ever subulate, scarcely a line wide, and obtuse; male flowers 3 to 6; female 1, recurved. Flowering in July and August. 11. *natans.*

Of this genus there are 2 other species, one of them in India, the other indigenous to the alpine lakes of Dauria and scarcely distinct from *S. natans. S. sagittifolia* is also common to Europe.

751. QUERCUS. *L.* (Oak.)

Masc. *Calix* mostly 5-cleft. *Corolla* none. *Stamina* 5 to 10. Fem. *Calix* 1-leaved, entire, scabrous. *Corolla* none. *Styles* 2 to 5. *Nut (or gland) coriaceous, mostly surrounded at the base by the persistent calix.*

Trees or rarely shrubs; leaves deciduous or sempervirent, entire or sinuately lobed; aments axillary, pendulous, flowers distinct.—(In *Q. Suber,* the bark is thick and fungous, constituting the *cork* of commerce; the bark of *Q. tinctoria* is the *Quercitron* so well known as a material for dyeing yellow; and the *Galls* produced by the punc-

ture of insects, common to different species of this genus, afford also a black colour to the dyer.)

§ 1. Fructification biennial; leaves setaceously mucronate.

† Leaves mostly entire.

Species. 1. Q. *Phellos.* (Willow Oak). 2. *cinerea.* (Grey Oak, Upland Willow Oak.) 3. *pumila,* Mich. Q. *sericea,* Willd. Scarcely more than a swamp variety of the preceding, but seldom more than a foot high, while *cinerea* usually becomes a small tree. (Running Oak.)

4. *virens.* The *Live Oak,* of slow growth like Q. *Robur* of Europe, produces ship-timber which is said to be equally durable. It is occasionally cultivated in the maritime parts of South Carolina, producing the most magnificent and important vistas. Through the avidity of a temporary commerce it has been eradicated from extensive districts, without the interposition of either private or public caution for its renewal, although the soil in many places is scarcely calculated for any other production.

5. *maritima.* Obs. Shrubby, leaves sempervirent, often sinuately toothed, smooth, and of the same colour on both sides. (Marine Oak.)

6. *myrtifolia.* Leaves sempervirent, small and coriaceous, oblong-obovate, awnless, smooth, acute at either extremity, above shining and reticulately veined, margin revolute. Hab. On Cumberland island, Florida.—Mr. Kin. *v. s.* In Herb. Collins. Leaves scarcely larger than those of Box; the fruit still unknown. 7. *imbricaria.* (Shingle Oak.) An occidental species. 8. *laurifolia.* † A very doubtful species.

†† Leaves toothed or shortly lobed.

9. *agrifolia.* Indigenous to the North West Coast of America. 10. *heterophylla.* (Bartram's Oak.) May not this be an anomalous variety of *coccinea?* 11. *hemisphærica,* Bartram. Willd. also Q. *aquatica,* Willd. β. *nana,* Q. *nana,* Willd. 12. *nigra,* β. * *pumila.* Subarborescent; glands very small. *v. v.* In Bartram's garden, also in New Jersey. 13. *tinctoria.* 14. *discolor.*

††† Leaves deeply sinuated and lobed.

15. *coccinea.* 16. *ambigua.* 17. *rubra.* (Red Oak.) 18. *Catesbæi.* Leaves subsessile. (Barren Scrub Oak.) Hab. In the most sterile, sandy forests; from Virginia to Florida. 19. *falcata.* (Spanish Oak.) β. *triloba.* Q. *triloba,* Willd. 20. *palustris.* (Swamp Spanish Oak.)—Lower branches de-

flected and divaricate. 21. *ilicifolia*. *Q. Banisteri*, Mich. (Barren Oak, Scrubby Oak.)

§ 11. Fructification annual; leaves awnless.

† Leaves lobed.

22. *obtusiloba*. (Upland White Oak.) β. * *depressa*. Fruiting at the height of 12 to 18 inches from the ground, scarcely ever exceeding 3 feet. HAB. On the hills of the Missouri to the confluence of the river Platte, and the last species which appears westward. 23. *macrocarpa*. (Over-cup White Oak.) *v. v.* On the drier alluvial lands of the Missisippi;—at Harper's Ferry in Virginia. Branches somewhat suberous, and rimose. 24. *olivæformis*. (Mossy-cup Oak.) *v. v.* With the above. 25. *lyrata*. (Over-cup Oak, Swamp Post Oak.) Gland so far inclosed in the cup as not to be deciduous from it. The tree about the size of the Red Oak. 26. *alba*. (White-Oak.)

†† Leaves entire, toothed.

27. *Prinus*. (Chesnut White Oak.) 28. * *Michauxii*. (Swamp White Oak.) Leaves shortly petiolate, broad obovate, about a span long, obtuse at the base, prominently and reticulately veined and tomentose beneath, dentures large and sinuated, numerous, (from 19 to 29); fruit by pairs, cup subhemispherical, somewhat squarrose, gland partly globose, (nearly as large as a walnut.)—A large tree, indigenous to alluvial lands, from the Delaware to St. Mary's in West Florida. *Q. Prinos discolor*, Mich. Arb. 2. p. 46. t. 6.

29. *bicolor*. (Excluding the synonym of Michaux.) Leaves subsessile, cuneate-oval and dilated; sometimes partly pinnatifid, the under side softly and lanuginously pubescent, mostly canescent, obsoletely veined, pubescence stellate, dentures repand, obtuse, (only 13 to 15); fruit long and slenderly pedunculate, from 1 to 3 together, cup hemispherical, gland ovate, pubescent. β. * *mollis*. Leaves merely toothed, not pinnatifid, under side partly ferruginous and softly pubescent. HAB. In the swampy but elevated forests of Hudson river, near New York, &c. A somewhat pyramidal tree, 60 or 70 feet high, branched nearly from the base, branches deflected and intricately ramified as in *Q. palustris*, which it thus precisely resembles in habit; it bears some distant resemblance to *Q. tinctoria*, at least to *Q. velutina* of Lamark, but the awnless though repand and nearly regular dentures of the leaf pronounce its proximate affinity to be to *Q. bicolor*; the leaves are attenuated at the base, and abruptly dilated towards the summit, the under surface is more ferruginous than

white, lanuginous, not tomentose, the dentures few, sometimes partly absolete or like mere crenatures, the breadth two thirds of the length; peduncle filiform, 2 or 3 inches long, about 4-flowered, 1 to 3-fruited? Perhaps *Q. filiformis* of Muhl. Catal. p. 87. but of which there is no specimen in his herbarium.

30. *montana.* (Rock Chesnut Oak.) 31. *Castanea.* (Yellow Oak.) Scarcely distinct from *Q. Prinus.* 32. *Chinquapin.* (Chinquapin, or Dwarf Chesnut Oak.)

Of this very useful genus, containing about 80 species, there are 15 indigenous to the coast of the Gulph or to the empire of Mexico, about 28 spread through Europe, Barbary and the Levant; of these the most important and most hardy perhaps in the world are *Q. Robur*, and *Q. pedunculata*, (The Common British Oak); a tree venerable for its majesty and longevity, independent of the high destinies of its economy.—Japan also produces 6 species of *Quercus*; the whole southern hemisphere affords but a solitary anomalous species, (*Q. molucca*) indigenous to the islands of Celebes and Formosa, near the coast of India.

752. CORYLUS. *L.* (Hasel Nut-Tree.)

MASC. *Ament* imbricated. *Calix* the scales of ament. *Stamina* 8. FEM. *Calix* 2-parted, lacerate. *Styles* 2. *Nut* ovate, inclosed by the persistent calix.

Small trees or shrubs; leaves roundish ovate or cordate; aments terminal; female buds axillary.

SPECIES. 1. C. *americana.* 2. *rostrata.* A subalpine species, often only about a foot high, with profusely creeping roots.

Of this genus there are 2 other species in Europe, and 1 indigenous to the vicinity of Constantinople.

753. FAGUS. *L.* (Beech Tree.)

MASC. *Ament* roundish. *Calix* 5-cleft, campanulate. *Stamina* about 12. FEM. *Calix* 4-toothed, setose. *Germs* 2. *Nuts* 2, included in the echinate, coriaceous and quadrifid calix.

Trees with ovate and serrated leaves; aments axillary, nuts oily.

SPECIES 1. F. *sylvatica.* β *americana.* OBS. Dioicous! ament roundish, male calix 5-parted. Female, common ca-

lix 4-toothed; germs or rather capsules 2, 3-sided, 6-seeded? each furnished with a proper 5-toothed setaceous calix, a short style and 3 stigmas; ovulæ seated on a villous receptacle around a common axis which is connected above with the base of the style. 2. *ferruginea.*

Of this genus there is 1 species in Europe and another in Terra del Fuego.

754. CASTANEA. *Tournefort.* (Chesnut.)

Polygamous.—Masc. *Ament* naked, linear. *Corolla* 5 or 6-parted. *Stamina* 10 to 20. Fem. *Calix* 5 or 6-leaved, muricate. *Germs* 3. *Stigma* pencillformed. *Nuts* 3, included in the echinated calix.

Large or small trees; leaves oblong-lanceolate, mucronately serrate; aments very long and axillary; nuts farinaceous.

Species. 1. C. *vesca; americana.* Obs. Younger leaves before expansion with the nerves pubescent beneath. Masculine ament very long, partly erect and spreading, interruptedly glomerated, naked; clusters bibracteate (bractes dissimilar) about 7 flowered, (sometimes 6, rarely 5 or 10, and then with 20 stamina) flowers mostly dodecandrous; calix (corolla, Willd) 6-parted, lateral, involucriform, segments subdiandrous; filaments of the stamina much exserted.—Female aments 2 to 3 together, many-flowered, thicker and shorter, fertile involucrum solitary, the 2 or 3 upper ones abortive; flowers conglomerated, ternate, involucrum of 3 bractes. Calix (or involucrum) squamose and leafy, bracteate at the base, about 3-flowered, at length muricate; corolla (proper calix?) tubular, coarctate border irregular, 6 to 8 parted. Stigmas numerous, corneous and shining, coalescing with the calix, rigid and white, at the base pilose; infertile stamina about 12, very short, situated betwixt the calix and stigmas. Style 1. Nuts smaller than in the European variety. 2. *pumila.* (Chinquapin).

3. * *alnifolia.* Very low and shrubby; leaves elliptic-obovate, obtuse, mucronately and incisely serrate, under side pubescent, middle nerve strigose, margin ciliate. Hab. In the dry and sandy forests of South Carolina, not many miles from Charleston; scarce. Certainly very distinct from the preceding. Obs. Stem slender, and but little branched, in my specimens scarcely 12 inches high. Leaves minutely petiolate, broadest towards the summit, serratures crowded, under surface minutely and uniform-

ly pubescent, but not tomentose, nerves very prominent; length 15 to 20 lines, breadth 10 to 12 lines; with the fruit I am unacquainted, it appears to be entirely a southern species, and probably more perfect in Georgia. *C. nana* of Muhl. Catal. and Herb. appears to be little more than a dwarf variety of *C. vesca*.

The original species, *C. vesca*, or common Chesnut, and the only one of the genus except the above, is indigenous to the south of Europe, where sometimes by an accidential union of stems it presents the most enormous trunk of any existing vegetable, on Mount Ætna there did or does still exist one of these vegetable monsters 160 feet in circumference.

755. BETULA. *L.* (Birch Tree.)

MASC. *Ament* imbricated, scales peltate, 3-flowered. *Calix* consisting of scales. *Corolla* none. *Stamina* 10 to 12. FEM. *Calix* scales 2-flowered. *Corolla* none. *Seed* 1, alated.

Trees or more rarely shrubs; aments axillary; leaves ovate and serrate, more rarely obovate as in *Alnus*, from which this genus is scarcely distinct.—Bark often tenaceous, with papyraceous exfoliations.

SPECIES. 1. B. *populifolia.* Leaves deltoid, acuminate. 2. *excelsa.* 3. *nigra.* 4. *papyracea.* (Canoe Birch.) Bark very tenaceous and durable, employed by the savages for various economical purposes, but more particularly for canoes. HAB. From Canada to Pennsylvania. 5. *lenta.* (Sweet Birch.) The taste and scent of the bark similar to that of *Gaultheria procumbens.* 6. *pumila.* 7. *glandulosa.* 9. *nana.*

A genus of about 17 species, the remainder indigenous to northern Europe or Siberia, excepting one species in Japan, and another in Terra del Fuego.

756. CARPINUS. *L.* (Horn-beam Tree.)

Ament imbricated. MASC. Scales of the *calix* ciliated. *Stamina* about 10. FEM. *Caliæ* scales 2-flowered. *Corolla* trifid. *Nut* ovate, sulcate.

Trees with axillary and terminal aments; female ament at length racemose and foliaceous, flowers conjugate.

SPECIES. 1. C. *americana.*—Style 1, stigmas 2. Female buds producing both leaves and flowers.

The original species of the genus (*C. Betulus*) is indigenous to Europe, there is also a third in the Levant.

757. **OSTRYA.** ***Micheli.*** (Hop-hornbeam Tree.)

Ament imbricated. MASC. *Calix* consisting of scales. *Filament* of the stamina ramose. FEM. *Ament* naked. *Capsules* inflated, imbricated at the base, 1-seeded.

Habit similar to that of preceding genus.

SPECIES. 1. O. *virginica*.—Of this genus there is a second species in Europe.

758. **PLATANUS.** ***L.*** (Buttonwood. Sycamore.)

Ament globose. MASC. *Calix* none. *Corolla* scarcely manifest. *Anthers* adnate to the filaments from the base. FEM. *Calix* many-leaved. *Corolla* none. *Stigmas* recurved. *Capsules* subclavate, 1-seeded, mucronate with the style, pappose at the base.

Large trees; leaves (as in the Maple) palmately lobed or angularly divided; stipules large; aments pendulous.

SPECIES. 1. P. *occidentalis*.—Of this genus there are 3 other species natives of the Levant.

759. **LIQUIDAMBAR.** ***L.*** (Sweet-gum Tree.)

MASC. *Ament* conic, surrounded with a 4-leaved involucrum. *Calix* and *corolla* none. *Filaments* numerous. FEM. *Ament* globose, also surrounded with a 4-leaved involucrum. *Calix* 1-leaved, urceolate, 2-flowered. *Styles* 2. *Capsules* 2, surrounded by the base of the calix, 1-celled, many-seeded.

Balsamiferous trees with sinuately palmated leaves (similar to those of the Maple); aments aggregated, terminal, masculine deciduous, females pedunculated and pendulous.

SPECIES. 1. L. *Styraciflua*. From New England to Florida, also indigenous to Mexico and extending to the shores of the Pacific ocean. In the warmer parts of America exuding a balsamic resin. OBS. Female ament glo-

bose, at length ligneous and alveolate, alveoli muricate on the margins, at first glandular. Surface of the ament granulated, the granulations interspersed with infertile styles. Calix and corolla none. Capsules by pairs, immersed in the alveoli, each terminated by a single style and lateral stigma, 1-celled, 1-valved, folliculate, internally lined with collateral rows of angular scrobiform deciduous bodies, applied to the few winged and perfect seeds. Perisperm of the seed carnose and thin; radicle superior; cotyledons straight.

Of this genus there is a second species in the Levant.

760. JUGLANS. *L.* (Walnut.)

Masc. *Ament* imbricated. *Calix* consisting of scales. *Corolla* 5 or 6-parted. *Stamina* 18 to 36. Fem. *Calix* 4-cleft, superior. *Corolla* 4-parted. *Styles* 1 or 2. *Drupe* partly spongy; nut rugose, and irregularly furrowed.

Large trees with alternate and unequally pinnated leaves; female flowers terminal; masculine aments simple, axillary, produced in separate partial buds.

Species. 1. J. *nigra.* Obs. Male ament simple; flowers distinct. Calix (corolla *L.*) mostly 5-parted, subtended by a single and almost similar bracte; stamina more than 20, 30 to 36; receptacle elevated, hemispherical. Female flowers terminal, destitute of bractes, collected by 3 or 4 together; germ subcylindric-ovate, terminated by a calycine, toothed margin; petals 4; style 1, short, stigmas 2, subclavate, margin revolute, upper surface lacerated. 2. *cinerea* (*J. cathartica*, Mich. arb. 1. p. 165.) "Butter Nut." 3. *fraxinifolia.* †.

The original species of this genus (*J. regia*), the common Walnut of Europe, and *J? pterocarpa*, both indigenous to the borders of the Caspian sea in Persia, with the above, appear to comprize the present genus.

761. *CARYA. † Juglans species, *L. Willd.* (Hickory.)

Masc. *Ament* imbricated. *Calix* 3-parted scales. *Corolla* none. *Stamina* 4 to 6. Fem.

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† Κάρυα, the Walnut Tree. (The name which the Greeks applied to *Juglans regia.*)

Calix 4-cleft, superior. *Corolla* none. *Styles* none. *Stigma* partly discoid, 4-lobed. *Pericarp* 4-valved. *Nut* subquadrangular, even.

Large trees with alternate and unequally pinnated leaves; flowers polygamous, contemporaneous, (the same bud including both sexes together with leaves); female ones terminal, male aments below the leaves, trifid, pedunculate and pendulous; anthers pilose, didymous; nuts edible or bitter. Pubescence stellate.

Species. 1. C. *olivæformis.* (Pecan nut.) 2. *sulcata.* Obs. Leaflets 5 to 9, oblong-lanceolate, acuminate, serrate, under side pubescent, terminal leaflet subpetiolate, attenuated at the base. Male aments 3-parted, very long pedunculate and smooth; scales 3-parted, incurved, the central segment longer and acuminated. Stamina 4 to 6; anthers didymous, sessile, pilose and chartaceous, sometimes subtended by an inner calicine scale from the rachis. Female calix 4-cleft. Corolla none. Style none. Stigma discoid, 4-lobed, 2 of the lobes larger and bifid, summits compressed, externally lacerate.

3. *alba.* 4. *tomentosa.* Obs. Aments trifid, involucrate, very long and hirsutely villous, scales 3-parted, subequal, anthers 3 or 4, pubescent. Female calix 4-cleft. Corolla none. Stigma as in the preceding. β * *maxima.* Leaflets by 7's, ovate-lanceolate, acuminate, serrulate, beneath softly pubescent and paler coloured, terminal leaflet subpetiolate; fruit partly globose, pericarp exceedingly thick, nut quadrangular, very large and thick shelled, mucro quadrangular, exserted and truncate. Hab. A few miles from Philadelphia. Fruit nearly twice the ordinary size, as large as an apple.

5. * *microcarpa.* Leaflets about 5, oblong-lanceolate, sharply serrulate, and conspicuously acuminate, on both sides smooth, beneath glandular, terminal leaflet subpetiolate; fruit subglobose, pericarp thin; nut partly quadrangular, small and rather thin shelled, mucro obsolete, truncate. Hab. On the banks of the Schuylkill, in the vicinity of Philadelphia.—A large tree with an even bark. Fruit much like that of *C. tomentosa*, and eatable, but very small, the nut not exceeding the size of a nutmeg. Aments trifid, very long and smooth, without involucrum; scales 3-parted, lateral segments ovate, the central one linear; anthers pilose, mostly 4, sometimes 3 and 5. Female 2 or 3 together, common peduncle bracteolate; segments of the calix very long and somewhat foliaceous. Corolla none. Style none. Stigma discoid, 4-lobed,

somewhat rhomboidal. 6. *amara*. (Bitter Nut). 7. *porcina*. (Pig Nut). 8. *aquatica*. 9. *myristicæformis*.

A North American genus belonging to the Natural Order of the AMENTACEÆ.

762. ARUM. *L.* (Wake Robin, &c.)

Spatha cucullate.—*Spadix* above naked, below feminine, in the middle staminiferous. *Calix* and *corolla* none. *Berry* 1 or many-seeded.

Mostly stemless, rarely caulescent; leaves simple or pseudocompound.

SPECIES. 1. A. *Dracontium*. Leaves pedate, entire; spadix subulate, longer than the oblong convolute spathe. HAB. From Pennsylvania to Florida. (In the vicinity of Philadelphia; rare.)

2. * *quinatum*. Leaves quinate, lanceolate, acuminate. HAB. In Georgia;—Dr. Baldwyn. *v. s.* Nearly allied to the following, and probably to *A. pentaphyllum* of India.

3. *triphyllum*. (Indian Turnip.) OBS. Polygamous, dioicous; germ 6-seeded. Berries scarlet, 3 or 4-seeded; integument of the seed double, the inner membranaceous; embryon cylindric, inverted, situated in the axis of a farinaceous perisperm. β. *atrorubens*. 4. *virginicum*.—Berry many-sceded.

A genus of about 30 species principally indigenous to India, the warmer parts of Europe and America.

763. CALLA. *L.*

Spathe flattish. *Spadix* covered with flowers. *Calix* and *corolla* none. *Berry* many-seeded.

Habit similar to *Arum*.

SPECIES. C. *palustris*.—Also indigenous to Europe.

764. CALADIUM. *Ventenat.*

Anthers peltate, many-celled, collected into a spike at the summit of the spadix. *Germs* inserted at the base of the spadix. *Style* none. *Stigma* umbilicate. *Berry* 1-celled, many-seeded.

Mode of vegetation similar to that of *Arum*.

SPECIES. 1. C, *sagittifolium?* Leaves glaucous; spathe white.

A genus of 16 species (according to Persoon) almost exclusively indigenous to India and the warmer parts of America.

ORDER VIII.—MONADELPHIA.

765. PINUS. *L.* (Pine Tree.)

MASC. *Calix* 4-leaved. *Corolla* none. *Stamina* many. *Anthers* naked. FEM. *Calix* a strobilus or cone; scales 2-flowered. *Corolla* none. *Pistill* 1. *Nut* alated.

Mostly tall resiniferous trees with verticillated branches; leaves acerose and filiformly slender, growing from 2 to 5 in the same short cylindric sheath; fasciculated and deciduous in *Larix*, solitary and distinct at the base in *Abies;* aments conglomerated, terminal; cones solitary or subverticillate, also terminal.

† PINUS. Scales of the cone thickened at the summits, angular and umbilicate. ‡

SPECIES. 1. P. *inops*. (Jersey Pine.) 2. *resinosa*. (Pitch Pine.) 3. *Banksiana*. (Scrub Pine, Grey Pine.) A northern species. 4. *variabilis*. (Yellow Pine.) 5. *rigida*. (Black or Pitch Pine.) 6. *serotina*. (Pond Pine.) 7. *pungens*. (Table Mountain Pine.) Hitherto only met with on the summits of the Catawba ridge, near the sources of Catawba river; North Carolina. 8. *Tæda*. (Old-field Pine.) 9. *palustris*. (Long-leaved or Yellow Pitch Pine.) 10. *Strobus*. (White or Weymouth Pine.)—From Canada to Carolina.

†† LARIX. Leaves fasciculated, deciduous.

11. *pendula*. 12. *microcarpa*. (American Larch.)

††† ABIES. Leaves solitary and distinct at the base; scales of the cone even and attenuated.

13. *Balsamea*. (Balsam Fir.) *β. Fraseri*. PH. *v. v.* On the summit of the Catawba ridge, North Carolina. 14. *taxifolia*. 15. *canadensis*. (Hemlock Spruce.) 16. *nigra*. (Black Spruce.) 17. *rubra*. (Red Spruce.) 18. *alba*. (White Spruce.)

A genus consisting of near 40 species, principally indigenous to Europe and North America; there are also species in Barbary, the Levant, India and China.

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‡ Primary leaves solitary and sessile, destitute of sheathes, at length succeeded by the ordinary foliage.

766. THUJA. *L.* (Arbor vitæ Tree.)

MASC. *Ament* imbricated. *Calix* consisting of scales. *Corolla* none. *Anthers* 4. FEM. *Ament* strobilaceous. Scales of the *calix* 2-flowered. *Corolla* none. *Nut* 1, surrounded with an alated margin.

Mostly small trees; branchlets angular or compressed; leaves squamiform, and imbricated, opposite; ament terminal; cone terminal or axillary, even or squarrose.

SPECIES. 1. T. *occidentalis*, (called White Cedar.) Indigenous also to Siberia.

A very small and widely dispersed genus indigenous to China, Japan, Barbary, Madagascar and the Cape of Good Hope.

767. CUPRESSUS. *L.* (Cypress.)

MASC. *Ament* ovate, imbricated. *Calix* consisting of peltate scales. *Corella* none. *Anthers* 4, sessile. FEM. *Ament* strobilaceous. *Calix* peltate scales. *Corolla* none. *Germs* 4 to 8 under each scale of the calix. *Nuts* angular, compressed.

Principally large trees with alternate branches; leaves mostly squamiform and oppositely imbricated; in *C. disticha* (Shubertia, of Mirbell) deciduous; aments terminal; cones terminal or axillary.

SPECIES. C. 1. *thyoides.* (White Cedar.) 2. *disticha.* Leaves distichal, flat and deciduous. HAB. From Delaware to the Missisippi, and ascending that river to the confluence of the Ohio. OBS. Aments paniculated, pendulous. β. * *imbricaria.* Leaves subulate, partly imbricated in 4 ranks, deciduous; nuts larger, chesnut coloured.—Found from Florida to North Carolina, in swamps and ponds more remote from the sea.—A smaller tree than the preceding, often producing fruit at the height of 3 feet from the ground.

A small genus indigenous to Europe, India, Japan, and the Cape of Good Hope.

768. ACALYPHA. *L.*

MASC. *Calix* 3 or 4-parted. *Corolla* none,

Stamina 8 to 16. FEM. *Styles* 3, bifid. *Capsule* 3-grained, 3-celled, 3-seeded.

Herbaceous or shrubby; leaves alternate, stipulate; bractes [illegible]e, flowers axillary, spiked, upper part of the spike masculine, the lower feminine.

SPECIES. 1. A. *virginica.* 2. *caroliniana.*

A genus of near 40 species almost exclusively indigenous to tropical America and India.

769. CROTON. *L.*

MASC. *Calix* cylindric, 5-toothed. *Corolla* of 5 petals or none. *Stamina* 10 to 15. FEM. *Calix* 5 or many-leaved. *Corolla* none. *Styles* 3 or 6 bifid. *Capsule* 3-grained, 3-celled, 3 seeded.

Herbaceous or more commonly shrubby; leaves stipulate, alternate, or rarely opposite; flowers axillary or terminal, spiked or conglomerate, upper flowers masculine. Pubescence stellate.

SPECIES. 1. C. *maritimum.* 2. *argyranthemum.* 3. *glandulosum.* 4. *capitatum.*—Throughout the Illinois territory and Louisiana to the sources of the Missouri. OBS. Styles 6, twice bifid. 5. * *ellipticum. Crotonopsis elliptica?* Willd. Annual and stellately pubescent; leaves elliptic-ovate, older ones obtuse above, upper surface smoother, green; flowers conglomerated; styles 3, bifid; capsules angular, 2-seeded. HAB. Around St. Louis, Louisiana. A species allied to *C. capitatum;* very aromatic.

A genus of more than 80 species, almost exclusively indigenous to the warmer parts of America and India.

770. JATROPHA. *L.* (Physick-nut.)

MASC. *Calix* none or 5-leaved. *Corolla* monopetalous, funnelform. *Stamina* 10, alternately shorter. FEM. *Calix* none. *Corolla* of 5 petals, spreading. *Styles* 3, bifid. *Capsule* 3-celled; cells 1-seeded.

Mostly shrubs, leaves alternate, stipulate, often palmate; flowers corymbose, axillary or terminal.

SPECIES. 1. J. *stimulosa.*

A genus of about 18 species indigenous to the warmer parts of America, India, and Arabia Felix.

771. RICINUS. *L.* (Palma Christi, Castor oil Plant.)

MASC. *Calix* 5-parted. *Corolla* none. *Stamina* numerous. FEM. *Calix* 3-parted. *Corolla* none. *Styles* 3, bifid. *Capsules* mostly echinate; 3-celled, 3-seeded.

Herbaceous or shrubby; leaves alternate, stipulate, palmate or more rarely undivided; summit of the petiole glandular; flowers in a terminal spiked panicle, the lower ones masculine, the upper feminine.

SPECIES. 1. R. *communis*. Merely naturalized in the southern states. Now largely cultivated for oil, in Kentucky and Tennessee.

A genus of 10 species indigenous to India and Africa, with the exception of a single species in Jamaica.

772. STILLINGIA. *L.*

MASC. *Involucrum* hemispherical, many-flowered, or wanting. *Calix* tubular, eroded. *Stamina* 2 and 3, exserted. FEM. *Calix* 1-flowered, inferior. *Style* trifid. *Capsule* 3-grained.

Arborescent, shrubby and herbaceous; sap lactescent; leaves alternate, stipulate, entire; flowers spiked, spikes solitary, dichotomal or terminal, upper part masculine, lower feminine, rachis in *S. sylvatica* producing intermediate cupulate glands.

SPECIES. 1. S. *sylvatica*. 2. *sebifera*. (Tallow Tree.) Introduced from China. A species of Sapium? according to Jussieu.—Spike terminal; involucrum many-flowered; stamens 3; fruiting calix 3-toothed, corolla none; stigmas 3, large and spreading; style scarcely any.

3. *ligustrina*. Obs. Dioicous? spikes partly lateral and terminal; male flowers without involucrum; bracies 1-flowered, biglandular; calix trifid, rather flat; filaments 3, anthers 3, reniform. Female not seen.

The only species of the genus.

773. EUPHORBIA. *L.* (Spurge.)

Involucrum caliciform, 8 to 10-toothed, exterior alternate dentures glanduloid or petaloid. *Stamina* indefinite, 12 or more, rarely less; fila-

ments articulated. *Receptacle* squamose. *Female flower* solitary, stipitate, naked. *Styles* 3, bifid. *Capsule* 3-grained.

Lactescent plants which are either herbaceous or shrubby, leafless or foliaceous; stems in the leafless species (which are principally indigenous to the deserts of Africa) carnose, naked or spiny, resembling the genus *Cactus;*— in the other species which are mostly herbaceous, the leaves are alternate and naked, or more rarely opposite, and then usually stipulate, very rarely ternately verticillated; in these the flowers are scattered or aggregated, and in very many umbellate and involucrate. Stamina perfecting at different times.

Species. 1. E. *cyathophora.* 2. *dentata.* 3. *graminifolia.* 4. *hypericifolia.* 5. *maculata.* 6. *thymifolia.* 7. *polygonifolia.* 8. *Ipecacuanhæ.* Leaves sometimes linear. Stamina collected into 5 bodies, containing about 6 in each, intermixed with the plumose setæ of the receptacle. 9. *pubentissima.* 10. *Peplus.* 11. *mercurialina.* 12. *marginata.* Leaves of the involucrum always variegated with white. *v. v.* On the banks of the Missouri near the Arikaree station. 13 *Lathyris.* 14. *corollata.* Dioicous! 15. *portulacoides.* 16. *pilosa.*

This vast genus of near 160 species is very widely dispersed through both hemispheres, but more particularly abundant in the warmer parts of America, in India, the deserts of northern and southern Africa, and throughout Europe but more frequentin the warmer parts. The economy of the genus *Euphorbia* appears to be very limited; in the deserts of Africa they only tend as it were to augment the surrounding scenes of desolation; leafless, bitter, thorny and poisonous, they seem to deny food to every animated being; amongst the European and American species there are some which have been used medicinally, but they are at best dangerous and needless remedies.

774. PHYLLANTHUS. *L.*

Masc. *Calix* 5 or 6-parted. *Filaments* often columnar. *Anthers* 3. Fem. as the male *nectary* a 12-angled margin. *Styles* 3. *Capsule* mostly 3-grained.

Shrubby or aborescent, rarely herbaceous; leaves simple and distichal, with axillary flowers or apparently pinnate, the leaflets then floriferous.

Species. 1. P. *obovatus.* Obs. Capsule round, 3-celled,

cells 2-seeded. Leaves nictitant, and somewhat sensible to the touch.

A genus of about 45 species, almost exclusively indigenous to India and tropical America.

775. MELOTHRIA. *L.*

MASC. *Calix* 5-toothed. *Corolla* campanulate. *Filaments* 3. FEM. *Style* 1. *Stigmas* 3. *Berry* 3-celled, many-seeded.

Stem scandent and cirrhose, peduncles 1 or many-flowered.

SPECIES. M. *pendula*.—Of this genus there is a second species indigenous to Guinea.

776. MOMORDICA. *L.*

MASC. *Calix* 5-cleft. *Corolla* 5-parted. Filaments 3. FEM. *Style* trifid. *Pepo* dry, bursting elastically.

Vegetation similar to that of the preceding genus. Peduncle 1 or many-flowered.

SPECIES. 1. M. *echinata*. Very abundant in the Michigan Territory and on the banks of the Missisippi and Missouri.

A genus of 13 species almost entirely indigenous to India.

777. CUCURBITA. *L.* (Gourd, &c.).

MASC. *Calix* 5-toothed. *Corolla* 5-cleft. *Filaments* 3. FEM. *Pistil* trifid. *Pepo* large, 3 to 5-celled. *Seeds* with a tumid margin.

Stem prostrate or scandent; leaves mostly cordate; peduncles short, about 1-flowered.

SPECIES. 1. C. *lagenaria*. (Calabash, or Bottle Gourd.) Flowers white. Cultivated by the aborigines from the earliest discovery of North America, and partly naturalized in the vicinity of their stations. 2. *verrucosa* (Warted Squash.) Cultivated also by the Indians of the Missouri to its sources.

A small and important genus of about 13 species, principally indigenous to India, Africa, Persia and the Levant. Among the useful individuals of Cucurbita are included the pumpkin, the squash and the water-melon,

from the last, Pallas, in his journey through the Crimea, remarks, that at Sarepta on the Volga the inhabitants brew a kind of beer, with the addition of hops, and obtain a marmalade as a substitute for treacle.

778. SYCIOS. *L.* (Single-seeded Cucumber.)

MASC. *Calix* 5-toothed. *Corolla* 5-parted. *Filaments* 3. FEM. *Style* trifid. *Pepo* 1-seeded.

Scandent; peduncle short and many-flowered; fruit capitate, echinate.

SPECIES. 1. S. *angulata*.—Of this genus there appears to be 3 other species indigenous to the warmer parts of America.

Class. XX.—DIOECIA.

Order II.—DIANDRIA.

779. VALISNERIA. *Micheli. L.*

Masc. *Spathe* ovate, 2-parted. *Spadix* covered with minute flowers. *Calix* 3-parted. Fem. *Spathe* bifid, 1-flowered. *Calix* 3-parted, superior. *Corolla* of 3 petals. *Stigmas* 3, bilate, semibifid. *Capsule* valveless, 1-celled, seeds numerous, parietally attached. (Stamina 2 and 6.)

Submersed aquatics; leaves all radical; scapes axillary. Female flowers solitary, mostly furnished with a spiral filiform scape, stretching or contracting (as in *Ruppia* and * *Udora*) in order to admit the emersion of the flower; male scape very short, and always submersed, the minute florets scarcely (larger than the anthers of the Rose) at length breaking connexion with the parent plant, rise to the surface, and instantly expanding to the light, accidentally float around the other sex and quickly perish; the period of inflorescence passed, the female at length sinks beneath the water and matures the fruit.

Species. 1. V. *americana.* Leaves linear and obtuse, equal from the base, 3-nerved, margin minutely and aculeately serrulate; male peduncles very short, female ones spiral.—Apparently a mere variety of *V. spiralis.* Male flowers very minute, 3-valved, valves concave; stamina 1 or 2. Hab. Common in still water, on the margins of rivers from New York to Florida, also in Lake Michigan, and probably throughout the Illinois territory.

Of this singular genus, which ought probably to be divided, there is 1 species in Europe, and 2 in India.

780. SALIX. *L.* (Willow.)

Masc. *Ament* cylindric. *Calix* consisting of

scales. *Corolla* none. *Nectariferous glands* at the base of the stamina. *Stamina* 1 to 6. FEM. Flower as the male. *Style* bifid. *Capsule* 1-celled, 2-valved. *Seeds* woolly.

Large or small trees or shrubs, rarely suffruticose or subherbaceous; aments axillary and terminal.

SPECIES. 1. S. *viminalis.* Introduced. 2. *candida.* 3. *Muhlenbergiana.* 4. *tristis.* 5. *recurvata,* PH. 6. *repens.* 7. *reticulata.* 8. *vestita,* PH. 9. *Uva ursi,* PH. 10. *cordifolia,* PH. 11. *obovata,* PH. Scarcely distinct from *S. vestita* of the same, and both are probably varieties of *S. arenaria?* 12. *planifolia.* 13. *pedicellaris.* 14. *rosmarinifolia.* 15. *fuscata,* PH. 16. *conifera.* 17. *myricoides.* 18. *discolor,* also probably *S. prinoides,* PH? 19. *longifolia. S. angustata,* PH. The most abundant species on the lowest alluvial formations of the Missouri and Missisippi, probably extending to the sources of those rivers. OBS. Leaves of the young plants, after the cotyledones, subpinnatifid. 20. *babylonica.* (Weeping Willow.) Generally cultivated. 21. *nigra. v. v.* On the banks of the Missouri and the Missisippi. 22. *lucida.* 23. *rigida.* (*S. cordata,* Mich.) 24. *cordata.* 25. *grisea.* 26. *petiolaris.* 27. *alba.* 28. *vitellina.* These 2 last cultivated, or introduced. 29. *myrsinites.* 30. *herbacea.*

This genus containing probably more than 130 species is chiefly confined to the northern parts of Europe and America; many of the species are alpine. Only 4 species are as yet described to be indigenous to the Southern hemisphere, namely 1 in Peru, (*S. Humboldtiana*) 1 in India, and 2 species at the Cape of Good Hope with mucronate leaves.

781. FRAXINUS. *L.* (Ash.)

Cilix none, or 4-parted. *Corolla* none, or of 4 petals. *Pistil* 1. *Samara* 1-seeded, the wing lanceolate.

Trees with opposite, unequally pinnated leaves; flowers paniculate, arising from distinct buds produced in the axills of preceding leaves? hermaphrodite and female flowers on distinct plants.

SPECIES. 1. F. *sambucifolia.* 2. *quadrangulata.* (Blue Ash.) The chips communicating a pale blue colour to the water in which they are steeped. 3. *epiptera.* 4. *acuminata.* 5. *caroliniana.* 6. *platycarpa.* 7. *pubescens.* 8.

* *triptera.* Leaflets (about 7?) obovate, entire, subsessile, beneath tomentose, oblique at the base; samara very broad, elliptic-obovate, mostly 3 winged! attenuated at the base. HAB. In the oak-forests of South Carolina. Fruit at first sight almost similar to Halesia, more rarely 2 than 3 winged, the seed also 3-sided. Points of the leaves obtuse, the under side paler and softly villous, the common petiole and nerves beneath smooth. 9. *juglandifolia.*

A genus of about 15 species, exclusively indigenous to Europe, the Levant and North America.

782. **BORYA.** *Willdenow.*

MASC. *Calix* 4-leaved. *Corolla* none. *Stamina* 2 or 3. FEM. *Sigma* capitate. *Berry* 1-seeded.

Shrubby, rarely spinescent, with opposite entire leaves, which are coriaceous or membranaceous, destitute of stipules; flowers minute, axillary, fasciculated.

SPECIES. 1. B. *porulosa. v. s.* 2. *ligustrina. v. s.* 3. * *distichophylla.* Bud scales pungently acute, confluent in the leaves; leaves lanceolate, acute, entire, subsessile and membranaceous, margin scabrous; ramuli very slender, leaves distichal. HAB. On the banks of French Broad river, East Tennessee. *v. v.* A tall shrub 12 to 16 feet high. 4. *acuminata.*—A North American genus; with the exception of a single species in the West India islands.

783. **CERATIOLA.** *Michaux.* (Hornbush, "Sand-hill Rosemary.")

Calix gemmaceous, imbricated, scales 6 to 8. *Corolla* none. *Stamina* 2, exserted. *Stigmas* unequal, 4 to 6, 2 larger. *Berry* 2-seeded. *Seeds* osseous.

A genus scarcely distinct from *Empetrum* (particularly E. *album*, which produces a 3-seeded berry.) A shrub with verticillated branches, and acerose sempervirent leaves also verticillated and crowded; flowers axillary, sessile; berries persistent; perisperm carnose.

SPECIES C. *ericoides.* OBS. An evergreen shrub 4 to 6 feet high, branchlets partly tomentose; leaves verticillated in 3's and 4's, narrow linear and smooth, slightly scabrous, (seen through a lens,) revolute to the centre;

calix 6 to 8 imbricated scales with tomentose margins; anthers purplish. Calix of the fruit similar to that of the stamens; style distinct, rigid and persistent, stigmas about 4 or 6, purple, 2 only conspicuous; berry yellowish, small and astringent to the taste, 2-seeded, seeds bony, plano-convex. *v. v.* Near Augusta in Georgia, on gravelly hills.

This genus with *Empetrum* ought apparently to form a section (EMPETREÆ) at the end of the CONIFERÆ, characterized by producing a berry containing more than 1 nuciform seed. The affinity of *Ceratiola* to *Taxus*, though certainly remote, still appears to justify the reference of these two genera to this family, with which they also agree in the structure of the seed, rather than the ERICÆ which they resemble in nothing but the leaves!

ORDER III.—TRIANDRIA.

784. EMPETRUM. *L.* (Crow or Crake-berry.)

Calix gemmaceous, imbricated, scales about 9, the 3 innermost petaloid. *Stigmas* 9. *Berry* about 9-seeded. *Seeds* osseous.

Erect or small procumbent shrubs; leaves crowded, alternate or subverticillate, sempervirent? margin revolute; flowers axillary, sessile.

SPECIES. 1. E. *nigrum*. Berries nearly black. HAB. In Canada.

Of this genus there are 2 species in Europe, *E. album* in Portugal and *E. nigrum* in the northern parts of Europe, there is also a third species indigenous to the Straits of Magellan, and probably a fourth in Guianne, which I have observed in the herbarium of A. B. Lambert, Esqr., London.

ORDER IV.—TETRANDRIA.

785. *MACLURA.† (Bow-wood, Yellow-wood.)

MASC. *Ament?* FEM. *Calix* none. *Co-*

† Dedicated to William Maclure, Esq. of the United States, a Philosopher, whose devotion to natural science, and particularly to the geology of North America, has scarcely been exceeded by Ramond or Saussure in Europe.

rolla none. *Style* 1, filiform, villous. *Germs* numerous, coalescing into a compound globose berry of many cells; cells 1-seeded. *Seed* obovate, compressed.

A small lactescent tree, producing wood similar to Fustic; leaves alternate, entire, destitute of stipules, furnished with superaxillary simple spines; aments axillary; berry verrucose and large, at first lactescent, yellow. A genus proximately allied to *Broussonetia;* and belonging to the Natural Order URTICÆ.

M. *aurantiaca.*

OBS. A spreading tree about 20 to 30 feet high, branches flexuous and terete. Leaves petiolated, oval, acuminated, very entire, apex mucronulate, upper surface smooth and shining, petiole and nerves on the under side somewhat hirsutely but minutely pubescent; (petiole often nearly an inch long; leaf 2 to 3 inches long, and 1 and a half to 2 inches wide.) Male flowers unknown. Female a globular ament, destitute of both calix and corolla. Style 1 to each seed and germ of the compound berry, filiform, near an inch long and villous. Berry nearly the size of an orange, axillary and subsessile, surface verrucose, partly tessellated with obsolete calicine vertiges; pulp nearly as succulent as that of an orange, sweetish and perhaps agreeable when fully ripe. *v. v.*

HAB. "On the banks of the Little Missouri of Washita river, also near Natchitoches, and upon the banks of the Arkansa." Hunter and Dunbar's voyage.—The above account has been taken from living plants which were cultivated in the garden of Mr. Shoutou at St. Louis, Louisiana; plants of this interesting tree are now also cultivated in the garden of the late Mr. M'Mahon of Philadelphia, but have not yet flowered. *v. s.* In herb. Lambert, London.—The wood is very heavy and of a Saffron yellow; the bark as in Broussonetia affords a fine white flax.

Were it not for the particular description of *Morus tinctoria* given by Sloane in his History of Jamaica, vol. 2. p. 3, we should from the corresponding habit have almost been induced to consider it, together with two other undescribed species, as forming part of the present genus. "The fruit" of *Morus tinctoria*, adds Sloane, "stands on a footstalk, is as large as a Nutmeg and round, having its *acini* like the other Mulberries, of a greenish colour both without and within the pulp; there are in it some flat brown small seeds, like Linseed, and before the fruit comes to be ripe 'tis milky and not pleasant; but when come to

maturity, 'tis pleasant to the taste, although very lusciously sweet." This species also becomes a tree "60 feet or more high."

786. VISCUM. *L.* (Misseltoe.)

MASC. *Calix* 4-parted. *Corolla* none. *Filaments* none. *Anthers* adnate to the calix. FEM. *Calix* 4-leaved, superior. *Corolla* none. *Style* none. *Berry* 1-seeded. *Seed* cordate.

Shrubby or suffruticose plants, parasitic upon trees; leaves opposite and thick, very rarely alternate or wanting; flowers axillary, subsessile or spiked; berry often internally glutinous.

SPECIES. 1. V. *rubrum.* 2. *purpureum.* 3. *verticillatum.* *V. flavescens,* PH. *V. album?* Muhl. Catal. p. 91. Parasitic on the smoother barked trees, from Pennsylvania to the West Indies. OBS. Branches opposite; leaves cuneate-oval, 3-nerved, obtuse; spikes axillary, solitary, about the length of the leaves; male flowers mostly trifid, berries white and diaphanous.

A genus of about 18 species indigenous to Europe, India, and the Cape of Good Hope, but principally to the warmer parts of America.

787. MYRICA. *L.* (Gale, Candleberry Myrtle.)

MASC. *Ament* oblong. *Calix,* ovate scales. *Corolla* none. FEM. Flower as the male. *Styles* 2. *Drupe* 1-seeded.

Aromatic shrubs or small trees; leaves alternate generally entire, scattered with resinous atoms; stipules none or fugaceous; aments axillary or terminal; drupe granulated and dry, in some species canescent and ceriferous. Perisperm none.

SPECIES. 1. M. *Gale.* 2. *cerifera.* Most abundant on the sandy sea-coasts, often forming almost exclusive masses. 3. *carolinensis,* which is also *M. pennsylvanica?* of Lamark and PH.

Of this genus there are besides 2 species in tropical America, 1 in the north and another in the south of Europe, and 4 species at the Cape of Good Hope.

Order V.—PENTANDRIA.

788. NYSSA. *L.* (Tupelo, Sour Gum-Tree.)

Hermaphrodite. *Calix* 5-parted. *Corolla* none. *Pistill* 1. *Drupe* inferior. *Nut* 1-seeded. **Masc.** *Stamina* 5, 8, 10 and 12, seated around a peltate gland.

Trees with alternate entire leaves; flowers axillary, aggregated or solitary, clusters pedunculate; fruit succulent, red or blackish, purple and pruinose. Germ sometimes 2-seeded. Style simple, revolute.

Species. 1. N. *villosa.* (Sour Gum.) 2. *biflora.* 3. *candicans.* **Hab.** From Virginia to Florida. The fruit of this tree called *Ogechee lime,* as well as that of the 2 following, gathered a little before maturity is preserved with sugar, and forms an agreeable conserve tasting somewhat like Cranberrys. 4. *tomentosa.* Called Wild Olive. 5. *denticulata.*

A North American genus.

789. ZANTHOXYLUM. *L.* (Prickly Ash, Tooth ache Tree.)

Masc. *Calix* 5-parted. *Corolla* none. *Stamina* 3, to 5 or 6. *Pistills* 3 to 5. *Capsules* 3 to 5, each 1-seeded.

Small trees or shrubs, prickly or unarmed; leaves alternate, unequally pinnate, rarely ternate, for the most part pellucidly punctate; flowers axillary, fasciculate or rarely racemose.

Species. 1. Z. *Clava Herculis.* 2. *fraxineum.* Indigenous also to Upper Louisiana. 3. *tricarpum.* Common around Savannah in Georgia.

A genus of about 13 species, all except the above, and 1 in India, indigenous to tropical America.

790. IRESINE. *L.*

Masc. *Calix* 2-leaved. *Corolla* of 5 petals. *Lepanthia* 5 or 7. **Fem.** *Stigmas* 2, sessile. *Capsule* many-seeded, at length tomentose.

Leaves opposite entire; flowers paniculate, axillary and terminal.

SPECIES. 1. I. *celosioides.*—A genus of about 6 species indigenous to the warmer parts of America.

791. ACNIDA. *L.*

MASC. *Calix* 5-parted. *Corolla* none. FEM. *Calix* 3-parted. *Corolla* none. *Styles* none. *Stigmas* 3, sessile. *Capsule* 1-seeded.

Annual, subaquatic plants with the aspect of *Amaranthus*, scarcely distinct from *Spinacia*. Stems grooved, leaves lanceolate, entire; flowers glomerate, axillary, subracemose; stigmas sometimes 4 or 5, the fruit then 4 or 5-angled.

SPECIES. 1. A. *cannabina*. 2. *rusocarpa*.—A North American genus indigenous to river marshes from Canada to Florida.

792. HUMULUS. *L.* (Hop.)

MASC. *Calix* 5-leaved. *Corolla* none. FEM. *Calix* 1-leaved, obliquely spreading, entire. *Corolla* none. *Styles* 2. *Seed* 1, within the leafy calix, (or strobilus.)

An herbaceous twining and asperate plant: leaves opposite, trifid; stipules connate below; male flowers alternate and loosely paniculate, axillary and terminal; female ones verticillate and sessile, densely spiked, spikes or heads pedunculate, axillary and terminal, paniculate, divisions of the panicle stipulate.

SPECIES. H. *Lupulus. v. v.* Abundant on the banks of the Missisippi and Missouri.

ORDER VI.—HEXANDRIA.

795. SIMILAX. *L.* (Green Brier, Sarsaparilla.)

MASC. *Calix* 6-leaved. *Corolla* none. *Anthers* adnate to the filaments. FEM. Flower similar to the male. *Style* minute. *Stigmas* 3. *Berry* 3-celled, superior; 1, 2, or 3-seeded.

Stems scandent, suffruticose or herbaceous; leaves al-

ternate, cordate, ovate or sublanceolate, rarely hastate, the petiole producing on either side a tendril; flowers umbellate, axillary, caducous.

SPECIES. 1. S. *hastata*. 2. *Bona nox*. 3. *quadrangularis*. 4. *Sarsaparilla*. Under side of the leaves (or another species!) sometimes not only glaucous but villous. 5. *ovata*, PH. 6. *lanceolata*. Also *alba?* PH. 7. *pubera*. Berries red; not white! 8. *Pseudo-China*. 9. *rotundifolia*. 10. *caduca*. 11. *laurifolia*. HAB. From Delaware to Florida. 12. *tamnoides*. *S. panduratus*, PH. 13. *pedunculuris*.—Female flower producing 6 infertile filaments. Stigmas 3, each 3-lobed; germ 3-celled, cells 2-seeded. 14. *herbacea*. Flowers extremely foetid, almost similar to those of *Stapelia hirsuta*. These 2 last species appear to indicate a distinct section in the genus, possessing the habit of *Dioscorea*.

The principal part of this genus of near 50 species are natives of tropical America; there are also species in India, Europe, Barbary and the Levant.

794. DIOSCOREA. *L.* (Yam root.)

MASC. *Calix* 6-parted. *Corolla* none. FEM. Flower as the male. *Styles* 3. *Capsule* 3-celled, triangular, compressed; cells 2-seeded. *Seeds* membranaceously margined.

Herbaceous and twining; leaves alternate, more rarely opposite and verticillate, mostly simple, cordate, or ovate and longitudinally nerved, (in 2 species digitate or ternate, in a few others palmately lobed:) flowers axillary, racemose and paniculate, solitary or partially conglomerate; root often tuberous and large.

SPECIES. 1. D. *quaternata*. *D. glauca*. Muhl. Catal. 2. *villosa*. HAB. From Canada to Florida. Female flowers simply racemose. Masculine paniculate, glomerate.

Of this genus there are in tropical America 12 species, 10 in India, 3 in Japan, and 2 in Cochinchina. *D. sativa*, the Yam, cultivated for food, is said to be indigenous to India.

795. GLEDITSCHIA. *L.* (Honey Locust.)

HERMAPH. *Calix* 6 to 8-parted, deciduous, 3 or 4 of the exterior segments smaller. *Corolla* none. *Stamina* 5 or 6, rarely 8. *Legume* flatly compressed, 1, or many-seeded. MASC. *Calix*

subturbinate, 5 to 8-parted, 3 to 5 of the segments interior. *Stamina* 6 to 8, (rarely 5.) FEM.

Spiny trees, spines very large, mostly axillary; primary leaves pinnate, succeeding ones bipinnate; flowers axillary, racemose, male flowers crowded; legume mostly long and falcate, multilocular, in *G. monosperma* 1-seeded.

SPECIES. 1. G. *triacanthos*. OBS. A very deceptive trivial name, the spines being not only trifid but often irregularly and numerously compounded. The specific character of *G. horrida*, of China, "trunk spiny, spines branched," is a familiar appearance of *G. triacanthos* in the United States; the unimportant character of spines in this genus is sufficiently evident in the ordinary occurrence of individuals of this species entirely without them. 2. *monosperma*. A smaller tree than the preceding.

Of this genus there appears to be another species indigenous to India and China.

ORDER VIII.—OCTANDRIA.

796. POPULUS. *L.* (Poplar.)

MASC. *Ament* cylindric.—*Calix* consisting of lacerated scales. *Corolla* turbinate, oblique, and entire. FEM. Flower as in the male. *Stigma* 4 or 6-lobed. *Capsule* 2 or 3-valved. *Seeds* beset with long wool.

Trees with leaves which are roundish, or deltoidly cordate; petiole for the most part vertically compressed towards the summit, and partly biglandular, buds sometimes balsamiferous, floral ones earlier than the leaves.

SPECIES. 1. P. *balsamifera*. (Balsam Poplar.) 2. *candicans*. 3. *trepida*. 4. *monilifera*. 5. *hudsonica*. Mich. fil. *P. betulifolia*. PH. 6. *grandidentata*. β **pendula*. Branches pendulous, as in the Weeping Ash. *v v*. On the Alleghany ridge, Pennsylvania; rare. 7. *lævigata*. 8. *angulata*. ("Cotton-Tree.") HAB. Principally on the alluvial banks of the the larger rivers of western America; on the banks of the Missisippi and Missouri to their sources. 9. *heterophylla*.

Of this genus, besides the above, there are 4 species indigenous to Europe, and 1 (the Athenian Poplar) to the islands of the Archipelago.

797. DIOSPYROS. *L.* (Persimon, Date-Plum.)

MASC. *Calix* 4 to 6-cleft. *Corolla* urceolate, 4 to 6-cleft. *Stamina* 8 to 16; filaments often producing 2 anthers. FEM. Flower as the male. *Stigmas* 4 or 5. *Berry* 8 to 12-seeded.

Trees or shrubs, with alternate and very entire leaves; flowers axillary, subsessile; female flowers producing infertile stamens.

SPECIES. 1. D. *virginiana.* β. *pubescens.* OBS. Branches crowded with leaves; female flowers solitary; males by 3s, anthers villous.

A genus of near 30 species, almost exclusively indigenous to India and its islands; there are also 3 species in tropical America, 2 at the Cape of Good Hope, 1 in Japan, and another (*D. Lotus*) common to Italy and Barbary.

798. *SHEPHERDIA.†

MASC. *Calix* 4-cleft. *Corolla* none. *Stamina* 8, included, alternating with 8 glands FEM. *Calix* 4-cleft, campanulate, superior. *Style* 1. *Stigma* oblique. *Berry* 1-seeded.

Small spinescent trees, with the aspect of *Elæagnus;* leaves entire, covered with silvery scales; flowers small, laterally aggregated; berries diaphanous, scarlet, acid.

SPECIES. 1. S. *argentea.* Leaves oblong-ovate, obtuse, on both sides smooth and equally covered with silvery scales. *Hippophae argentea*, PH. Flor. Am. 1 p. 115. OBS. A small tree from 12 to 18 feet high; branchlets spinescent. Leaves oblong-ovate, obtuse, petiolate, on both sides smooth and covered with peltate scales which (through a lens) appear ciliated. Male flowers divided to the base, segments subovate, obtuse, externally squa-

† In honour of Mr. John Shepherd, curator of the Botanic garden of Liverpool, a scientific horticulturist, through whose exertions and the patronage of the celebrated Roscoe, that institution owes its present merit.

mose like the leaves; filaments 8, very short, pubescent; anthers oblong, 2-celled. Female flowers smaller, shortly pedunculate, without any glands or vestiges of stamina. Style 1. Stigma thick and oblique. Germ inferior. Berries small and collected into clusters, red and succulent, sparingly scattered with scales, always more or less acid. Seed subovate and shining, much like that of *Hippophae*, to which this genus is proximately allied. HAB. On the banks of the Missouri and the lesser streams, from the confluence of the river Platte to the sources of the Missouri. It is the plant which produces what the natives call the "Rabbit Berry" according to the narrative of Lewis and Clarke.

2. *canadensis.* Leaves oblong-ovate, above nearly smooth, beneath stellately pilose and scaly, scales ferruginous, deciduous. *Hippophae canadensis*, Willd. sp. pl. 4. p. 744. PH. 1. p. 115. HAB. On the borders of the lakes in the western parts of the state of New York, in Canada and along the St. Lawrence to its sources. A shrub about 6 or 8 feet high, with all the characters of the preceding. Berries squamose, sweetish, but scarcely edible. Stamens 8.—A North American genus.

ORDER IX.—ENNEANDRIA.

799. HYDROCHARIS. *L.* (Frog-bit.)

MASC. *Spathe* 2-leaved. *Calix* 3-parted. *Corolla* of 3 petals; 3 abortive styles. FEM. Flower as the male. *Stigmas* 6, bifid. Infertile filaments 3; also 3 nectariferous glands. *Capsule* 6-celled, many-seeded, inferior.

Floating aquatics with creeping nodose stems, nodes producing leaves and flowers; leaves sheathing and fasciculated; flowers pedunculate, white. Anthers (in *H. Morsus ranæ*) adnate above the middle of the filaments.

SPECIES. 1. H. **cordifolia.* Monoicous; leaves cordate-ovate; capsule mostly 8 or 9-celled. *H. spongia*, Bosc. Annales du Museum. 9. p. 396. t. 30. An incorrect and exaggerated figure. In the leaves of this plant, which grows in abundance round Savannah, I have not been able to meet with any process of a spongy or extraordinary nature, as figured by Bosc. The leave are 5-nerved, and nearly of the form and texture of Alisma plan-

tago. Are the stamina also really monadelphous? and 8 to 12? "alternated upon an axis forked at its summit!" Obs. Seeds hirsute; capsules globose and recurved. Radicles pubescent.

800. * UDORA. Elodea. *Michaux.*

Spathe bifid.—Masc. *Calix* 3-parted. *Corolla* of 3 petals. *Stamina* 9, 3 of them interior. Fem. *Calix* 3-parted, tube very long. *Petals* 3. Sterile filaments 3. *Utriculus* about 3-seeded. *Seeds* cylindric.

A submersed aquatic; roots fixed; stem diffusely dichotomous; leaves entire, verticillated in 3s and 4s; flowers axillary, very small and evanescent, the female emerging; the male migratory, breaking off connection usually with the parent plant, it instantly expands to the light, the anthers also burst with elasticity and the granular pollen vaguely floats upon the surface of the water. Grains of pollen didymous, or 4-lobed, lobes nearly spherical. Gemmule of the seed inverted.

U. canadensis. Leaves verticillate in 3s and 4s; oblong-linear, minutely subserrulate, partly obtuse.

Elodea canadensis. Mich. *Serpicula verticillata.* Muhl. Catal. p. 84. S. *occidentalis.* Pii. 1. p. 33. Hab. In still waters, from Canada to Virginia. The plant without flowers resembles an aquatic moss (such as *Tetraphis pellucida.*) Utriculus 1-celled, conic. Tube of the calix filiform, 4 to 12 inches long. For a figure of the seed of this genus, which appears to hold an intermediate station betwixt *Vallisneria* and *Hydrocharis*, see Annales du Museum, 17. p. 232. t. 1. f. 30. Flowers scarcely larger than those of a Jungermannia; petals of the male flower ligulate-spathulate; stigmas of the female 3, ligulate, reflected and bifid, partly crested.

Serpicula verticillata of Roxburg, is probably a second species of this very distinct genus.

Order X.—DECANDRIA.

101. CARICA. *L.* (Papaw Tree.)

Masc. *Calix* scarcely any. *Corolla* 5-cleft, funnelform. *Filaments* in the tube of the corol-

la, alternately shorter. FEM. *Calix* 5-toothed. *Corolla* of 5 petals. *Stigmas* 5. *Berry* grooved, (Cucumber form) 1-celled, many-seeded.

Lactescent comose trees, trunk mostly undivided, spinose or rough with the vestiges of rejected leaves; leaves terminally crowded, alternate and long pedunculate, palmate or rarely digitate; flowers axillary, the masculine racemose and pendulous or erect and corymbose, female ones fewer; fruit of *C. Papaya* sweet and esculent.

SPECIES. 1. C. *Papaya*. HAB. In Florida.—A genus of 5 species indigenous to tropical America.

802. **GYMNOCLADUS.** *Lamark.* (Coffee-Bean Tree.)

MASC. *Calix* tubular, 5-cleft. *Corolla* of 5 petals. FEM. Flower as the male. *Style* 1. *Legume* 1-celled, internally somewhat pulpy. *Seeds* roundish, large and indurated.

A tree with naked branches; leaves partly terminal, very large and bipinnate; flowers racemose, erect; legume also large and thick; beans lenticular, extremely hard and edible.

SPECIES. 1. G. *canadensis*. The only species of the genus.

ORDER XI.—POLYANDRIA.

803. **DATISCA.** *L.* (Bastard Hemp.)

MASC. *Calix* 5-leaved. *Corolla* none. *Anthers* sessile, oblong, about 15. FEM. *Calix* bidentate. *Corolla* none. *Styles* 3, bifid. *Capsule* triangular, 3-horned, 1-celled, pervious, many-seeded, inferior.

Herbaceous; leaves alternate, unequally pinnate; flowers axillary, erectly racemose, unibracteate.

SPECIES. 1. D. *hirta*.† Of this genus there is another species indigenous to Crete.

804. MENISPERMUM. *L.* (Moonseed.)

Masc. *Calix* subbibracteate, about 6-leaved, caducous. *Petals* 6 to 9, glandular, minute and retuse. *Stamina* 16, or 18 to 24. *Anthers* adnate to the filaments, 4-lobed, 2-celled. **Fem.** Flower as the male. *Germs* and styles 3 to 6. *Drupes* mostly solitary, 1-seeded. *Nut* lunate, compressed.

Twining shrubs; leaves alternate, simple, often excentrically peltate or roundly cordate; flowers axillary, in racemose panicles, small, and unibracteate; fruit red or dark purple and pruinose.

Species. 1. M. *canadense.* Pluk. Phyt. t. 36. f. 2. 2. *virginicum.* 3. *Lyoni.* Ph.

A genus of about 24 species almost exclusively indigenous to India, there are also 3 species in Japan, 1 in Arabia Felix, and 1 in Guianne. *M. canadense* is also found in Siberia. The berries of some of the species possess the property of intoxicating fish and birds, while those of the *Cebatha* of Forskall are said to be esculent.

805. ZAMIA. *L.*

Ament strobiliform.—**Masc.** *Calix* consisting of obovate scales. *Corolla* none. *Anthers* globose, sessile upon the scales, opening by a fissure. **Fem.** *Calix* peltate scales. *Corolla* none. *Germs* 2. *Styles* none. Berries 2, 1-seeded.

Caudex mostly shrubby, summit comose; leaves alternate, sheathing, pinnate; cones between the terminal leaves, the female ones large and simple, the masculine smaller and many together.

Species. 1. Z. *integrifolia.* **Obs.** Root a somewhat spherical coated tuber, the farina of which after lixivation, is said to be wholesome and esculent. This is another of the roots called Tuckahoe (or bread) by the aborigines.

A genus of about 14 species indigenous to India, tropical America and the Cape of Good Hope, there is also 1 species very abundant in New Holland, the berries of which are very acrid and poisonous.

ORDER XII.—MONADELPHIA.

306. JUNIPERUS. *L.* (Juniper.)

MASC. *Ament* ovate. *Calix* consisting of scales. *Stamina* 3. FEM. *Calix* 3-parted. *Petals* 3? *Styles* 3. *Berry* 1 or 2-seeded, tubercular. *Seeds* nuciform.

Arborescent, shrubby or suffruticose, branches mostly alternate; leaves opposite, or verticillated in 3s or 4s, imbricated or spreading, pungently acute or partly obtuse; aments terminal, or with the berries axillary.

SPECIES. 1. J. *communis.* (Common Juniper.) *v. v.* On the sandy shores of lake Huron, abundant. 2. *virginiana.* (Red Cedar.) HAB. From Canada to Florida, and on the banks of the Missisippi and Missouri to their sources. OBS. Younger leaves spreading, the older ones only imbricated. 3. **repens.* Stem prostrate, repent; leaves pungent, imbricated by 4s; berries large and conspicuously tubercular. *J. prostrata?* Persoon, 2. p. 632. HAB. On the sandy shores of lake Huron, and also on the high hills of the Missouri, near Fort Mandan. A species sufficiently distinct and remarkable; never rising from the surface of the ground, its diffuse branches produce a dense and verdant carpet. 4. *Sabina.* (Savin.) 5. *excelsa.* Indigenous to Siberia and the sources of the Missouri. 6. *barbadensis.* In Florida.

A genus of about 15 species, principally indigenous to North America as far as the tropic, also to Europe the Levant and Northern Asia.

307. TAXUS. *L.* (Yew Tree.)

MASC. *Calix* consisting of 4 to 6 oppositely imbricated scales. *Corolla* none. *Staminiferous column* 5?-cleft at the summit; *anthers* peltate, 6 to 8-lobed. FEM. *Style* none. *Receptacle* cup-shaped, succulent. *Nut* ovate, naked.

Trees or shrubs with alternate branches; leaves alternate, linear and sempervirent, mostly distichal; flower buds solitary and axillary; berry imperfect, in the form of a cup supporting the seed.

Species. 1. T. *canadensis*. *v. v.* In the western parts of the state of New York. Obs. Roots creeping; stems only from 1 to 2 feet high. 2. *baccata?* on the islands of Lake Huron, near to Michilimakinak.

A genus of 9 species, of which there are 3 in Japan, 3 at the Cape of Good Hope, 1 in Europe, 1 in the mountains of Peru and Mexico, and 1 in the United States.

Class XXI.—CRYPTOGAMIA.

808. **EQUISETUM.** *L.* (Horse-tail, Shave-grass.)

Floral receptacles peltate, many angled, collected into a spike. *Indusium* corniculate. *Stamina* 4. *Style* none. *Seed* 1.

Herbaceous and leafless plants with fistulous striated stems which are either simple or branched, ramuli mostly verticillated,—articulated, joints surrounded with dentated sheathes. The vernal flowering stems, for the most part, quickly perishing are succeeded by others which are barren and more durable.

Species. 1. E. *arvense.* 2. *sylvaticum.* 3. *uliginosum.* 4. *palustre.* 5. *scirpoides.* 6. *hyemale.* (Shave-grass). Very abundant on the banks of the Missouri below the Platte, and called "Rushes;" it is found to be injurious to horses which feed upon it for any considerable length of time.

A genus principally indigenous to Europe.

809. **LYCOPODIUM.** *L.* (Club-moss.)

Capsules reniform, 1-celled, 2-valved, many-seeded. *Seeds* very minute, resembling powder.

Herbaceous and branched, repent or erect; leaves imbricated and often spreading or distichal, sempervirent; spikes simple or dichotomous, sessile or pedunculate, terminal or axillary. Seed inflammable.

Species. 1. L. *carolinianum.* 2. *clavatum.* 3. *tristachyum*, Ph. Nearly allied to the preceding, but with the leaves entire, and not serrate as in No. 2. 4. *complanatum.* 5. *sabinæfolium.* 6. *dendroideum.* (Ground Pine.) 7. *annotinum.* 8. *inundatum.* 9. *alopecuroides.* 10. *selaginoides.* 11. *rupestre.* 12. *albidulum.* A mere variety of the following? 13. *apodum.* 14. *lucidulum.*

810. **PSILOTUM.** *Swartz.* **BERNHARDIA.** *Willd.*

Capsules 3-grained, 3-celled; cells opening above, semibivalve.

Stem naked and dichotomous, the branches triquetrous; fructification in spikes.

SPECIES. P. *triquetrum.* HAB. In Florida, indigenous also to New Holland. Allied to *Lycopodium.*

811. **OPHIOGLOSSUM.** *L.* (Adder's-tongue.)

Capsules naked, 1-celled, connate in an articulated distichal spike, 2-valved, opening transversely.

Plants consisting of a single radical nerveless and complanate leaf, emitting for the most part a simple pedunculated spike.

SPECIES. 1. O. *vulgatum?* Frond oblong-ovate, obtuse, closely reticulated. Probably distinct from the European species. 2. *bulbosum.* 3. * *pusillum.* Spike cauline; frond cordate, acute; root HAB. On the margins of ponds, in South Carolina. Scarcely ever more than an inch high.

812. **BOTRYCHIUM.** *Swartz.* (Moonwort.)

Capsules subglobose adnate to the rachis of the compound raceme, separate, naked, 1-celled, valves 2, connected behind, opening transversely.

Frond solitary, ternately decompounded, (or in *B. Lunaria* simply pseudopinnate,) adnate to the scape.

SPECIES. 1. B. *fumarioides.* 2. *obliquum.* Pluk. Mant. 120. t. 427. f. 7. 3. *dissectum.* 4. *virginicum.* 5. *gracile.*

813. **LYGODIUM.** *Swartz.* (Snake's-tongue.)

Spikes unilateral. *Capsules* in 2 series, opening on the inner side from the base to the summit. *Indusium* (or veil) squamiform, covering each capsule.

Stems twining; fronds pinnate or conjugate, leaflets cordate, entire or lobed; spikelets paniculate.

SPECIES. 1. L. *palmatum.* HAB. In thickets on the swampy margins of small water courses from New Jersey

to Carolina; rare. (*v. v.* Near Hyde's Town, New Jersey; near Atsion, Z. Collins, Esqr.)

The other species of this genus are indigenous to the West Indies.

814. SCHIZÆA. *Smith.*

Spikes unilateral, flabellate, aggregate. *Capsules* radiately striated at the summit, subturbinate, partly opening by an oblong lateral pore. *Indusium* continuous, formed from the inflected margin of the spikes.

Fronds simple, and linear, or dichotomously divided.

Species. 1. S. *pusilla.* Ph. First detected by Doctor Eddy of New York.

Of this genus there are 9 other species, 6 indigenous to New Holland or India, 1 to the Cape of Good and 2 to the tropical parts of America.

815. OSMUNDA. *L.* (Flowering Fern.)

Capsules subglobose, pedicellate, striate, semibivalvular and paniculated. *Indusium* none.

Fructification terminal and paniculate, or forming a distinct or interrupted frond similar to that which is infertile.

Species. 1. O. *cinnamomea.* 2. *Claytoniana.* 3. *interrupta.* 4. *spectabilis.* Scarcely distinct from *O. regalis* of Europe.

Of this genus, besides the above, there is 1 species in Europe, 2 in Japan, and 1 indigenous in common to the Cape of Good Hope and New Holland.

816. ACROSTICHUM. *L.*

Capsules scattered, occupying the whole or a part of the under surface of the frond. *Indusium* none.

Frond simple or compound.

Species. 1. A. *aureum.* Hab. In Florida.

817. POLYPODIUM. *L.* (Polypody.)

Sori (or small clusters of capsules) roundish, scattered. *Indusium* none.

Fronds simple, pinnatifid, or more or less numerously compounded.

SPECIES. 1. P. *vulgare*. 2. *virginianum*. 3. *incanum*. Pluk. Phyt. t. 289. f. 1. 4. *hexagonopterum*. 5. *connectile*. 6. *calcareum*.

318. WOODSIA. *R. Brown.*

Sori roundish, scattered. *Indusium* caliciform, open, with a crinite margin, including the pedicellate *capsules*.

Habit that of the preceding genus.

SPECIES. 1. W. *hyperborea*. 2. *ilvensis*. Both species also indigenous to Europe.

319. ASPIDIUM. *Swartz.* (Shield-fern.)

Sori roundish, scattered. *Indusium* umbilicate or opening on one side.

SPECIES. 1. A. *cicutarium*. 2. *acrostichoides*. 3. *noveboracense*. 4. *Thelypteris*. 5. *cristatum*. 6. *obtusum*. 7. *aculeatum*. 8. *marginale*. 9. *Filix mas*. 10. *intermedium*. 11. *spinulosum*. 12. *dilatatum*. 13. *bulbiferum*. 14. *asplenioides*. 15. *Filix femina*. 16. *angustum*. 17. *punctilobum*. 18. *atomarium*. 19. *tenue*. 20. *rufidulum*.

320. ONOCLEA. *L.* (Sensitive Fern.)

Capsules densely covering the back of the frond. *Indusia* squamiform, connate in the form of berries and not expanding.

Sterile fronds deeply pinnatifid, fertile ones bipinnately divided.

SPECIES. 1. O. *sensibilis*. 2. *obtusilobata*.—A North American genus.

321. STRUTHIOPTERIS. *Willd.*

Capsules densely covering the back of the frond. *Indusia* squamiform, marginal, opening internally.

Nearly allied to the preceding genus. Fronds bipinnatifid.

SPECIES. 1. S. *pennsylvanica*. A genus scarcely distinct

from Onoclea, of which there is another species in Europe.

822. **ASPLENIUM.** *L.* (Spleen-wort.)

Sori linear, transversal, scattered. *Indusia* arising from the lateral veins, and opening towards the rib.

Species. 1. A. *rhizophyllum.* 2. * *pinnatifidum.* Fronds lanceolate, stipitate, pinnatifid, point attenuated, not taking root? lobes roundish ovate; sori larger, at length confluent. Hab. In the crevices of rocks on the banks of the Schuylkill, rare. *v. v.* also in Tennessee; always perfectly distinct from *A. rhizophyllum* to which it was apparently referred by Muhlenberg, Catal. p. 97. the frond is less attenuated, pseudopinnate at the base, the sori occupying nearly the whole disk of the lobes, being also much larger and very prominent.

3. *angustifolium.* Fertile frond separate. 4. *ebeneum.* Hab. From Canada to Florida, also in Louisiana. 5. *melanocaulon.* 6. *thelypteroides.* 7. *Ruta muraria.* 8. *montanum.*

A large genus extending throughout Europe, and North America as far as the West Indies; there are also species in New Zealand.

823. **SCOLOPENDRIUM.** *Smith.* (Hart's-tongue.)

Sori linear, transversal, scattered. *Indusium* double, superficial, occupying either side of the sori, opening almost like a longitudinal fissure.

Frond entire or multifid.

Species. S. *officinarum. v. v.* In the western parts of the state of New York, in the crevices of calcareous rocks, beneath the shade of the Hemlock Spruce (*Abies canadensis,*) and accompanying the *Taxus canadensis* or American Yew.

824. **PTERIS.** *L.* (Brake.)

Sori continuous, linear, marginal. *Indusium* from the inflected margin of the frond, opening inwards.

Species. 1. P. *pedata.* 2. *atropurpurea.* Also indigenous to Louisiana. 3. *gracilis.* 4. *caudata.* 5. *aquilina.*

A genus of near 120 species widely dispersed through both hemispheres, from Siberia to New Holland.

825. VITTARIA. *Smith.*

Sori linear, continued longitudinally along the disk or towards the margin of the frond. *Indusium* double, uninterrupted, the one opening outwards, the other inwards.

Fronds narrow, very long and linear, pendulous.

Species. 1. V. *lineata.* A fern indigenous to Florida and the West Indies.

826. BLECHNUM. *L.*

Sori linear, longitudinal, continued, parallel with the ribs of the frond on either side. *Indusium* superficial, uninterrupted, opening inwards.

Species. 1. B. *boreale.* Also indigenous to Europe. 2. *serrulatum.*

827. WOODWARDIA. *Smith.*

Sori oblong, distinct, straight, parallel with the ribs of the frond on either side. *Indusia* superficial, arched, opening inwards.

Species. 1. W. *Onocleoides.* In New Jersey, near Philadelphia, not uncommon in bushy sphagnose morasses, with the following. Scarcely a congener with *W. virginica.* 2. *virginica.* 3. *thelypteroides.* Pr.

828. ADIANTUM. *L.*

Sori oblong or roundish. *Indusia* membranaceous, arising from the margin of the froud and opening inwards.

Species. 1. A. *pedatum.* Every where throughout the Atlantic and western states.

829. CHEILANTHES. *Swartz.*

Sori punctiform, distinct, and marginal, each covered with a squamiform and marginal *Indusium* opening inwards.

Species. 1. C. *vestita*. *Nephrodium lanosum*. Mich. Fl. Am. 2. p. 270. 2. *dealbata*. Ph. Obs. Fronds 2 or 3 inches high, glaucous green, white and pulverulent on the under side; stipes brown. Hab. In the crevices of rocks on the banks of the Missouri about 50 miles above its confluence; rare. *v. v.*

830. DICKSONIA. *L'Heritier.*

Sori punctiform, marginal, roundish, and distinct. *Indusium* double, one superficial, opening outwards, the other marginal and opening inwards.

Species. 1. D. *pilosiuscula*. Common in Pennsylvania and New Jersey.

A small genus of tropical ferns, consisting of about 16 species of which there is an arborescent species in the island of St. Helena, and another in the South-sea islands.

831. HYMENOPHYLLUM. *Smith.*

Sorus marginal, inserted in a cylindric receptacle. *Indusium* two-valved, including the sorus.

Species. 1. H. *ciliatum*.—A genus of more than 20 species, producing small diaphanous and membranaceous fronds.

832. ISOETES. *L.* (Quill-wort.)

Capsule membranaceous, not opening, 1-celled, immersed in the base of the frond. *Seeds* angular, attached to many filiform receptacles.

Species. 1. *lacustris*. Abundant along the inundated, gravelly and mirey shores of the Delaware, near Philadelphia and other places, also in the state of New York. Obs. Root fibrous, fibres simple, broad and fistulous; fronds dilated and imbricate at the base, narrow and subulate, above flat, beneath angularly convex, each producing 4 fistulous cavities. Fruit monoicous; sori cordate-oval, immersed in a corresponding cavity at the base of the frond, partly bilobed, included in a membranaceous integument connected together by numerous transverse columnar receptacles; male? sorus filled with pulverulent pollen, becoming white on drying; capsules (or seeds) globular, when dry presenting a snow-white pulverulent sur-

face; the summit of each marked with a trifid diverging elevated line.

A genus probably restrained to a single species indigenous also to Europe and India. Size variable, from 2 to 12 inches, growing either immersed or on the margins of clear ponds; color green.

833. SALVINIA. *Micheli. Willd.*

Indusia imbricate, connate, resembling an unilocular capsule. *Seeds?* inserted upon a central receptacle.

Plant floating, small and pubescent; sending out radicles from the joints; leaves opposite, petiolate, distichally disposed, ovate or partly cordate, entire and somewhat coriaceous, green. Fruit globular, in radical clusters which are submersed; flowers? monoicous?

SPECIES. S. *natans.* +

834. AZOLLA. *Lamark.*

Monoicous.—*Masculine?* appendices by pairs, contiguous.—*Indusium* subglobose, resembling an unilocular capsule. Proper *capsules* (seeds, Lamark) numerous, naked, minute.

Minute floating plants, with greenish and very small distichally subimbricated leaves, radicles extra-axillar; utriculi, globose-ovate, axillar; masculine, or infertile processes by pairs contiguous to the fruit.

SPECIES. 1. A. *caroliniana,* (**americana.*) HAB. Throughout the southern and western states, probably to the sources of the Missisippi and Missouri.

Of this genus there are 2 or 3 other species, and one of them indigenous to New Holland, in which species Mr. Brown, in the splendid illustrations to Flinder's voyage, appears to have ascertained, that the supposed capsule of this genus is in fact a true sorus.

THE END.

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ERATUM.

Page 21. No. 32. for VÆGELIA read VOGELIA.

p. 22. after line 8, "Georgia," p. 43, read "Near the margin of sandy ponds, &c." lines 12 and 13.

p. 48. No. 74. for BRUCHMANNIA, read BECKMANNIA, 8 lines from the bottom of the same page, for *mucrone* read *mucro*.

p. 55. No. 81. for ORTHOPOGON *hirtellum*, read *O.* * *parvifolium*, leaves lanceolate, nearly flat; spike compound; spikelets 5 to 8-flowered; awns viscid.

p. 67. No. 26. for *Poa obtusa*, read *P.* * *pennsylvanica*.

p. 69. No. 97. after *Briza canadensis*, read "OBS. Leaves long and scabrous on the margin, stipules truncate, membranaceous; panicle pyramidal, branches pendulous; spikelets ovate, about 7-flowered; calix much smaller than the glume of the corolla; corolla green and obsoletely striate, exterior valve oboval, subacute, interior scarcely smaller, very obtuse. HAB. On the margins of sphagnous swamps, in New Jersey, near Philadelphia, &c. Nearly allied to *Poa obtusa*, Muhl. Gram. Descript. Perhaps not the plant of Michaux. What I had first described for it, appears to be a mere variety of *Poa nervata*, which seems also to be a Briza.

p. 82. No. 114. for "*Calix* 2-valved, 2-flowered," read, *Calix* 2-valved, 2 or 3-flowered.

p. 92. No. 129. for "*Stamina* exserted;" read, *Style* exserted.

p. 114. No. 171. *Batschia longiflora* is *Lithospermum angustifolium* of Herb. Muhl.

p. 158. No. 234. for "intermediate, setæ none," read "intermediate setæ none."

p. 177. for GLYCERIA, (a name already employed for another genus) read, CHONDROCARPUS, so called from the cartilaginous induration of the fruit.

p. 197. (*Atriplex*), 5 lines from the bottom, for "this and the preceding genus," read "this and the following genus."

p. 208. STREPSIA; for "capsule 1-celled," &c. read, Capsule 3-celled, 3-valved, dissepiments marginal.

p. 289. for "313. STELLARIA," read, 413, and add 100 to the following numbers.

VOL. II.—p. 73. (*Cleome*) 13 lines from the top, for "5-leaved," read 4-leaved,—and 10 lines from the bottom of the same page, for "5-toothed" read, 4-toothed.

ADDITIONS.

Page. 4. BLITUM * *maritimum*. Calix membranaceous; clusters axillary, spiked, naked; leaves lanceolate, at either extremity attenuated, incisely toothed. HAB. In the salt-marshes of Long Island, near New York. OBS. Annual; stem erect, 2 or 3 feet high and much branched; leaves thick and succulent, somewhat dilated near the commencement of the petiole; clusters proximate, axillary, not comose; calix 3-parted, not succulent or berry-like, greenish; seed lenticular, vertical, brown and nearly smooth, terminated by a single minute style.

p. 9. LINDERNIA. add 3. * *monticola*. Stem slender and dichotomous; radical leaves spathulate, cauline linear, small and remote; peduncles very long, at length deflected; root perennial. HAB. Near Salem, North Carolina.—Mr. Le Conte. *v. s.* In Herb. Collins and Muhlenberg.

p. 16. HEDEOMA. add 4. * *bracteolata*. Pubescent; stem simple, slender; leaves linear sublanceolate, acute at each extremity, entire; pedicells setaceously bracteolate, 3 to 5-flowered; calix oblong, equal; corolla minute? HAB. In Carolina.—In common with *H. glabra*, allied to *Acynos*.

After No. 28. add—* CRYPTA. *Calix* 2-leaved, inferior. *Corolla* of 2 or 3 petals, closed. *Styles* none; *stigmas* 2 or 3, very minute. *Capsule* 2 or 3-celled, 2 or 3-valved; cells 4 or 5-seeded. *Seeds* subcylindric, striated.

C. *minima*. Journal Acad. Philad. 1. p. 117. t. 6. f. 1. *Peplis americana*, PH. 1. p. 238, and Herb. Muhl.

p. 37. ERIOPHORUM, * *tenellum*. Culm slender and triangular, leafy; spikes pedunculate, nutant, scarcely longer than the involucrum; seed linear. HAB. In the sphagnous swamps of New Jersey; rare. Probably E. *polystachyum*, PH. but a much smaller and very distinct species.—Culm 12 to 18 inches; leaves carinated, very narrow, pungently acute, and scabrous on the margin; spikes 4 or 5; wool white, long and silky.

p. 62. UNALEPSIS *aristulata*. Since the printing of this genus, I have met with this species in considerable abundance, growing in the sands of New Jersey, in various places near the sea coast, and also in the sandy barren lands, about 30 miles east of Philadelphia. It is the plant described for *Aira purpurea* in Muhlenberg's Grasses, p. 86. but perfectly distinct from that of Walter and Elliott. Obs.

ADDITIONS.

Culm erect and mostly simple, numerously jointed, nodes and stipules pilose, leaves subulate and scabrous, above shorter than the sheathes; lateral floral branchlets clandestine, terminal ones partly exserted, spikelets 2 and 3-flowered, with a terminal abortive rudiment; calix glume much shorter than the corolla, partly lacerate at the points; corolla minutely stipitate, margin of the outer glume ciliate, the summit truncate and trifid, with the intermediate awn no longer than the lateral cusps, inner valve incurved, shorter than the outer, producing 2 cristate tufts of pubescence.

p. 74. KOELERIA, * *paniculata.* Panicle oblong, smooth; spikelets 2 and 3-flowered, shining, glumes awnless; valves of the calix very unequal, the larger one truncately obtuse. HAB. Collected in East Florida by my friend Mr. T. Say. Distinctly allied to *Aira cristata* of Smith, Flor. Brit. but a much larger plant. Leaves and sheathes long.

p. 87. ASPERELLA, *(Elymus Hystrix).* The American plant appears to be specifically distinct from that of Europe, having a setaceous rudiment of a calix, and not merely a callosity.

p. 104. RIVINA, add 2. *humilis.* Discovered in East Florida, by Mr. Say.

p. 108. after No. 160, add,—[CUSCUTA. *Calix* 4 to 5-cleft. *Corolla* 4 or 5-cleft. *Capsule* 2-celled, opening transversely all round towards the base. (Stamina often 4.)

Leafless filiform and herbaceous, parasitic and twining upon surrounding plants; flowers conglomerate or rarely racemose.

SPECIES. 1. C. *americana.*—Flowers mostly pentandrous and sessile.

Of this singular genus there are 3 other species in Europe, 2 in Peru, 1 in China, 1 in India, and another at the Cape of Good Hope.]

p. 110. TILLÆA, * *simplex.* Stem erect and simple; leaves connate, oblong-linear and somewhat acute; flowers alternate, sessile; petals erect, twice as long as the calix.—Journal Acad. Philad. 1. p. 114. Omit, T? *cymosa*; for which See DIAMORPHA, p. 293.

p. 112. MYOSOTIS, * *verna.* Small and hirsute; stem simple; radical leaves spathulate-oblong, cauline linear-oblong, obtuse; spikes simple; flowers subsessile; seeds smooth and shining. HAB. In sandy woods and way-sides, New Jer-

sey, &c. Flowering in May. Flowers small and white. *Lycopsis virginica?* Pu.

p. 164. *Cynanchum angustifolium* is the *Lyonia maritima* of Mr. Elliott; but is it sufficiently distinct from this genus?

p. 167. *Asclepias longifolia* and perhaps also *A. viridiflora*, Pu. constitute the genus *Acerates* proposed by Mr. Elliott, and characterised solely by the absence of the arista or little horn, common to the segments of the lepanthium in the other species of *Asclepias*.

p. 170. *Stylandra* is the *Podastigma* of Mr. Elliott, published since the printing of this article.

p. 189. *Œnanthe;*—the American species accord precisely with *Phelandrium* and ought with that species to form a distinct section in the genus. *Œ. filiformis* of Walter now described by Mr Elliott, p. 354, producing both a general and partial involucrum, can scarcely appertain to Œnanthe.

p. 252. after No. 365. add ELLIOTTIA. *Muhlenberg.* *Calix* 4-toothed, inferior. *Corolla* deeply 4-parted. *Stigma* subclavate, entire. *Capsule* 4-celled?

A virgately branching shrub with alternate entire leaves, and flowers in terminal racemes; corolla almost tetrapetalous. A genus nearly allied to Clethra.

p. 270. after No. 386, add SCHWEINITZIA. *Elliott.*—*Calix* 5-leaved, leaflets concave, equal with the corolla. *Corolla* monopetalous, campanulate, border 5-cleft. A 5-cleft *nectarium* at the base of the corolla. *Anthers* adnate to the filaments, 1-celled, opening from the inverted base by 2 naked pores. *Stigma* subglobose, closed, internally 5-cleft. *Capsule* 5-celled? *Seed* . . . .

A small herbaceous, and probably parasitic plant, destitute of proper leaves and verdure, scape squamose; flowers terminally aggregated, sessile, bracteate; bractes large.

Natural Order Monotropeæ, and proximately allied to *Pterospora*. Hab. "In rich shaded woods, in Stokes county, North Carolina." Flowering in February and March. Flowers odorous, reddish-white. v. s. In Herb. Collins.

p. 282. *Baptisia* **leucophæa*, appears to be *B. bracteolata*, of Elliott, p. 469. published since the printing of this article.

Vol. II.—p. 43. Lindernia *tenuifolia*, cultivated by Dr. Ives, germinates with 2 filiformly linear cotyledones. v. s. with Z. Collins, esqr.