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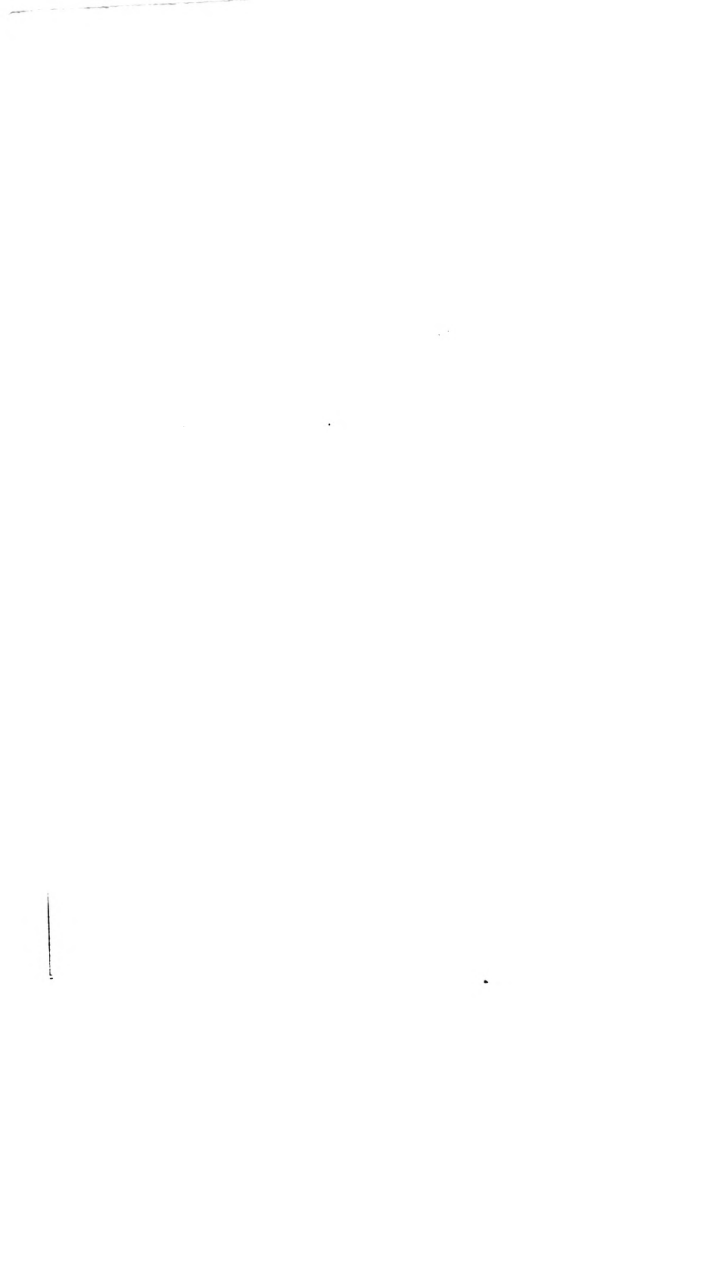
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THE
GENERA
OF
NORTH AMERICAN PLANTS,
AND
A CATALOGUE
OF THE
SPECIES,
TO THE YEAR 1817.

BY THOMAS NUTTALL, F. L. S.

FELLOW OF THE AMERICAN PHILOSOPHICAL SOCIETY,
AND OF THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA, &c.

VOLUME I.

PHILADELPHIA:

PRINTED FOR THE AUTHOR BY D. HEARTT.

1818.

Handwritten scribble

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District of Pennsylvania, to wit:

***** BE IT REMEMBERED, That on the third day of
* SEAL. * April, in the forty-second year of the Independence of
***** the United States of America, A. D. 1818, Thomas Nuttall of the said district, has 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 an act of the congress of the United States, intituled, “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.

TO HIS EXCELLENCY

JOSEPH CORREA DE SERRA,

FELLOW OF THE ROYAL SOCIETY, OF THE NATIONAL IN-
STITUTE OF FRANCE, &C., &C. AND MINISTER OF
H. M. F. M. OF PORTUGAL, BRAZIL AND AL-
GARVES, TO THE UNITED STATES.

SIR,

The active interest which you have ever taken in the promotion of Natural Science, both in Europe and America, and your desire to elevate it to the rank of Philosophy, demands the gratitude of all its votaries, and inspires the feeble acknowledgments of your humble servant, the

AUTHOR.

PREFACE.

A DESIRE to advance the science of Botany by any additional remarks and facts which might be in my possession, connected with an endeavour to instruct the ignorant, in this engaging science, are the motives which have induced the author to the prosecution of a laborious but gratifying task.

How much he has drawn from every popular source of information and thus advanced the merit of this little publication by the labours of others almost every page can testify.

The tacit evidence of Botanists to the accuracy of the prevailing definitions of genera and species, afford, as it were, an almost inviolable sanction to the labours of their authors, and appear to stamp with temerity every attempt at subversion. The limits of genera, however, since the times of Linnæus, reverting in a measure to their former simplicity, have now been greatly reduced, and more particularly so, since Botany, assuming a philosophical character, lays claim to a classification by natural affinities. In this interesting and now prevailing view of the subject, a reduction of heterogenous materials to their natural types, has led the way to the construction of genera better according with the plan of nature.

One of the strongest, and perhaps most important objections urged against these improvements is the confusion which they are innocently the means of introducing

into Botanical nomenclature, and indeed it must be acknowledged that the concussion of revolution whether in science or politics, even to fulfil the most important object, but little accords with our natural desire of harmony. And yet the same love of revolution might also have been urged with equal force against the great Linnæus, who in the zenith of his fame, but seldom spared the labours of his predecessors or contemporaries when they stood in the way of his darling system.

But we are at length inclined to believe, that the last and most perfect of systems, perfect because the uncontaminated gift of Nature, is about to be conferred upon and confirmed by the Botanical world. The great plan of natural affinities, sublime and extensive, eludes the arrogance of solitary individuals, and requires the concert of every Botanist and the exploration of every country towards its completion. Can we deny the perception of a prevailing affinity throughout the vegetable kingdom, and carp at the anomalous character of a few individuals? But even here the science begins to triumph, when we perceive that the anomalies diminish by the accession of objects.

* * * *

Whatever might have been my impression in favour of the system of arrangement by affinities, the convenience and prevalence of the artificial system of Linnæus, still almost exclusively taught throughout the United States, rendered some deference to public opinion due from the author of a treatise like the present, addressed merely to those who read the English language.

A considerable portion of new matter is also introduced, which ought perhaps rather to have been addressed to the world through the medium of the universal language of natural science, yet in conformity to the principal intention of the work, and in compliance with the public to whom it is addressed, an uniform language appeared necessary.

It will readily be perceived that a Synopsis of the Genera is what is chiefly intended by the present publication. And to assist the student more fully in the knowledge of genera, the essential character has sometimes been extended, after the manner of the celebrated Sprengel's recent Introduction to the Study of Botany. I have also considered it of importance to give a sketch of the habit or mode of vegetation assumed by the generic group in imitation of Jussieu's *Genera Plantarum*, from which important assistance on this subject has been perpetually derived throughout the work.

A view of the Geographical distribution of each genus is also added, not always perhaps sufficiently accurate for the existing state of the science, and the rapid progress of modern discovery.

A brief Catalogue of the species is offered, which may be considered as supplementary to the recent and extensive *Flora of North America* by Frederick Pursh. Occasional remarks are added, and new species also proposed and introduced, the result of personal collections and observations made from the year 1809 to the present time, throughout most of the states and territories composing the Union.

To the names of species or genera proposed by the author, will be found an asterisk (*) prefixed. To a

very few obscure species is added the following mark. (+) *v. v.* Occasionally added, signifies that such plant had been seen alive by the author. And *v. s.* In a dried state.

Anxious to restrain the limits of this publication within the bounds of a portable manual for the student, and to confine myself as much as possible within the sphere of actual observation, the lower orders of Cryptogamia, now becoming a partial and particular study, have been omitted, and the rather as they have been minutely attended to by Z. Collins, Esq. and the late Dr. Muhlenberg in his *Flora Lancastriensis*, which will shortly be published.

Philadelphia, }
May 27th, 1818. }

CLASS I.—MONANDRIA.

Order 1.—MONOGYNIA.

1. CANNA. *Linnaeus*. (Indian-shot, Flowering Reed.)

Calix double; *exterior* short, trifid, persistent; *interior* (corolla. *Lin.*) 6-parted; 5 of the divisions erect, the 6th reflected. *Staminiferous filament* (nectary *L.*) petaloid, 2-lobed, the superior lobe bearing the anther. *Style* also resembling a petal, ensiform, growing to the tube of the inner petaloid calyx. *Capsule* mariccate, 3-celled, many-seeded; *seeds* globular.

HABITUS. Flowers produced in loose terminal leafy panicles.

SPECIES IN NORTH AMERICA. 1. *C. angustifolia?* (doubtful.) 2. *flaccida*. In Carolina and Georgia

OBSERVATION. A genus of the order *Scitamineæ* of LINNÆUS, the *Cannæ* of *Jussieu*, with splendid flowers, existing chiefly within the tropics. Most of the species known have been found in the two continents of America. The divisions of the inner or petaloid calyx vary in form and magnitude; in the *Canna flaccida* of Carolina and Georgia the 6 segments are all reflected,—the 3 exterior lanceolate,—the 2 inner obovate, and undulated, the 6th or innermost lamina largest, expanding circularly, undulated, and nearly round.

2. THALIA. *Lin.*

Calix double; *exterior* small 3-leaved; *interior* deeply 5-parted (5-petalled, *Persoon*) the 2 interior divisions usually smaller. *Anther* simple, ovate, attached to its proper filament. *Style* short, deflected from the anther. *Stigma* rin-

gent and perforate. *Capsule* 1-celled, 1 or 2 seeded.

HABITUS. Flowers produced in a scattered flexuose panicle, which is either terminal or radical, singly, or by pairs in spathaceous 2-valved bractes.

SPECIES. 1. *T? dealbata*, in South Carolina and Georgia (scarce.)

OBSERVATION. With all that has been done in arranging the *Scitaminceæ* by the celebrated Mr. Roscoe, there still appears to prevail some confusion in this order, which perhaps their various individual structure has been a principal means of retaining. The present plant exhibits several anomalies, considered as a genuine species of *Thalia*. Jussieu and Persoon, describe the *Thalia* of *Linnaeus* as having a deeply divided petaloid calix, or 5-petalled corolla. The *T. dealbata*, and the *T. canneformis*, 2 of the 3 known species, have a 6-parted petaloid calix. Jussieu also describes this genus as producing a drupe with a 2-seeded nut, or rarely (by abortion?) 1-seeded. Persoon likewise speaks of this genus as having a drupe with a 1-celled nut. Mr. Roscoe describes the *Thalia* with a 2-celled capsule; according to Mr. Elliott† the present species produces a globose 1-celled capsule? or flexible shelled nut, if such a phrase can be admitted.

3. SALICORNIA. L. (Glass-wort.)

Calix 3 or 4-sided, somewhat ventricose, entire. *Corolla* 0. *Stamina* 1 or 2. *Style* bifid; *stigmata* 2; *seed* 1, covered by the inflated calix.

HABITUS. Stem herbaceous or suffruticose, generally destitute of leaves; branching, branches opposite, round, and articulations bidentate above; terminal branches flower-bearing; flosculi minute and sessile, growing in threes. (The habit of this genus is similar to that of the *Gnetum*, a tree of India.)

SPECIES. 1. *S. herbacea*. 2. *virginica?* 3. *ambigua*. Near the sea-coast.—Sometimes burnt for soda, and also preserved in vinegar as an aliment.

OBS. Mr. Elliott observed 2 stamens in the *S. herbacea* and the *S. ambigua*, which corroborates the remarks of Jussieu made in Europe. Desfontaines in his *Flora At-*

† See his "Sketch of the Botany of South Carolina and Georgia," p. 2.

lantica, p. 2. observes also that there are 1 or 2 stamens in this genus.

4. HIPPURIS. L. (Mare's-tail.)

Calix obsolete, entire, above the seed. *Corolla* 0. *Style* received in a groove of the anther! (stamen seated upon the style?) *Stigma* simple. *Seed* 1.

HABITUS. Stem cylindric, simple; leaves verticillate, entire; flowers around the axill.

SPECIES. 1. *H. vulgaris*? but the leaves are mostly by sixes in the European plant, not by eights (in fresh water ponds and ditches; rare). The *H. maritima* of Sweden and Finland grows on the sea-coast.

OBS. The Hippuris appears to be the simplest phanogamous plant in nature; and stands without any distinct affinities to other genera.

Order 2.—DIGYNIA.

5. CALLITRICHE. L. (Water-star.)

Calix inferior, 2-leaved. *Corolla* 0. *Seeds* 4, naked, compressed.

Leaves opposite, flowers axillary, (in *C. verna* monocous.)

SPECIES. 1. *C. verna*. 2. *autumnalis*? The *C. verna* is remarkably polymorphous, the leaves vary from the places where they grow; sometimes it produces 2 stamens, and in some instances the flowers are hermaphrodite. The leaves of the calix are described by Desfontaines as being concave, and lunate, with the filament as long as the calyx; in the American plant, (*C. heterophylla* of Pursh,) the stem is compressed, and bifistulous, for floating; the lower branches with narrower and often emarginated leaves, producing only male or female flowers, the central branches with retuse, spatulate oval, 3-nerved leaves, bearing those which are hermaphrodite, with the stamens much exerted.

6. CORISPERMUM. L. (Tick-seed.)

Calix 2-parted. *Corolla* 0. *Seed* 1, plano-convex, oval, and naked, with an acute circular margin.

Flowers axillary, solitary, sessile, commencing near the summit of the branches, upper flowers monandrous, lower ones, sometimes with 2, 3, 4 or 5 stamens!

SPECIES. 1. *C. Hyssopifolium*. * β . *Americanum*, spikes approximating, axillary and terminal, squarrose; leaves linear, narrow, and nervose, with a subulate mucronulate point.

On the sandy alluvions of the Missouri; apparently propagated down the river Platte, as it ceases to be found above the confluence of that river. ☉. July v. v.

OBS. The spontaneous plant, generally smooth, under culture somewhat tomentose, the pubescence, through a lens, stipitate, multifid; stem striate, herbaceous, calycine squamæ rhomboid-ovate, acuminate, gradually shorter; hypogynous scales chaffy, minute, eroded.

7. BLITUM. *L.* (Strawberry-spinage.)

Calix 3-parted. *Corolla* 0. *Seed* 1, covered by the calix, which enlarges and generally becomes a berry.

Flowers and berries in capitate clusters; the capituli resembling strawberries, and are both terminal and axillary.

SPECIES. 1. *B. capitatum*. A doubtful native. 2.* *Chenopodioides?* Leaves almost hastate-triangular, somewhat dentate, at either end attenuate; glomeruli all axillary, leafy; seeds distinct, punctate, not berried.

HAB On arid soils near the banks of the Missouri. ☉.

OBS. Stem erect, virgate; seeds naked, imbricated, surrounded by a few linear leaves longer than the seed; proper calix, apparently none, style 1, deeply bifid. *Seed* coated, covered with impressed punctures, oboval, slightly margined, beneath the outer envelope dark brown, a little rugose, emarginate below. *Corculum* curved round the perisperm, parallel with the margin of the seed; *perisperm* partly farinaceous and partly corneous.

CLASS II.—DIANDRIA.

Order I.—MONOGYNIA.

A. *Corolla inferior.*

† *Fruit a drupe or nut.*

8. OLEA. L. (Olive.)

Calix small, 4-toothed; tube of the *corolla* short, border 4-cleft, lamina more or less ovate. Lobes of the *stigma* emarginate. *Drupe* 2-seeded; one of the seeds usually abortive.†

Leaves evergreen, very rarely alternate; flowers racemose or paniculate, axillary or terminal, in *O. fragrans* the flowers simply aggregate.

SPECIES. 1. *O. Americana*. Flowers dioicous. Grows near the sea-coast. Fruit acerb.

9. CHIONANTHUS. L. (Fringe-tree.)

Calix 4-parted. *Corolla* deeply 4-parted, lamina long and linear. *Anthers* nearly sessile on the tube. *Drupe* 1-seeded. *Nut* striated.

Small trees with simple leaves, flowers resembling those of the *Ornus*, paniced, or more rarely corymbose; panicles sometimes bracteate, axillary and terminal, trifid, or trichotomous, sometimes triandrous. Fruit and flowers pendulous.

SPECIES. 1. *C. Virginica* Most abundant near the sea-coast, where it arrives at a considerable magnitude. Near Port Elizabeth, New-Jersey, my friend, Z. Collins, esq. saw a tree of the *Chionanthus* near 30 feet high. *Persoon* remarks that the *corolla* of this species varies from 4, 5, to 6 cleft, and with 4 stamens!

† Nut bilocular, one of the cells often obliterated. GERTNER.

10. ORNUS. *Persoon.* (Flowering-ash.)

Calix 4-parted. *Corolla* 4-parted; petals long and ligulate. *Filaments* long. *Nut* winged.

A tree with opposite, and unequally pinnated leaves, (like the *Ash* to which it is nearly related.) Flowers in terminal panicles.

SPECIES. 1 *O. Americana*, (scarce) not very distinct from the *Ornus Europea*, (or *Fraxinus ornus* of LIN.)

† *Fruit* a capsule. *Corolla* monopetalous, irregular.

11. VERONICA. *L.* (Speedwell.)

Calix 4-parted. *Corolla* rotate, 4-lobed, unequal, the lower segment narrower. *Capsule* 2-celled, obcordate; *seeds* few.

Herbaceous, or more rarely suffruticose; many species have opposite and sometimes ternate leaves, rarely entire, mostly crenate, toothed or deeply serrate, also pinnatifid or rarely digitately divided; flowers in spikes or corymbose racemes, which are either axillary or terminal: a smaller number of species have alternate leaves, and solitary axillary flowers; very rarely the calix is 5-parted. In the *V. rotundifolia* of Peru the flowers are sometimes 5-cleft, with 4 stamina; in the *V. nudicaulis* of the European Alps the capsule is ovate and entire!

A genus chiefly confined to Europe, many of the species are entirely alpine, others have become naturalized throughout that continent, in Northern Asia, and now profusely spread over North America. A single anomalous species is described as growing in Peru. The *V. decussata* of Linnæus, discovered by Commerson at the straits of Magellan, a shrub with evergreen leaves called *Hebe* by the discoverer, and described by Jussieu with an ovate capsule, can scarcely be conceived as a legitimate species of *Veronica*. 5 other species of this genus were discovered in New-Zealand by Forster.

SPECIES. 1. *V. officinalis*. 2. **reniformis*. 3. *serpillifolia*. 4. *Beccabunga*. 5. *Annagallis*. 6. *scutellata*.—(Peduncles 1-flowered)—7. *agrestis*. 8. *arvensis*. 9. *peregrina*. As yet there has not been a single genuine species of this genus discovered in N. America that is not also common to Europe and Northern Asia, if we except the *V. reniformis* of Pursh, which if distinct, may probably also exist in Siberia. Of the 9 species here enumerated, Nos. 1, 3, 7, 8, and

9, are merely naturalized, the rest natives, common to Europe and America.

12. * LEPTANDRA. (*Veronica Virginica*, L.)

Calix 5-parted, segments acuminate. *Corolla* tubular-campanulate, border 4-lobed, a little ringent, unequal, the lower lamina narrower. *Stamina* and at length the *pistillum* much exerted; *filaments* below, and tube of the corolla pubescent. *Capsule* ovate, acuminate, 2-celled, many-seeded, opening at the summit?

Natural Order.—ANTIRRHINEÆ.

Root perennial; stem angular, (sometimes pentangular) tall. Leaves verticillate in 4s, 5s, and 6s, never simply opposite or ternate. Flowers in very long and dense spikes; spikes aggregate, nearly terminal. *Calix* 5-parted. *Flowers* tubular, somewhat campanulate, pubescent within; border 4-lobed, the upper lobe somewhat laterally deflected towards the filaments of the stamina, the three lower lobes connivent, the central division narrower. *Stamina* exerted, regarding the upper lobe of the corolla, the lower part of the filaments pubescent, at length divaricate; *anthers* cordate-oblong, 2-celled. *Style* at first shorter than the stamens, persistent on the fruit, and then exerted longer than the stamens; *stigma* somewhat capitate, flat, perfectly entire. *Capsule* ovate, acuminate, a little compressed at the summit, with 2 marginal nerves contrary to the dissepiment, valves with inflected margins contiguous to the seminal placenta, which occupies the place of a dissepiment, valves 2, only opening about half way down; *seeds* numerous, ovate?

From this examination it will be evident that the present plant does not appertain to the same order as *Veronica*, but arranges directly with the ANTIRRHINEÆ and immediately before the genus *Pæderota*, from which it is readily distinguished both by habit and character, not having a distinctly labiated corolla. In *Pæderota* also, the corolla is somewhat rotate, the upper lobe generally emarginate, the filaments shorter than the corolla, and the anthers converging as in many didynamous flowers.

SPECIES. 1. *L. virginica*, (common also to Japan, or more probably a distinct species of the same genus. A variety

of this plant mentioned by Mr. Pursh, Vol. 1. p. 10. with purple flowers, may perhaps prove distinct. There is another species called *Veronica Sibirica*, inhabiting Dauria, in which the stamina and pistillum are double the length of the corolla.

13. MICRANTHEMUM. *Michaux.* GLOBIFERA. *Gmelin.*

Calix 4-parted. *Corolla* 4-parted, almost bilabiate; the upper lamina smaller than the rest. *Filaments* incurved, shorter than the corolla, (appendiculate at the base?) *Capsule* nearly globular, 1-celled, 2-valved, many-seeded. *Seeds* striate.

Small, subaquatic, herbaceous plants, with filiform creeping stems; very small, solitary, axillary flowers, alternately disposed; with opposite, entire and somewhat orbicular leaves, longitudinally nerved. (A North American genus.)

SPECIES. 1. *M. orbiculatum*. 2. **emarginatum*. Leaves larger, oval or obovate, somewhat emarginate, flowers sessile. ELLIOTT.

OBS. This genus has considerable affinity to *Centunculus*, but the capsule does not divide hemispherically, and it belongs to a distinct Natural Order.

14. GRATIOLA. *L.* (Hedge-hyssop.)

Calix 5-parted, often bi-bracteate at the base. *Corolla* tubulose, resupinate, and sub-bilabiate; the upper lip, 2-lobed or emarginate; the lower 3-cleft and equal. *Filaments* 4,—2 fertile, the other 2, for the most part, sterile. *Stigma* 2-lobed, or bi-labiate. *Capsule* ovate, 2-celled, 2-valved, many-seeded. *Dissepiment* contrary to the valves.

Herbaceous, leaves opposite; peduncles solitary, axillary, 1-flowered. Character drawn from *G. officinalis*. In *Monniera*, now a distinct genus, the corolla is nearly equal, and the dissepiment parallel with the valves. In some of the species, (as the *G. sphaerocarpa* and the *G. aurea* of Mr. Elliot, the 2 barren filaments are wanting; and in the *G. megalocarpa* of E. as well as the *G.*

sphaerocarpa, the capsule is nearly globular; moreover, the *G. acuminata* has 4 fertile stamens!

SPECIES. § 1. with 2 bractes at the base of the calix.—1. *G. virginica*. 2. *aurea*. 3. *pilosa*. 4. *sphaerocarpa*—§ 2. without bractes.—5. *quadridentata*. 6. *acuminata*. 7. *tetragona*. 8. *megalocarpa*.

Obs. Of 22 species of this genus now described, 8 are natives of the United States.—1 of Europe, nearly allied to the *G. aurea* and *G. virginica*.—1 in Peru.—2 in the West Indies, and 10 in India. A majority of the North American species are confined to the warmer states; so that the genus *Gratiola*, almost equally divided betwixt India and North America, originates apparently within the tropics, and in the latter continent extends chiefly to the 40th degree of north latitude.

15. LINDERNIA. L.

Calix 5-parted, nearly equal. *Corolla* tubulose, bi-labiate; *upper* lip short, emarginate; *lower* trifold, unequal. *Filaments* 4, the 2 longer forked, and sterile. *Stigma* bilamellate. *Capsule* 2-celled, 2-valved; seminiferous dissepiment parallel with the valves.

Herbaceous plants with opposite leaves, and generally solitary, axillary flowers, greatly resembling the preceding genus, to which it is very closely allied; though well distinguished by having 2 of the filaments bifid and for the most part sterile, except perhaps in the *L. Pyxidaria* the Linnæan type of the genus, which is described as having the 2 inferior filaments terminated by a tooth or process passing beyond the anther which is almost laterally inserted (or more probably situated upon another shorter stipe.) The *Lindernia* is also distinguished from the preceding genus by its parallel dissepiment. There is indeed already a *L. dianthera*, discovered by Swartz in the West Indies; and Mr. Elliott remarks that there are only 2 anthers in the *L. dilatata* and *L. attenuata* of Mühlenburgh's Catalogue, and that in the latter species the infertile filaments are villous. Besides these, there is another species; viz. the *L. monticola* of the hills of New Hampshire.

Obs. The genus *Lindernia*, except the *L. Pyxidaria* of Europe, appears entirely confined to North America. The *L. Japonica* of Thunberg, described as having terminal racemes, cannot certainly appertain to this genus. The

genus *Lindernia* extends from the mountains of New Hampshire to the West India islands.

16. **CATALPA.** *Jussieu.* **BIGNONIA** *Catalpa.* **LIN.**
(Catalpa-tree.)

Calix 2-parted. *Corolla* campanulate, tube ventricose, border 4-lobed, unequal. *Stamina* 2, fertile, filaments 3, sterile. *Stigma* bilamellate. *Capsule* siliquæform, long, cylindric, 2-valved; *Dissepiment* opposite to the valves. *Seed* membranaceously margined and tufted at the extremities.

Trees with simple leaves, verticillate in threes; flowers paniculate.

SPECIES. 1. *C. cordifolia*, (said also to be a native of Japan.) Rarely to be met with decidedly indigenous in the United States, and appears to have been introduced by the *aborigines*; hence its name of "*Catawba*," derived from a tribe of Indians residing on the Catawba river. In most of the *habitats* of this tree given by the younger Michaux in his "*Arbres Forestiers*," which I have visited, if existing at all, it had evidently been introduced. I am informed, however, by Governor Harrison, of the indubitable existence of this tree in very considerable quantities in the forests of the Wabash, Illinois Territory, where its wood is even split for rails; still even here it is extremely local, and I have never once met with it either on the banks of the Ohio, the Mississippi, or the Missouri, rivers which I have ascended or descended thousands of miles. In the warmer states it does not appear to grow with any degree of vigour.

There is another species of this genus in the West India islands, viz. the *Bignonia longissima*, a tree producing very hard wood, which is not liable to be destroyed by worms or insects. Perhaps the same properties may be common also to the *C. cordifolia*.

17. **ELYTRARIA.** *Michaux.* **TUBIFLORA.** *Gmelin.*

Calix coriaceous, 4-parted; the anterior division cleft. *Corolla* 5-cleft; *lamina* nearly equal. Two of the filaments without anthers. *Stigmata* ligulate. *Capsule* oblong, 2-celled, 2-valved;

valves half-septiferous, or half of the dissepiment adhering to each valve after the opening of the capsule, and thence semibilocular; one of the most remarkable characters of the Natural Order *Acanthi* of Jussieu.

Stemless perennials, producing scapes entirely vested with subulate coriaceous and almost imbricate bractes; bearing flowers towards the summit; flowers imbricate, and bibracteolate, a little ringent. A genus nearly allied to *Justicia*.

SPECIES. 1. *E. Caroliniensis*. There are also 2 other species in India. In the *E. imbricata* the bracteal scales are 3-toothed.

18. JUSTICIA. L.

Calix 5-parted or 5-cleft, often with 3 bractes. Tube of the *Corolla* gibbous; border bilabiate; the upper lip emarginate, the lower trifid. *Filaments* 2, each with a single or double anther. *Stigma* 1. *Capsule* attenuated, below opening with an elastic spring from the summit to the base. *Dissepiment* contrary, growing from the centre of each valve. *Seeds* few, lenticular.

Herbaceous or shrubby, leaves rarely verticillate, and still more rarely alternate; a few have axillary spines; flowers solitary or spiked, axillary or terminal. The species in the United States have opposite leaves, with short spikes upon long, axillary, peduncles, and are subaquatic, usually along the margins of the larger rivers, or in ditches in their vicinity.

SPECIES. 1. *J. pedunculosa*. 2. *humilis*. 3. *brachiata* of PURSH. All the North American species produce 2 anthers upon each filament, each anther 1-celled; hence many species of this extensive genus were thrown into another called *Dianthera* by Linnæus and Jussieu. They are, however, at present united.

Obs. Not a species of this extensive genus exists in Europe; they are, in general, tropical plants, many of them splendid. Of 100 species 3 only are as yet discovered indigenous to the United States,—35 in India and its islands—8 in Arabia Felix—3 in China, of which one is also common to Arabia—1 in Japan—5 in Africa, 4 of them at the Cape of Good Hope and 1 at Sierra Leone—1 in New Hol-

land—and 44 in the tropical regions of America, principally in the West-Indies, Carthagera, Cayenne, and Peru. Many of these latter species are highly ornamental. Thus again we perceive a tropical genus almost equally divided between India and America.

19. UTRICULARIA. *Lin.* (Bladder-wort.)

Calix 2-parted, the lower division often emarginate, rarely cleft. *Corolla* scarcely tubulose, irregularly bilabiate, *upper* lip erect, entire or emarginate, staminiferous; *lower* larger, entire, 3-lobed, or crenate; *palate* more or less cordate, rather prominent on the inner side, *calcarate* at the base. *Filaments* of the stamina incurved; *anthers* connate. *Stigma* bilamellate. *Capsule* globular, 1-celled, many-seeded (opening by a lateral foramen?) receptacle of the seed, central, unconnected.

An evanescent plant of ponds and stagnant waters, rooting, and rarely producing setaceous leaves; or loosely floating, producing leaves which resemble roots, alternate, demersed, and much divided; beset with numerous inflated vesicles; also with proper radical leaves, which are alternate, more rarely opposite or verticillate, entire, or dissected; flowers produced on a scape furnished with a few squamula or scale-like bractes, racemose, or more rarely inclined to be one flowered; the *U. minor* scarcely produces a spur.†

† SPECIES, 1. *ceratophylla*, the largest North American species, producing inflated leaves at the base of the scape, divided and capillary branched at their extremities, 6 parted verticillate; racemes producing 6—10 flowers, lower lip of the corolla with 3 retuse lobes, the upper entire, spur compressed, deeply emarginate, half the length of the lower lip. Flowers yellow, larger than those of *U. vulgaris*, which they, however, in some measure, resemble. Calix persistent.

It begins to appear in the lower part of Delaware, near Lewistown, and continues to Florida, being more particularly abundant in the warmer states. Floating.

2 *fibrosa* of Walter and Elliott, the *U. fibrosa* of Pursh, appears to be some other species; so called from occasionally striking out fibres when growing near the margins of ponds; a circumstance at the same time common to several other spe-

20. PINGUICULA. L. (Butter-wort.)

Calix bilabiate, upper lip trifid, lower bifid.

Corolla irregular, calcarate at the base, limb

cies; described by Mr. E. as producing a scape 6-8 inches long, bearing 2 to 3 large yellow flowers. The upper lip large, rounded, and obscurely 3-lobed, the lower lip smaller, about the length of the spur, which is said to be subulate (or as some would perhaps say conic) and emarginate. From all which we may, I think, here perceive a plant not very widely distinct from the *U. vulgaris* of Pursh and others, considered as equally indigenous, like many other aquatics, to the two continents of Europe and North America.

3. *Longirostris*, of Mr. Le Conte. Floating; scapes 1, 2 (or 3) flowered, the spur a little longer than the lower lip, (somewhat compressed) ascending and emarginate. Flowers yellow, labiæ obscurely 3-lobed, scape 3 to 4 inches long. This species also approaches to the *U. vulgaris*, but is a much smaller plant, with the flowers rather large.

4. *purpurea*. Walter, *U. saccata* of Le Conte.

Scapes 1, 2, or 3 flowered; lower lip of the corolla 3-lobed, lateral lobes cucullate on the under side; palate large and prominent; nectary compressed, a little acuminate, closely appressed to the resupinate corolla and entirely covered by its reflected margins; upper lip nearly round.

Floating stem 2 or 3 feet long, utriculate leaves digitate, sessile, segments pinnatifid and setaceous; scapes axillary, 1 or 2 together. Flower about the size of *U. vulgaris*, violet-purple; calix persistent. Grows in the ponds upon the Blue-ridge, in the state of New-York, and on the Broad mountain, Pennsylvania. In 1809 I collected it in a pond near to Lewistown, Sussex county, Delaware, from whence it appears to extend as far south as Carolina and Georgia.

5. *Gibba* floating.

6. *Bipartita*. Elliott. Taking root on the margins of ponds. Corolla nearly entire; spur short, scarcely half as long as the corolla, very obtuse. Lower division of the calix bifid.

7. *biflora*. La Marck. Floating; scape about 2-flowered, corolla entire, spur subulate, obtuse, as long as the lower lip. *Le Conte*.

Obs. *Fahl* describes the nectary as straight, nearly equalling the upper lip, and with setaceous leaves. South Carolina.

8. *Personata*. *Le Conte*.

Flowers small, in a long setaceous raceme (1 to 2 feet high, 4-10 flowered) furnished with small scaly bractes; upper lip of

bilabiate, superior 3-lobed, inferior 2-lobed shorter; faux (or juncture of the labiæ) contracted. *Stamina* 2 very short. *Style* short. *Stigma* bilamellate covering the anthers. *Capsule* 1-

the corolla emarginate, lower obtuse with an abrupt point; spur straight, subulate and acute, a little incurved, and about the length of the corolla; the root fibrous. South Carolina.

9. *Cornuta*. Taking root in the ground; scape rigid, 1 to 2 feet high, 2 to 3-flowered, flowers large, the lower lip 3 lobed, very wide: spur longer than the corolla, porrected, nearly vertical, subulate, and acute.

Abundant on the Table rock, at the Falls of Niagara, and throughout Canada and the Alleghany mountains to Virginia, in calcareous soil.

10. *setacea*. Michaux.

Scape minute, rooting, and without leaves, slenderly setaceous, distantly 2 to 3 flowered; flowers upon longish pedicells; spur rather long.

Mr. Le Conte says, scape many-flowered (4 to 7 on short peduncles, EL.) upper lip of the corolla ovate, lower strongly 3-lobed; spur subulate, as long as the lower lip of the corolla.

Lower division of the calix slightly emarginate. EL. This description does not appear to accord with Michaux's plant, and still appears to be nearer it than any other. It cannot possibly be the *U. subulata* of Pursh, and the synonym of Gronovius applies probably to the *U. setacea* of Michx.—Persoon adds, that the flowers of the *subulata* are white; a circumstance entirely improbable.

The whole of this genus appears in confusion, scarcely excepting the European part of it; and none of the smaller and ambiguous species which are now greatly multiplied, can be understood but by a monograph accompanied with accurate delineations.

Besides the above 10 species, there are 6 others growing within the tropical regions of America. A blue flowered species in Ceylon, with 2 others in India, one in China, doubtful apparently as to the genus, and 3 species in Europe. America has, then, 16 species out of 23; of which one, in Martinique, is said to produce large white flowers, and entire ovate leaves! The *U. unifolia* of Peru rather appears to belong to the family of the *Orchideæ*, having a single radical lanceolate leaf, a solitary flower, and a large cordate calix; it possesses, in short, all the habits of a *Cymbidium* or *Arethusa*.

celled, many-seeded; *receptacle* of the seed, central, unconnected.

HABITUS. Leaves radical, stellately disposed, thick, soft, and as it were greasy to the touch, composed of an almost diaphanous, distinctly cellular parenchymatous substance; scapes 1-flowered; flowers inverted. Nearly allied to the preceding genus.

SPECIES. 1. *P. elatior*. 2. *lutea*. 3. *pumila*. 4. *acutifolia*.

Obs. The American species have the corolla 5-cleft, with all the segments 2-lobed or emarginate; in the *P. lutea* the corolla is campanulate and yellow, with each of the lobes bidentate. Of 11 species enumerated in this genus, the United States have 4, Peru 1, and the other 6 are confined to the alpine and colder morassy regions of Europe. The North American species grow nearly on a level with the ocean, in moist pine barrens.

LABIATE.

††† *Four naked seeds.*

21. LYCOPUS. *L.* (Water-horehound.)

Calix tubular 5-cleft (or 5-toothed, acute or acuminate). *Corolla* tubular, 4-lobed, nearly equal; the upper segment broader and emarginate. *Stamina* distant. *Seeds* 4, retuse.

Flowers small, axillary, crowded, verticillate and sessile, generally bibracteate; leaves toothed or sinuated. In the *L. Virginicus* the calix is 4-cleft and shorter than the seed; and there are the rudiments of 2 abortive stamens in the *L. vulgaris*.

SPECIES. 1. *L. vulgaris*? 2. *Virginicus*. 3. *pumilus*. 4. *obtusifolius*. 5. *exaltatus*. 6. *angustifolius*. 7. *sinuatus*. Are not several of these varieties? (With the exception of the *L. vulgaris* this genus is thus far entirely confined to the United States.)

22. CUNILA. *L.* (Mountain Dittany.)

Calix cylindrical, 10-striate, 5-toothed. *Corolla* ringent, with the upper lip erect, flat and emarginate. *Stamens* 2-sterile. The 2 fertile stamens with the style exerted nearly twice

the length of the corolla. *Stigma* unequally bifid. *Seeds* 4.

Flowers sometimes axillary, mostly in terminal dichotomous corymbs. Leaves opposite, punctate. Bractes inconspicuous.

SPECIES. 1. *C. mariana*. An American genus; growing chiefly in rocky, and, to the south, in mountainous situations. The second species of this genus, the *C. capitata* of Vahl, more probably belongs to *Ziziphora*. The common generic remark, of the calix being villous at the faux, is scarcely worth repeating, so many different genera having the same character; for example, the *Hedeoma*, *Ziziphora*, *Thymus*, and *Calamintha*.

23. HEDEOMA. Persoon. (Wild Pennyroyal.)

Calix bilabiate, gibbous at the base, upper lip 3-toothed, lower 2; dentures all subulate. *Corolla* ringent. *Stamina* 2-sterile. The 2 fertile stamens about the length of the corolla.

Small herbaceous plants possessing the scent of the *Mentha Pulegium*. Leaves opposite; flowers verticillate, bracteate; calix internally ciliate-villous at the base of the calycine indentions. (An American genus, with the exception of the *H. thymoides* of Montpellier.)†

† SPECIES. 1. *H. glabra*. Perennial, smooth; stem surculose; radical leaves nearly oval, stem leaves oblong-linear, obtuse, all entire and without veins; flowers upon longish peduncles, bibracteate at the base, towards the upper part of the stem mostly verticillate in 3s.

Obs. Stem six inches to a foot high, acutely angular, branching from below; leaves nearly obtuse, conspicuously beset with diaphanous glands, entirely smooth, without veins, and closely sessile. Flowers rather large, violet purple, somewhat campanulate and ringent; infertile stamens very short; calyx subcylindric oblong, internally ciliate at the faux.

HAB. Principally upon the banks of the St. Lawrence and the upper lakes; at the falls of Niagara: on the Ohio and in Tennessee;—*always* on calcareous rocks.

2. *Pulegioides*. Pubescent; leaves oblong-lanceolate, serrate, veined; verticilli many-flowered; flowers smaller than the calix. From Canada to Carolina. ☉

3. * *hirta*. Dwarf, and branching near the base, pubescent; leaves linear sub-lanceolate, acutish at both extremities, entire,

24. MONARDA. L. (Mountain-balm.)

Calix 5-toothed, cylindric, striate. *Corolla* ringent, with a long cylindric tube, upper lip linear, nearly straight and entire, involving the filaments; lower lip reflected, broader, 3-lobed, the middle lobe longer.

Flowers axillary-verticillate, or terminal and capitate, with involucrate bractes; colour scarlet, crimson, violet, or white, and in two species yellowish and spotted, with highly coloured bractes. (A North American genus)

SPECIES 1. *M. didyma*. 2. *Kalmiana*. 3. *rugosa*. 4. *clinopodia*. 5. *gracilis*. 6. *purpurea*. 7. *oblongata*. 8. *mollis*. 9. *fistulosa*. 10. *punctata*. 11. *ciliata*. 12. *hirsuta*.

25. SALVIA. L. (Sage.)

Calix subcampanulate, striate, and 2-lipped, above 3 toothed, below bifid. *Corolla*, tube widening at the faux, limb bilabiate, the upper lip arched and emarginate, the lower 3-lobed, the lateral segments narrower, the intermediate one larger and nearly round (sometimes crenate). The 2 fertile filaments transversely pedicellate.

Herbs or suffruticose shrubs; flowers with 1 to 3 bractes or axillary leaves, often spiked. Filaments of the stamina variously stipitate, sometimes in the middle, at other times above or below it, terminated at only one, or more commonly at both ends, by 1-celled anthers, one of which is always infertile; there are also considerable variations in the lip of the corolla.

SPECIES 1. *S. azurea*. 2. *coccinea*. 3? * *trichostemoides*. (Missouri). 4. *urticifolia*. 5. *lyrata*. 6. *Claytoni*. 7. *obovata*.

Obs. A very numerous genus, and widely disseminated over the world; flowers large and of very brilliant colours

and veined; verticilli many-flowered, flowers minute, shorter than the calix; bractes ciliate, calix strigose. ☉ *H. hispida*. Pursh, 2. p. 414.

On the open alluvions of the Missouri. ☉. June. From 4 to 6 inches high, nearly allied to the *H. Palegioides*.

in the warm regions of India, of Peru, Mexico, and the West-Indies. About 47 species are natives of North and South America.

26. **COLLINSONIA**. *L.* (Knot-root, Horse-weed.)

Calix bilabiate, above 3-toothed, below bifid. *Corolla* much longer than the calix, somewhat funnel-formed, unequally 5-lobed; the lower lobe longer, lacerately fimbriate (or fringed). *Stamina* 2, sometimes 4. *Seeds* 4, 3 of them mostly abortive.

Leaves large. Flowers in terminal panicles, yellowish or inclining to violet, with the 2 fertile stamens extended beyond the corolla.

SPECIES. 1. *C. Canadensis*. 2. *tuberosa*. 3. *scabra*. 4. *ovatis*. 5. *anisata*. 6. *punctata*. E. 7. *verticillata*.

The *C. punctata* has 2 barren filaments, and the *C. anisata* is tetrandrous. (A North American genus.) In this genus the stamens are observed alternately to approach the style.

B. *Corolla superior*.

††† Flowers complete.

27. **CIRCÆA**. *L.* (Enchanter's Nightshade.)

Calix short, 2-parted. *Petals* 2. *Stigma* emarginate. *Capsule* ovate, hispid, 2-celled, not opening; cells 1-seeded.

Herbs; with opposite leaves; flowers alternate, in terminal spikes.

SPECIES. 1. *C. lutetiana*, β *canadensis*. 2. *alpina*? This does not well agree with the European species.

†††† Flowers incomplete.

28. **LEMNA**. *L.* (Duck-weed.)

Calix of one entire leaf. *Stamens* alternately developed, seated upon the ovarium at its base; *style* cylindrical, *stigma* funnel form. *Capsule* 2 to 4-seeded.

The Lemnas are minute aquatic plants, of an extremely simple structure, composed, at most, of 3 or 4 lenticular leaves, laterally adnate and proliferous, rarely flowering. Each leaf as a perfect plant, in aggregation, produces a single floating radicle, or, in some species, a small bundle of fibres.

SPECIES. 1. *minor*. 2. *gibba*. 3. *thermalis*, of BEAUVOIS. 4? *trisulca*. (The genus of this plant is doubtful.)

Obs Like many other aquatic plants the Lemnas are common to almost every country and climate; they even vegetate in the warmest thermal springs.

CLASS III.—TRIANDRIA.

Order 1.—MONOGYNIA.

† *Flowers superior, complete.*

29. VALERIANA. *L. (Valerian.)*

Calix 0, or minutely marginal, at length evolved in a plumose pappus. *Corolla* monopetalous, tubular, somewhat funnel-form, calcarate or gibbous at the base, limb 5-cleft. *Seed* 1, usually crowned with the calycine pappus. (*Stamens* exerted 1, 2, 3, and 4.)

Flowers for the most part in terminal corymbs or panicles.

SPECIES. 1. *V. pauciflora*.†

30. FEDIA. *Gærtner.*

Calix 3 or 4 toothed. *Corolla* tubular, 5-cleft. *Capsule* crowned with the persistent ca-

† Radical leaves entire, cordate crenate petiolate; stem-leaves pinnate, somewhat toothed; uppermost leaves trifoliate, oval, acute: panicle scattered, corymbuli few-flowered.

Obs. Stem 3 feet or more high, smooth, sulcate, simple and fistulous. Leaves smooth; foliola of the pinnate leaves 5—7, gradually enlarging, oval, acuminate; flowers rather long, (near an inch,) pale pink, triandrous, with a short spur or gibbosity near the base; bibracteate, border 5-parted, lamina oval, obtuse, stamens exerted; seed elliptic, flat, on either side marked with 3 longitudinal striæ near the centre; at length comose. This species appears to be nearly allied to *V. Phu*, but distinct; in *V. Phu* the radical leaves are oblong, and generally entire, the stem-leaves pinnatifid, the pinnula lanceolate, and very entire; the laminae of the corolla also are crenulate; and the stigmata 3. (There are many species of this genus in South America.)

lix, 3-celled; only one of the cells usually fertile.

Flowers in fastigate panicles.

SPECIES. 1. *F. radiata*.

31. PHYLLACTIS. *Persoon*.

Flowers involucrate; involucre of 1-leaf, sheathing. *Calix* consisting of a minute margin. *Corolla* trifid. *Seed* 1. (Style and stamina exerted.)

Stemless or caespitose plants with fusiform roots, entire leaves stellately disposed, and producing almost sessile flowers collected together in involucrate umbells.

SPECIES. 1. *P?*. **obovata*. Stemless, root fusiform; leaves radiating, linear-spathulate, obtuse, hirsutely-pilose. (Flowers not seen; time of appearing, October?).

HABITAT. On bare hills around the Arikaree village, on the banks of the Missouri. (I give this with hesitation, not having seen a perfect flower, merely a flower bud.)—There are 3 other species of this genus in Peru.

†† *Flowers superior, incomplete.*

32. TRIPTERELLA. *Michaux*. VÆGELIA. *Gmelin?*

Calix tubular and prismatic, with alated margins, and a venticose base; limb 6-cleft, the alternating segments or teeth internal, minute and horizontal, covering the stamina. *Corolla* 0. *Stigmas* 3, capitate. *Capsule* 3-sided, 3-celled, many-seeded. Stamina included within the tube.

Minute plants with simple stems, almost destitute of distinct leaves. Flowers in short bifid cymose spikes, distinct or crowded like a capitulum

SPECIES. 1. *T. capitata*. Stem setaceous; leaves remote, amplexicaule, and subulate; flowers disposed in a crowded bifid cyme, as if capitate, each flower furnished with a lanceolate acute bracte, angles of the calix without margins.

On the borders of sandy ponds in Carolina. (Also in Cayenne.) Flowers from May to July. The segments of the tube yellowish, the rest of the flower whitish. ☉?

2. *Cerulea*. Stem setaceous; leaves minute, subulate; flowers disposed in a bifid spike or cyme, sometimes simply in pairs, or in still smaller plants solitary; coloured blue; the winged margins of the capsule partly cuneate, truncate at the summit.

Burmanna biflora. L. *Triptarella cerulea* of Muhlenberg's Catalogue, and M. Elliot's "Sketches of the Botany of South Carolina and Georgia," p. 43.

Obs. This genus appears to be scarcely distinct from *Burmanna*, but seems to differ in the defect of 3 of the stamens, and the situation of the capsule below the calix.

Near the margin of sandy ponds, from Florida to Virginia. (Scarce.) Flowering nearly the whole year.

33. IXIA. L.

Spatha 2-3 valved, ovate, short. *Corolla* 6-parted tubulose; tube somewhat slender, with the style and stamina straight; *border* nearly salver-shaped, divisions sub-elliptic, flat. *Stigma* almost filiform. (Filaments including the style; mostly connate.)

SPECIES. 1. *I. caelestina*. A very scarce plant, and of a doubtful genus; discovered in Florida by Mr. Bartram.

Obs. The whole of this genus, with the exception of the present species, the *I. Chinensis*, and the *I. Bulbocordium* of Europe, is peculiar to the Cape of Good Hope.

34. IRIS. (Flag, Flower de luce.)

Corolla 6-parted, large; three of the lamina erect; the other 3 reflected, with or without a crest or beard on the inner side, and bearing the stamina at their base. *Style* short; *stigmata* 3 petaloid, oblong, large, usually arched. *Stamina* incumbent, covered by the stigmata. *Capsule* 3-celled, 3-valved, many-seeded. *Seeds* flat, triangular; (in some species nearly round or spherical.)

Flowers terminal, solitary, or alternately disposed upon a scape; *spatha* 1 or more flowered; scape often compressed. Root a simple or double bulb; mostly an horizontal tuber. The genus *Iris* is remarkable for producing flat, ensiform or sword-shaped leaves with sheathing mar-

gins; several species, however, have linear and almost grassy foliage. The *I. tuberosa* has 4-sided leaves.

SPECIES. 1. *I. cristata*. 2. *haxagona*. 3. *versicolor*. 4. *cuprea*. 5. *tripetala*. 6. *verna*? Root tuberous, reddish; leaves radical, linear-ensiform, rigidly coriaceous, very acute, margined, dark green somewhat spirally twisted at the base, about 6 inches long; young shoots and scapes sheathed with linear-lanceolate stipules of a pink red colour; scape 1-flowered, nearly radical; tube of the corolla triangular, (about 2 inches long); germ attenuated, triquetrous; laciniae appearing articulated upon the tube; inner and outer divisions nearly equal, oblong-obovate, pale blue, the 3 exterior marked with an oblong orange-yellow maculate stripe, having a central, slightly villous, raised line; stigmata linear-oblong, deeply bifid. (This is certainly a distinct plant from the *I. verna* of Pursh; but agrees with Michaux except in having, in common with the generality of this genus, a tuberous, and not a simply fibrous root. This species is nearly allied to the *I. cristata*, but the flower is smaller, without the crest or beard, somewhat sweet-scented, and of finely contrasted colours. The root, like the *I. cristata*, leaves a burning sensation on the palate after mastication, a circumstance, however, common to several other species. 7. *sibirica* 8. *prismatica*. 9. **lacustris*; flowers without a bearded crest; leaves short, ensiform; scape much shorter than the leaf, 1-flowered; petals nearly equal? attenuated on the tube; capsule turbinate, 3-sided, margined; seeds somewhat round, and smooth; roots tuberous.

Obs. Roots laterally produced to a considerable extent so as to form wide and dense tufts; leaves rarely more than 6 inches long, scapes generally 1-flowered and still shorter flower pale blue.

HABITAT. On the gravelly shores of the calcareous islands of lake Huron, near Michilimakinak. (I have seen no perfect specimens, and therefore recommend the examination of this plant to future botanists.) It appears to be allied to *I. cristata*.

Many species of this genus have been discovered at the Cape of Good-Hope, a few in Barbary, 1 or 2 species in China, and as many in Japan, the rest have been found in East Asia (Siberia,) Europe, and North America. Not a single species has yet been discovered in South America, or any other portion of the southern hemisphere, except the southern promontary of Africa. The species in the United States, with the exception of the *I. verna*, (as described by Mr. Pursh) have

the tube of the corolla short, as in most of the European species, and nearly all have compressed, obtusely triangular seeds, and tuberous roots. Many of the African species, with bulbous roots, have the tube of the corolla remarkably long, seeds more or less round, approaching to spherical, and linear grassy leaves.

35. **DILATRIS.** *Persoon.* **LACHNANTHES.** *Elliot.* (Red-root.)

Calix superior, petaloid, externally hirsute, deeply 6-parted, nearly equal, erect, and persistent. *Stamina* erect, a little unequal. *Style* declining; *stigma* minutely trifid. *Capsule* round, 3-celled, few-seeded; (3-6 in each cell.)

Leaves considerably like those of the *Iris*; sheathing, on the stem sessile; flowers paniculate, corymbose, externally pubescent, internally coloured and petaloid, nearly equal, but the style somewhat declined and thus approaching to the genus *Wachendorfa*. The *D. Heritiera* of the United States, although a very distinct species from the other 4 described as natives of the Cape of Good Hope, can hardly be considered as constituting a distinct genus: it is true, that the stamens are more nearly equal than in the Cape species, but scarcely so, absolutely, with the presence of a declining style. As to the structure of the flowers, they are both merely furnished with a petaloid calyx, divided down to its base; the Cape species, at least *one* examined by Jussieu, had a hirsute capsule, crowned by the persistent calyx, of 3-cells, 3-valves, 3-seeds, the valves naked in the inside, or without a receptacular placenta, with a central 3-sided receptacle, the seeds flat, and peltate. In the *Heritiera*, there are as many as 6 or 7 seeds in each cell, and of a somewhat different form, being round and compressed. It appears, however, probable from the globose form of the capsule in *Dilatris*, that there must be a roundish seed, or seeds, as there is no succulent receptacle. The *Heritiera* has also a roundish, obsoletely triquetrous, capsule. Are there not two species confounded as the *D. Heritiera* in the United States?

36. **SISYRINCHIUM.** *L.* (Blue-eyed grass.)

Calix petaloid, tube short, border divided like 6-flat petals. *Stamina*, for the most part, united below. *Capsule* roundish, triquetrous,

pedicellate beyond the spathe; (laminæ in several species aristate.)

Root fibrous; stem compressed, ancipital, divided; flowers both terminal and axillary; spatha many-flowered, compressed-carinate. Flowers white, yellow, or blue.

SPECIES. 1. *mucronatum*. 2. *anceps*. 3. *Bermudianum*?

Obs. Of 9 species now enumerated, 4 inhabit the tropical regions of America, (Peru, Guiana, and the West-Indies) having white and yellow flowers; 3 belong to the United States, producing blue flowers with aristate petals; 1 with yellow flowers to the Cape of Good Hope, and another of a doubtful genus, resembling *Ixia*, was discovered by Forster in New Zealand.

36. BOERHAAVIA. L.

Calix tubulose with an entire margin. *Corolla* monopetalous, campanulate, plaited. *Seed* 1, invested by the persistent calix, naked or tuberculate, 5-furrowed, obconic. (*Stamina* 1, 2, 3, 4, and 10.)

Stems herbaceous or shrubby, leaves opposite, one of the leaves often less than the other; flowers mostly umbellate; umbels slender, axillary, pedunculate, sometimes branching, involucrate; involucre simple, or many-leaved; flowers also, in some species, disposed in corymbose panicles. (Jussieu says, that the seed is small, and covered by the angular base of the calix, and in this he is confirmed by the observations of Defontaines; but to ordinary observers the seed will be considered as interior. The same remark also applies to the following genus, *Calymenia*.)

SPECIES. 1. *erecta*. (South Carolina.) 2. *diffusa*?

Obs. This genus is chiefly confined to the tropical regions of America, there is also 1 species in Guinea (Africa), 1 in Spain, 1 common to India and China, and another in the Society islands of the Pacific.

37. CALYMENIA. Persoon. (ALLIONIA. Michaux.)

Involucre caliciform, 5-parted, persistent, enlarging, and then peltate-campanulate, 1 to 3 or 5 flowered. *Proper calix* none. *Corolla* sub-campanulate, plaited, 5-parted, laminæ

emarginate, tube persistent, calicine. *Stamina* exerted. *Seed* 1, coriaceously coated, obconic, with 5-furrows.

Annual or perennial; stem herbaceous, leaves opposite; flowers axillary and dichotomously paniculate, or corymbose, from 1 to 5 in a common expanding campanulate, or almost peltate involucrem, extremely evanescent, and generally small, 5-parted, laminae deeply emarginate, the base persistent and calicine, investing the seed. *Stamina* 3, 4 and 5. *Stigma* capitate.—Nearly allied to the preceding genus, and also to *Mirabilis*.

SPECIES. 1. *nyctaginea*. MICH.

Obs. Entirely smooth; stem jointed, leaves broad cordate, acute; flowers for the most part corymbosely aggregate, and terminal, also axillary; in stems imperfectly developed, all axillary; involucrem 5-cleft, 3-5-flowered, (and as in all the other species, at length much larger than the fruit.)

Root large and tuberous, probably medicinal.—On the alluvions of the Missouri, common.

2. *Albida*. Walter. ☉. 3. **pilosa*. Stem nearly erect, hairy; leaves oval or lanceolate-oval, obtuse, entire; flowers sub-paniculate, axillary and terminal; involucrem about 3-flowered.

Obs. Leaves sometimes hairy; nearly allied to the *C. nyctaginea*. Flowers pale red, stamens exerted, root perennial.

HABITAT. Near the Missouri;—around the Arikaree village, &c.

Allionia ovata. Pursh, vol. i. p. 97. The *C. ovata* of Peru appears to be but 1-flowered.

4. *C. hirsuta*. Pursh, perhaps a variety of the above.

5. *C. *angustifolia*. Stem round, erect, smooth; involucrem and peduncle pubescent; leaves linear, sessile, rarely subdenticulate; flowers aggregate, paniculate, and axillary; involucrem mostly 3-flowered

Obs. Root perennial, tuberous as the preceding; leaves smooth; stem erect, a little branched above; seeds as in all the rest clavate, obconic, rather rugose, with 5 furrows. Flowers pale red. Stamens exerted. On hills near the confluence of Teeton river, Missouri, and from thence probably to the mountains.

C. angustifolia. T. Nuttall in Fraser's Catalogue. 1813.

C. linearis, Pursh, in Supplement. vol. ii. p. 728.

6. **decumbens*. Stem round, decumbent, low; leaves en-

tire, narrow, sessile, and linear; peduncles all axillary, a little pubescent; involucrem 3-flowered.

Obs. Perhaps only a variety of the preceding; still it preserves the same habit under cultivation; the stems come up several from the same perennial root, always inclining to be decumbent, not above 6 inches high, the preceding 2 feet; flowers axillary, peduncles short; leaves rather thick, without veins, not more than 2 lines wide and 2 inches long, perfectly smooth and rather obtuse; flowers very small, pale red, and so evanescent as rarely to be seen open. Fruit and involucrem as in the other species. On high, bare, gravelly hills near Fort Mandan, on the Missouri. Flowers in June and July.

This genus, now containing about 13 species, is thus far confined to Peru, New Spain, and the United States, being entirely an American genus. There appears to be but one species of *Cuymenia* in New Spain, the *C. aggregata*, having more than a single flower in the involucrem, while in the United States, in all the species it produces three or more flowers. The calicine, peltate involucrem, the deep emargination of the 5 divisions of the corolla, and the absence of the minute marginal calix, are apparently all the essential generic distinctions subsisting between the *Calymenia* and *Boerhaavia*.

††† *Flowers inferior.*

38. COMMELINA. L.

Calix 3-leaved. *Corolla* 3-petalled, mostly unequal. *Stamina* 6, sometimes all fertile, but for the most part 3 or 4 are sterile. *Stigma* simple. *Capsule* sub-globose, 3-celled, 3-valved, 2 of the cells 2-seeded, the third with its proper valve, often abortive.

Stem herbaceous, and often branching; leaves almost gramineous, alternating at the nodes of the stem, the sheath of the leaves long and entire, nearly cleft; branches sheathed at the base; peduncles axillary or terminal, one or many flowered; spatha cordate, persistent, closing and enveloping the flowers; rarely wanting.

SPECIES. 1. *communis*. 2. *erecta*. 3. *hirtella*. 4. *Virginica*.

Obs. The genus *Commelina*, with the exception of the species in the United States, and 2 others in Japan, is peculiar to the tropical regions of India and America: there

is also a single species described as African, and another discovered by Loureiro in CochinChina. The genus now consists of 23 species. Most of them produce blue flowers; the North American species of a bright azure, but extremely evanescent. It is said that the Japanese possess a method of extracting the colour from the flowers of the *Commelina*.

39. **SYENA.** *Willd.* **MAYACA.** *Aublet.*

Calix deeply 3-parted, acute, persistent. *Petals* 3, roundish. *Anthers* oblong, 2-celled. *Stigma* trilobed. *Capsule* acuminate with the style, 1-celled, 3-valved.

A small sub-aquatic, repent herb, resembling moss; the leaves alternate, crowded, linear, subulate, (somewhat 3-nerved, *AUBLET.*); flowers solitary, axillary and remote, the peduncle bending downwards after flowering, (pedicell bibracteate, *AUBL.*) In the *Syena*, as it appears in the United States, the stem is bi-fistulous (for floating) as in the *Calitriche*, the leaves each with a single nerve; the peduncles without bractes, but furnished at the base with a single valved scariosse spatha; filament and anther united, the latter shortly obovate, 2-celled, emitting the pollen by 2 terminal oblique pores; style simple; stigma entire, persistent; capsule oblong-ovate, 1-celled, 3-valved; seeds 9, attached by 3s to the centre of each valve, spherical, acute at one of the ends, longitudinally traversed by elevated scabrous lines, of a hard and brittle consistence, and a dark brown colour.

This is probably distinct from Aublet's plant. Existing as far to the North as Virginia.

40. **LEPTANTHUS.** *Michaux.*

Spatha 1 to 4-flowered. *Corolla*, tube long and slender; border 6-parted. *Stamina* seated upon the segments of the corolla. *Anthers* linear, or of 2 different forms, the other triangular. *Capsule* inclosed in the spatha, and invested with the marcescent tube of the corolla, 3-celled, many-seeded, opening at the angles; *dissepiment* contrary.

Aquatic herbs, nearly allied to the genus *Pontederia*, having alternate leaves with a sheathing base. Flowers

spathulate, 1 or more in the same spatha, axillary in *L. gramineus*; in all the others, bursting as it were from the base of the petiole. Flowers extremely evanescent, in all the species white, except the *L. gramineus* which appears to be scarcely of the same genus, all the others appertain to *Heteranthera*, and the *L. gramineus* is now called *SCHOLLERA*, being further generically distinguished by having a capsule of one cell.

SPECIES. 1. *ovalis*, MICH. (spatha 2 or 3-flowered? v. v.) *Heteranthera limosa* of BEAUVOIS. 2. *reniformis*, MICH. *H. acuta* of Beauvois. This appears to be the same plant with the *H. reniformis* of the Flora Peruviana.† 3. *gramineus*; (NOW *SCHOLLERA graminea*.) Found in almost all the rivers of the United States from the Delaware south, and in the Ohio, to the west.

41. STIPULICIDA. Michaux.

Calix 5-parted, persistent. *Corolla* 5-petaled, petals entire, and as long as the calix. *Style* short, stigmata 3. *Capsule* 1-celled, 3-valved. *Seeds* few, each attached to the receptacle by an umbilical filament.

A small perennial herb, with a leafless, dichotomous, articulated stem; the base of each branch subtended by 2 opposite, lacerated stipula. Flowers minute, terminal, almost sessile, growing from 3 to 6 together. Radical leaves minute, spathulate.

SPECIES. 1. *setacea*. Very nearly allied to the genus *Polycarpon*.

42. POLYCNEMUM. L.

Calix 3-leaved. *Petals* 5 caliciform. *Capsule* 1-seeded, membranaceous, not opening, covered by the calix. (Stamina 1, 2, 3, and 5.)

Stem herbaceous, branching, diffuse, leaves crowded, linear, subulate, or filiform, and carnosae; flowers calicine,

† The leaf buds of this species are large and involute, including an extraordinary quantity of embryon foliage, enveloped like the *Bracenia* in a gelatinous fluid. It is also extremely local; in Pennsylvania it is scarcely known beyond the vicinity of Philadelphia, and is not noticed by Mr. Elliot as existing in the Southern states.

axillary or terminal; (growing chiefly in arid and saline wastes.)

SPECIES. 1. **Americanum*†. There are of this genus 5 other species, 4 in Siberia, the 5th near the Caspian sea.

43. XYRIS. L. (Yellow Flowering-Rush.)

Flowers in an ovate-cylindric capitulum.—
Calix glumaceous, 3-valved, valves unequal, the outer coriaceous. *Corolla* 3-petalled, equal. *Stigma* trifid. *Capsule* 1-celled, 3-valved. *Seeds* very numerous, and minute.

Leaves all radical, gramineous, or like those of the *Iris*, linear, or ensiform-subulate, sometimes tortuose, intimately sheathing at their base; the vaginae of the leaves often enveloped in a gelatinous fluid. Scapes simple, round, ancipital, or contorted, terminating in a dense spike or capitulum. Flowers closely imbricated; of very short duration, generally yellow, (in the *X. americana* of Guianne, blue, but the leaves triquetrous, and the outer glumes acute!) Petals retuse, often crenate. Outer glumes of the capitulum concave, rounded, and obtuse, frequently abortive below.

SPECIES. 1. *Indica*. 2. *Caroliniana* (*X. Jupicai*. MICH. *X. flexuosa* of Muhlenberg's Catalogue.) 3. *fimbriata*, Elliott. 4. *brevifolia*. 5. *juncea*.

OBS. Of this genus there are 2 species in India, 1 at the Cape of Good Hope, 1 in Peru, and another in Guianne (South America,) the rest in the United States, of which the *X. Indica* is common to India and North America as far as the 40th degree of north latitude.

†††† Flowers glumaceous.

44. KYLLINGIA. L.

Flowers distinct, disposed in a roundish, sessile, subimbricated spike, or umbellate, the

† Perennial; stem cespitose, leaves opposite, connate, crowded, subulate, triquetrous, rather pungent; flowers triandrous? terminal.

On the arid hills of the Missouri.

OBS. This species greatly resembles the *P. arvensis* of Europe, but is distinctly perennial; I have not, however, had the opportunity of examining good specimens, seeing it only in fruit.

spikelets constantly subimbricate.—*Calix* 2-valved, 1-flowered, the valves unequal. *Corolla* 2-valved, larger than the calix. *Seed* triquetrous. (*Stamina* 1, 2, and 3; *stigmas* 2, and 3.)

Flowers capitate, or umbellate-capitate, terminal; involucrem of the head or umbell 3, 4, or many-leaved; culm often triangular. (According to the observations of Mr. Elliott, in his Sketches of the Botany of South Carolina and Georgia, the *K. pumila* of MICH. has no calix, and the *K. maculata* of M. a calix of only 1 leaf.)

SPECIES. 1. *monocephala*. 2. *pumila*. 3. *maculata*.

Obs. With the exception of the species indigenous to the United States, the genus *Kyllingia* is confined to the tropical regions of India and America.

45. MAPANIA. Aublet.

Flowers capitate, subtended by a large, 3-leaved involucrem.—*Calix* 0. *Corolla* 6-valved, valves toothed, and imbricated. *Stigmata* 3. *Seed* intimately enveloped by a chaffy 6-parted perisporium (or involucellum.)

Culm triquetrous, sheathed at the base with short squamose lanceolate leaves; flowers in a terminal involucrete capitulum, the involucrem consisting of 3 large white? leaves.

SPECIES. 1. *sylvatica*. It is extremely doubtful whether this singular grass of Guianne has ever yet been found in the United States Mr Kinn, said to have been the discoverer by Mr. Pursh, on being questioned regarding it, by my friend Zaccheus Collins, Esq. produced the *Carex Fraseri* as the identical plant shown to Mr. P.; I have been, however, induced to insert it for future examination, as it may probably yet be discovered in some extremity of the Southern states.

46. DICHROMA. PERSON.

Spike capitate, involucrete, squamæ or glumaceous scales on all sides imbricated into sessile crowded spikelets, the lower scales empty.—*Corolla* 0. *Style* setaceous, bifid. *Seed* without setæ (or involucellate filaments,) somewhat

lenticular, rather rugose, terminated by the triangular persistent base of the style.

Culm obtusely triangular, sometimes nearly terete, sheathed by the carinate leaves at the base, terminating in a single involucrate capitulum. leaves of the involucre rather large, discoloured at the base, for the most part white, (sometimes red!) seed (in *D. latifolia*) roundish-oval, scabrous and indurated, convex on both sides, margined, and crowned with a black, dilated, triangular tubercle.

SPECIES 1 *leucocephala*. 2 *latifolia*. A larger plant, but nearly allied to No. 1 Grows in Georgia, Florida, and also in North Carolina, near Wilmington. This species appears to be perennial, and the other not.—3. *ciliata*.

Obs. The *Dichroma* is so very nearly allied to *Scirpus*, as to be almost destitute of any important discriminative character; the form of the seed, and the lunate tubercle with which it is terminated, the absence of the setæ, and the sterility of the outer glumes, as Mr. Elliott very justly remarks, are all circumstances more or less frequent in the genus *Scirpus*. It is merely then by habit that we are at present to distinguish the *Dichroma*. (Peculiar to America.)

47. SCIRPUS. L. (Club-Rush.)

Calix scales chaffy, imbricated on all sides in a spike. *Corolla* 0. *Style* filiform, unbearded, deciduous. *Seed* 1, naked, or surrounded with involucellate setæ or threads.

Culm naked, round, or angular, with a solitary terminal spike, or with several spikes, subtended by an involucre, and in some species furnished with a leafy culm.

SPECIES. § 1 with one terminal spike.—1 *S. acicularis*. 2. *capillaceus*. 3. *trichodes* 4. *simplex*. 5. *filiformis*. 6. *ovatus*. 7. *palustris* 8. *geniculatus* 9. *capitatus*. 10. *tuberculosus*. 11. *quadrangulatus* 12. *equisetoides*.—§ 2. with several spikes, and without leaves.—13. *debilis*. 14. *Americanus*. 15. *mucronatus*. 16. *lucustris*. 17. *validus*.—§ 3. culm leafy at the base.—18. *minimus*. 19. *autumnalis* 20. *ciliatifolius*. 21. *stenophyllus*. 2. *curvatus*. 23. *sulcatus*.—§ 4. culm leafy.—24. *maritimus*. 25. *exaltatus*. 26. *nitens* 27. *lineatus*. 28. *divaricatus*. 29. *polyphyllus* 30. *Shanoides*.

This very numerous genus appears to be predominant in the warmer and northern parts of America, in India, and at the Cape of Good Hope, as well as Europe; a few species are found in Barbary, also in the warmer regions

of Africa. There are apparently none in New-Holland and Northern Asia.

48. **FIMBRISTYLIS.** *Vahl.* **SCIRPUS.** *L.* (Club-Rush.)

Scales of the *calix* on all sides imbricated in a spike. *Corolla* 0. *Style* ciliate, deciduous, and bulbous at the base. (*Seed* generally destitute of involucellate filaments.)

SPECIES. 1. *F. puberulum.* 2. *castaneum.* 3. *cylindricum.* 4. *spadiceum.* All species of *Scirpus* of other authors, and might probably with propriety remain so; as independent of the very arbitrary and insufficient character of this genus, if such it can be called, there is not even the advantage of any peculiar habit, that should indicate the necessity of such a separation. The ciliation of the style appears to be the only discriminative character, a circumstance, which upon other occasions would scarcely be considered as a sufficient groundwork for a separate section.

49. **RHYNCHOSPORA.** *Vahl.* **SCHÆNUS.** *L.*

Scales of the *calix* collected into a spike, the inferior ones empty. *Corolla* 0. Base of the *style* persistent. Involucellate filaments at the base of the *seed*.

This genus is well distinguished from *Schænus* by the persistent base of the style, often in the form of an acuminated conic tubercle, and in some instances the whole style remains, becoming enlarged and indurated as is remarkably conspicuous in the *R. longirostris*. It appears, also, that the involucellate filaments are always present.

SPECIES. 1. *R. alba.* 2. *rariflora.* 3. *plumosa.* 4. *cymosa.* 5. *longirostris.* 6. *distans.* 7. *punctata.* 8. *fuscularis.* 9. *glomerata.* 10. *capitellata.* 11. *inexpansu.* 12. *caduca.* 13. *sparsa.* 14. *ciliata.*

50. **SCHÆNUS.** *L.* and *Vahl.* (Bog-rush.)

Scales of the *calix* collected into a spike, the inferior ones empty. *Corolla* 0. *Style* deciduous.

In this genus, as it now stands, it appears that there are no involucellate filaments.

SPECIES. 1. *S. setaceus*. 2. *hispidulus*. 3. *effusus*. This remarkable grass, discovered in the West India islands by Swartz, extends a considerable distance northward beyond Wilmington, (North Carolina) often almost exclusively occupying considerable ponds. The leaves are almost as sharply serrate as those of a *Bromelia*, and hence it is very properly called *saw-grass*. The genuine species of this genus are principally confined to Europe and northern Africa (Barbary). Of the *Rhynchospora* there are many species at the Cape of Good Hope as well as in North America and the West India islands; scarcely more than 1 or 2 distinct species in Europe, none in the East Indies, Australia, Northern Asia, and Northern Africa.

51. MARISCUS. *Vahl.*

Spikelets few-flowered, almost imbricately aggregated in roundish or subcylindric heads. — *Common calix* of the spikelets 2-valved, (3 to 6, or 8-flowered). Flowers 1-valved, subimbricate. *Style* trifid. *Seed* triquetrous.

Culm triquetrous, leafy at the base, terminating in an involucrate umbell; capitulum, ovate, roundish, or cylindric, composed of aggregated compressed or subcylindric spiculi, from 3 to 8-flowered, the spikelets generally squarrose or reflected when in fruit. The involucellate filaments appear to be wanting. This genus, confined to America, seems to be very nearly allied to *Cyperus*, differing principally in habit.

SPECIES. 1. *M. retrofractus*. 2. *cylindricus*. 3. *echinatus*. 4. *umbellatus*.

52. CYPERUS. *Lin.* (Cyprus-grass.)

Spikelets compressed, distinct. *Calix* scales imbricated in two rows. *Corolla* 0. *Stigmata* mostly 3. *Seed* 1, naked. (*Stamina* 2, and 3.)

Culm usually triquetrous, rarely terete, terminating in an involucrate umbell; spikes many-flowered, distinct, fasciculate, and generally pedunculate. The lower calix scales are sometimes empty or sterile. The roots of some of the species possess an aromatic odour, (particularly the *C. longus*.) and a few others produce tubers at their extremities, said to be esculent. From the integuments of the *C. Papyrus* of Egypt the ancients first obtained a convenient substitute for skins, to write upon, since

fabricated from other substances, but which all still retain the name of paper, derived from *Papyrus*.

SPECIES.—§ 1. culm terete.—1. *C. minimus?* This interesting and extremely small species, first found in Jamaica and Africa by Sloane and Thunberg, has recently been discovered by Dr. Isaac Cleaver, both in Pennsylvania and New-Jersey, not far from Philadelphia.—2. *articulatus*. (found also in Jamaica, Egypt and India.)—§ 2. culm triquetrous.—3. *fusculatus*. 4. *pæformis*. 5. *kyllingæoides*. 6. *uncinatus*, of Pursh (a *Mariscus?*) 7. *autumnalis*. 8. *compressus*. 9. *brizæus*. 10. *vegetus*. 11. *formosus*. 12. *virens*. 23. *filiculmis*. 14. *mariscoides*. 15. *filicinus*. 16. *flavescens*. 17. *gracilis*. 18. *Hydra*. 19. *repens*. 20. *tuberosus*. 21. *tenuiflorus*. 22. *odoratus*. 23. *strigosus*. 24. *tetragonus*. 25. *flavicomus*. 26. *distantis*. 27. *speciosus*. 28. *Enslonii*.

The genus *Cyperus* appears to be widely dispersed over the world, no countries, however, are so rich in this genus as the United States, the West India islands, and the continent of India; there are also 9 species in Barbary, most of them common to Europe. The *C. flavescens*, *C. virens* and the *C. fuscus*, are the only species in the north of Europe; of which, the first is also common to the United States. Northern Asia and Australia appear to afford no species of this genus, though there are many species at the Cape of Good Hope. Upon the whole, it appears that the principal habitat of the *Cyperus* is North America and India within the tropics. A considerable number of species are common to very distant regions.

53. DULICHIMUM. Richard.

Spikes somewhat racemose, axillary. *Spikelets* linear-lanceolate, rather compressed. *Callicine* scales subulate, almost distichally sheathing. *Style* very long, bifid. *Involucellate* setæ long and scabrous. *Seed* acuminate by the base of the style.

Culm simple, round and leafy; leaves nearly equal, closely approximating, almost spirally divaricate, but generally spreading in 3 directions; the stipules (or *ochreae*) cylindrical, every where embracing the stem; spikelets disposed upon a sessile or pedunculate raceme arising from the sheathing stipules in the axills of the leaves; spikelets and glumes linear and subulate, erect or patulous, few-flowered, (6, or 10.)

This genus, though very peculiar in habit, has by some

been considered a *Scirpus* (Michaux), by many a *Cyperus* (Willdenow), and Vahl has described it as a *Schænus*; it certainly approaches the genus *Cyperus*, but is distinguished from it by the presence of the germinal filaments, and its subulate glumes. In habit it very widely recedes from *Scirpus* and *Schænus*, and all the glumes, besides their very peculiar form and mode of aggregation, are uniformly fertile.

SPECIES. 1. *D. spathaceum*. 2. *Canadense*. (This genus is peculiar to the United States.)

54. TRICHOPHORUM. Persoon.

Spikelets nearly ovate; *Calix* scales imbricated on all sides. *Corolla* 0. *Germinal setæ* (involucellum) capillary, mostly 6, in the ripening seed, growing out very long.

Culm triquetrous, leafy, terminated by a paniculate umbell; or naked, with a single spike; involucellum of the seed capillary and definitely parted, (setæ about 6) not woolly and indefinite as in *Eriophorum*, to which genus the *T. alpinum* and *T. Hudsonianum* have hitherto been referred. The *T. cyperinum* has a very near affinity to the genus *Scirpus*, where it was placed by Michaux, and from its great dissimilarity of habit with the *Eriophorum alpinum*, now referred to *Trichophorum* by Persoon, we are obliged to consider the present genus as very arbitrary and artificial. All the species of *Trichophorum*, naturally belong to the genus *Scirpus*, and there is no line of separation, except we are to consider the *elongation of the seminal filaments* or involucellum, as a solitary character sufficient to constitute a genus; for the number of the setæ, 6, so carefully inserted in the generic character, is the prevailing number in the genus *Scirpus*. (Mr. Pursh adds setis 6-9.)

SPECIES. 1. *T. cyperinum*. 2. *Hudsonianum*, (nearly allied to the *Eriophorum alpinum*—only 3 or 4 inches high, with a solitary spike.)

Considered as a genus, the most remarkable of its species is the *T. cyperinum*, confined to North America, but extending from Canada to Florida; the *T. Hudsonianum*, if merely a variety of the *T. alpinum*, is common to the sub-alpine regions of Europe, and North America.

55. ERIOPHORUM. (Cotton-grass.)

Scales of the *calix* chaffy, imbricated on all sides in a spike. *Corolla* 0. *Seed* surrounded

with a very long, dense, and woolly involucreum.
Seed sub-ovate without angles.

Culm generally round and leafy; spikes terminal, solitary or aggregate. Stamina mostly 3, rarely 2.

SPECIES. 1. *E. cespitosum*. 2. *polystachyum*. 3. *angustifolium*. 4. *virginicum*. A genus equally common to the sphagnous morasses of Europe and North America; there is, as yet, but one species, the *E. virginicum*, peculiar to the United States. From Persoon it does not appear that any other portions of the world afford a single species of this curious genus.

56. VAGINARIA. Persoon.

Spike ovate, calyine scales imbricated on all sides, acutely acuminate. Corolla 0. Stigmata 3. Involucellum of the seed formed of 3 chaffy awnless scales alternating with 3 slender setæ.

Root creeping. Culm round, simple, without distinct leaves, distantly invested with obliquely truncated ochreae or vaginæ (sheathes) having small subulate points; spike ovate, terminal, generally solitary, sometimes in threes. In habit this plant appears distinct from the genus *Fuirena*, to which, however, it is very closely allied. But the scales of the spike are not properly awned, only acutely acuminate; the scales of the perisporium are also said to be furnished with alternating filaments or setæ, and destitute of awns.

SPECIES. 1. *V. Richardi* (The only species known.—In Florida.)

57. FUIRENA. L.

Spikelets composed of mucronate scales imbricated on all sides. Corolla 0. Seminal involucellum broad, chaff-like, scales cordate, (stipitate) often awned. Stigmata 2 and 3. (Seed triangular.)

Culm round and leafy, terminating in an umbellate panicle, or aggregation of spikelets. Calicine scales abruptly awned, the awn erect or patulous. Root in *F. squarrosa* resembling a concatenation of bulbs.

SPECIES. 1. *F. squarrosa*. (Georgia and Carolina). Of this genus there are 2 other species in America within the

tropics; one, the *F. umbellata*, is also common to India; the 4th species, *F. canescens*, is a native of Africa.

58. CENCHRUS. (Bur-grass.)

Involucrum laciniate, echinate, 3 to 4-flowered. *Calix* 2-valved, 2-flowered, 1 fertile the other sterile. *Style* bifid, (sometimes 2.)

Culm round, in some species branched; flowers in spikes or racemes; proper involucrum caliciform, spiny or hispid, sometimes roundish with a lacinate margin, in other species setiform, or more or less deeply divided.

SPECIES. 1. *C. echinatus*. 2. *tribuloides*.

Of this genus there is 1 species in India, but doubtful as a *Cenchrus*, 3 in Barbary, besides the *C. echinatus* equally indigenous to the United States; the *C. capitatus* of Barbary, exists also in France and Italy, and the *C. hordeiformis* is found also in Asia. There is another species in Babao, one of the Friendly islands; another in Montevideo in South America; 2 others at the Cape of Good Hope; and lastly, a *shrubby* species in the mountains of Armenia.

This genus is very nearly allied to *Pennisetum*.

59. LIMNETIS. Richard. TRACHYNOTIA. Michaux. SPARTINA. Schreber. (Marsh-grass.)

Flowers in unilateral spikes almost imbricated in 2 rows.—*Calix* 2-valved, carinate, and compressed; one of the valves much smaller than the other. *Corolla* 2-valved, awnless. *Styles* long, 1 or 2, *Perisporium* 0. *Seed* compressed.

Culm round, rarely hollow, often tall, (the *L. polystachya* from 3 to 10 feet high); leaves large and long; spikes in a simple appressed or expanding panicle, long, and many-flowered; valves of the calix very unequal, the larger valve acutely carinate; the carina almost aculeate or sharply ciliate. Seed compressed, oblong.

Notwithstanding the great disparity of habit, this genus is very nearly allied to the *Dactylis*, at least to the *D. glomerata*, which occurs sometimes 1-flowered.

SPECIES. 1. *L. juncea*. 2. *cynosuroides*. 3. *polystachya*. 4. *glabra*. This last species grows up the Missouri as far as the great Northern Bend, around Fort Mandan. The genus *Limnetis*, with the exception of the *L. pungens* of

France and England, is confined to the United States, and principally to the marshes of the sea-coast.

60. **NARDUS. L.** (Mat-grass.)

Calix 1-flowered, 1-valved. *Corolla* 1-valved, included within the calix. *Stigma* 1. (Flowers spiked, alternate, and sessile.)

SPECIES. 1. *N. stricta*. (On open hills near the banks of the Missouri.) This genus, with the exception of the *N. ciliaris*, of India, is confined to Europe.

61. **MIEGIA. Persoon. ARUNDINARIA. Michaux.**
(Cane.)

Flowers polygamous, paniculate.—*Calix* 2-valved, many-flowered, short and unequal. *Corolla* 2-valved, unequal, the larger valve acuminate. *Style* very short, trifid, and plumose. *Perisporium* (nectary) 3-parted, laciniaë lanceolate acute, as long as the germ; present in both the fertile and infertile flowers. *Seed* naked, large, acuminate with the persistent base of the style.

Culm gigantic, perennial. Flowers paniculate; spikelets distichous, 7 to 10-flowered.—Very nearly allied to the genus *Bambos*, as particularly described by Jussieu under the name of *Nastus*, from which it principally differs in having 3 instead of 6 stamina, and a bifid in place of a trifid style; their separation is thus merely artificial. The *Nastus* has also a 2 to 4-parted perisporium, and spikelets with flosculi which are alternately abortive.

SPECIES. 1. *M. macrosperma*. Culm 3 to 15 feet high. 2. *gigantea*? Perhaps only a variety of the former. Culm 30 to 35 and sometimes 40 feet high. This species is supposed to flower but once in 20 or 25 years: the *A. macrosperma*, flowers much oftener.—The *A. gigantea* grows in most abundance on the alluvions of the Mississippi, where it presents the most impenetrable brakes. The external varnished epidermis of the cane is found to be a siliceous deposition.

62. **ORYZOPSIS. Michaux.**

Calix 1-flowered, 2-valved, valves loose, oboval about the length of the corolla, awnless. *Co-*

rolla coriaceous, subcylindric-ovate, 2-valved, surrounded at the base with a line of pubescence, the exterior valve awned at the summit. *Perisporium* 2-parted, linear.

Culm nearly leafless. Flowers rather large, in a small racemose panicle; leaves almost rigidly erect, flat, rough, somewhat pungent at the point, and on the lower part of the culm very short. Corolla glume a little hairy. Michaux adds that it has the habitus of *Oryza*.

SPECIES. 1. *O. asperifolia*. The only species hitherto known, and confined to the northern mountains of Canada and the United States. It appears to be considerably allied to the genus *Milium*, but is well distinguished from it by the very different form of the valves of the calyx, and the single style. Mr. Pursh remarks his having found it on the Broad Mountains of Pennsylvania, and says, that the grain it produces is large, and affords a fine and abundant farina, deserving the attention of agriculturists.

63. * **ERIOCOMA.**† (Silk-grass.)

Calix 2-valved, 1-flowered; valves gibbous and coarctate above, longer than the corolla, both 3-nerved and cuspidate. *Corolla* 2-valved, roundish; valves coriaceous, vested with a silky wool. the outer valve terminated by a short triquetrous deciduous awn. *Anthers* bearded. *Seed* large, somewhat spherical.

Flowers dichotomously paniculate, peduncles flexuose, capillary, and clavulate. Leaves very long, involute and subulate, nodes of the culm distant, entirely sheathed.

Stipa membranacea. Pursh, vol. ii. in Supplement. p. 728.

1. *Cuspidata*, C.

DESCRIPTION. Root perennial; culm 2 to 3 feet high, simple; panicle spreading, dichotomous, flowers by pairs, peduncles capillary flexuose, clavulate at the summit. *Leaves* very long, filiform and convolute, a little asperate on the margin, (often more than a foot in length); vagina half a foot, entirely sheathing the stem and the panicle

† From *ερίον*, wool, and *κομη*, a head of hair. A grass producing a fastigate tuft of silky hair, upon the glume of the corolla.

before evolution; ligula entire, conspicuous. *Calix* 2-valved, 1-flowered, valves membranaceous, about twice the length of the corolla, ventricose and gibbous, above the corolla contracted; both 3-nerved, the lateral nerves only about one third the length of the glume, the central nerve ending in a cusp or short awn margined by the glume at its base, nerves a little pubescent. *Corolla* 2-valved, short, nearly oval, in fruit almost spherical, valves coriaceous, vested with an exerted silky villus, extending beyond the corolla, the dorsal valve terminated by a triquetrous pungent deciduous awn scarcely the length of the calix, at first perfectly erect, afterwards a little bent; the inner valve entirely enclosed by the outer and without awn. *Stamina* 3, scarcely exerted beyond the valves of the corolla: *anthers* small, brown, bifid at both extremities, above terminated by small pubescent tufts. *Style* 1. *Stigmas* 2, short, hirsutely villous. *Ovarium* sheathed by a 3-leaved *perisporium* (or nectary). *Seed* nearly spherical.

This genus is very nearly allied to *Oryzopsis*, but at the same time sufficiently distinct both in habit and character; having a culm with remarkable long sheathing and almost filiform subulate leaves, a dichotomous spreading panicle, a ventricose, coarctate, awned calix twice the length of the corolla, which last is furnished with a deciduous awn, and a long silky villus.

HABITAT. On the grassy plains of the Missouri, from the Arikaree village to the Northern Andes? Flowers in June and July.

Order 2.—DIGYNIA.

† *Calix* 1-flowered, flowers scattered.

64. MUHLENBERGIA. Schreber. DILEPYRUM. Michaux.

Calix very minute, truncated, 2-valved, unequal. *Corolla* 2-valved, hairy at the base, exterior valve terminating in a slender awn. (*Style* 1?)

Culm slender, leafy, terminating in a compounded racemose appressed panicle. *Calix* persistent, as in *Agrostis*, but extremely minute; like an obtuse unequally bifid scale in the *M. diffusa*; in the *M. erecta* one of the valves is rather long and acute, according to the obser-

vations of Mr. Elliott. The dorsal glume of the corolla is terminated by a long and straight awn; the *style* appears to be single at the base, but bifid above. This grass has much less the habit of *Agrostis* than the following genus, and certainly no affinity to *Leersia*.

SPECIES. 1. *M. diffusa*. A very common grass in the western, as well as most of the eastern states; round Lexington in Kentucky it grows in such abundance as almost to exclude every other grass, and affords a tolerable pasturage. 2. *erecta*. Not quite so common as the preceding.

65. TRICHODIUM. Michaux.

Calix 2-valved, valves nearly equal, acute; carina a little hispid. *Corolla* shorter than the calix, 1-valved, awnless. *Stigmata* almost sessile, rather hirsute.

Flowers in capillary trichotomous panicles, mostly in loose terminal fascicles.—Very nearly allied to the genus *Agrostis* with which it almost agrees in habit and character, differing, however, essentially in the glume of the corolla consisting of but a single valve. The carina of the calix described as spinulose by Persoon and Richard, is entirely a microscopic character, and even then can scarcely be called more than a very short hispid ciliation, which in *T. laxiflorum* more distinctly invests the rachis, being very sensibly asperate.

SPECIES. 1. *T. laxiflorum*. 2. *decumbens*. 3. *elatum*. This last species, probably appertaining to some other genus, is not recognized by Mr. Elliott under any other name than *Agrostis dispar*, with the same characters as given by Michaux, adding that he had never seen it.

Thus far the *Trichodium* is an American genus, not having been found indigenous in any other country. Like several species of *Agrostis*, the *Trichodium*, particularly the *T. decumbens*, has been greatly recommended to foreign agriculturists, more, however, apparently from sinister motives than any sensible conviction of its positive utility. Empiricism apart, its cultivation may perhaps at some future period be considered as important in the northern states: it is scarcely to be supposed that it could ever be so far acclimated in any part of Europe, and particularly in Great Britain, as to supercede the important varieties of the *Agrostis stolonifera*, and particularly that which has received the name of Fiorin-grass, which, however, it greatly resembles.

66. LEERSIA. Swartz. (Rice-grass.)

Calix 0. *Corolla* 2-valved, closed: valves compressed, boat-shaped, without awns. (Stamens 1, 2, 3, and 6.)

Flowers in appressed or spreading panicles, alternate and nearly sessile; receptacle of the glume concave and somewhat margined; glumes of the corolla apparently growing together after flowering. Leaves more or less scabrous; in the *L. Virginica* the channels betwixt the striæ of the leaves are thickly set with short hooked prickles, extremely acute and tenaceous, but most conspicuous upon the sheathes. This genus is very considerably allied to *Oryza*; it does not even altogether differ in the number of stamens, there being in Jamaica an hexandrous species of *Leersia*, there is also a bifid perisporium (or nectary) in this genus as well as in *Oryza*, their inflorescence and glumes are of the same remarkable character; but the *Oryza* is furnished with a short chaffy acute calix, not, however, one third the length of the coriaceous glumes, and is described as being furnished with an awn, though none cultivated in America ever produce it, and some rice also which I have seen from India considered as spontaneous was equally destitute of awns. It is probable, as Loureiro imagines, that the awned rice is a distinct species. In Tournefort's Institutes there is a figure of a panicle of rice with awns as long almost as a *Stipa*.

SPECIES. 1. *L. Virginica*. 2. *lenticularis*. 3. *oryzoides*. Besides these 3 species there are 2 others in Jamaica, and another in New Holland so nearly allied to the *O. hexandra*, that Mr. Brown scarcely conceives them distinct. The valves of the *O. lenticularis* are said to possess a degree of irritability, and retain small insects; it is more probably the singular construction of the corolla which produces this phenomenon; the insect venturing too far is retained as in a trap by the proboscis, and the hooked ciliatures of the valves, assist in ensnaring the intruder.

67. MILIUM. L. (Millet-grass.)

Calix 2-valved, 1-flowered, tumid. *Corolla* 2-valved, much shorter than the calix, with or without an awn. *Stigmas* plumose or villous.

Flowers paniculate (or spiked.) This genus is scarcely distinct from *Agrostis*; if it possess any distinguishing

character it is the form and proportion of the calix, being tumid and almost ventricose, nearly equal, and considerably, sometimes, much larger than the corolla glumes; that there can be any genuine species of *Milium* producing spikes is extremely doubtful, yet 4 and now 5 species with this anomalous habit are enumerated. One species, the *M. nigricans*, is used as an article of diet in Peru.

SPECIES. 1. *M. Amphicarpon*. The only genuine species of this genus appear confined to Europe, those of the West Indies producing spikes can have no distinct relation to the genus *Milium* so nearly allied to *Agrostis*.

68. AGROSTIS. L. (Bent-grass.)

Calix 2-valved, 1-flowered, valves acute.
Corolla 2-valved. *Stigmata* longitudinally hispid or plumose.

Flowers paniculate, spreading, with or without an awn, small. Corolla glumes smaller, equal to or exceeding the calix, in many species there are 2 minute hairy tufts near the base of the inner valve. The *A. Bromoides*, *A. arundinacea*, *A. Calamagrostis*, and *A. Mexicana*, with several single flowered species of *Arundo* ought with propriety to be restored to the genus CALAMAGROSTIS of Roth and Withering, a name, at least significant, to all who are acquainted with the species which it embraces, and much less exceptionable than many others which have been employed in Natural Science.

SPECIES. § 1. awned.—1. *A. Spica venti* (introduced). 2. *tenuiflora*. 3. *pauciflora*. 4. *stricta*. 5. *canina* (introduced.) 6. *sericea*. (*Stipa sericea*, Mich.) 7. *trichopodes*, E. 8. *arachnoides*, E. (nearly related to the genus *Trichodium*). —§ 2. without awns.—9. *decumbens*. 10. *vulgaris*. 11. *aspera*. 12. *alba*. 13. *dispar*. 14. *juncea*. 15. *indica*. 16. *clandestina*. 17. *lateriflora*. 18. * *brevifolia*† 19. *glauca*. If

† Culm solid and compressed, somewhat cespitosely branching at the base, erect; leaves narrow subulate and erect, much shorter than the culm: panicle composed of alternate appressed and interrupted racemes; calix equal, shortly acuminate, much shorter than the corolla, valves of the corolla glume nearly equal, somewhat terete, coloured, the dorsal glume shortly mucronate.

Nearly allied to the *A. indica*, but the stem is not terete, but solid and ancipital.

Obs. Branches deeply cleft, leaves 2 to 3 inches long, culm compounded, about a foot high, calix chaffy, about half the

these may all be considered as distinct, the United States produce half as many species of this genus as all the rest of the world besides, there being only 40 enumerated by Persoon. In India there are 6 species, of which 2 produce spikes like *Paspalum* or *Digitaria*, and another species with the same anomalous habit in the isle of St. Helena; there is 1 species in Japan; 1 in Senegal; 1 in Teneriffe; 1 at the Cape of Good Hope; 3 in Arabia; 1 in New Zealand; 4 in the West India islands; and all the rest in Europe; of which, several of the southern species are equally common to Barbary. Not one species from South America, Northern Asia, or New Holland.

This genus affords to the agriculturist some of the most important objects of cultivation both for pasturage and artificial meadows, among these the *A. stolonifera* with its numerous varieties is considered as the most useful.

69. CINNA. L.

Calix 2-valved, compressed, nearly equal. *Corolla* linear, compressed, shortly stipitate, naked at the base; dorsal valve including the inner, with a small awn near the summit. *Stamen* 1; style 1. *Seed* somewhat oblique.

Panicle large, reed-like, branches crowded, waving; flowers compressed, approximating so as almost to appear imbricated, smooth, with conspicuous scariose margins, leaves broad.

The *Cinna* differs greatly in habit from *Agrostis* as well as character; its habit is that of *Arundo*, and the base of the corolla, which is shortly stipitate, is destitute of the minute pubescent tufts which characterize the *Agrostis*. The awn of the corolla is also extremely small.

70. CALAMAGROSTIS. Roth. (Species of ARUNDO and AGROSTIS. L.) (Reed Bent-grass.)

Calix 2-valved, 1 flowered, valves acute or acuminate. *Corolla* 2-valved, mostly shorter

length of the corolla, which is of a leaden purple, sometimes subject to monstrosity, forming a nut like a *Scleria*!

HAB. In sterile naked plains and arid argillaceous soils, near Fort Mandan on the Missouri.

than the calix, surrounded with a pubescence or long wool at the base, the dorsal valve with or without awn.

Flowers paniculate, panicles often contracted, sometimes conglomerately lobed. Calix mostly acuminate, and exceeding the corolla. Glumes of the corolla often lacerate, generally surrounded at the base with a woolly involucellum, sometimes merely pubescent near the base; the dorsal valve usually embracing the inner one, and awned very often below the summit.

SPECIES. 1. *Mexicana*. Panicle erect, capillary branched, branches approximating, leaves glabrous, with a scabrous margin; calix acuminate, nearly equal, much longer than the corolla; valves of the corolla unequal, the inner valve embraced by the outer, very small, and lacerate, the dorsal valve producing a straight awn from about the middle; woolly involucellum longer than the corolla.

Obs A grass about 2 or 3 feet high, points of the calix bluish purple. This plant is described as destitute of an awn; the awn is indeed short and very slender, and readily confounded with the long wool arising from the base of the corolla. *Agrostis Mexicana?* PERSOON. *Arundo agrostoides*. PURSH.

2. *Colorata*, SIBTHORP. *Phalaris arundinacea*, LIN. *Arundo colorata*, SMITH. Flor. Brit. *Phalaris Americana?* of MR. ELLIOTT, who considering the 2 feathered appendages at the base of the corolla ("basi penicillis duobus lanæ flosculo longè brevioribus." SMITH.) as auxiliary glumes of the corolla, which probably they may be, conceived it to be distinct from the European plant.— This species is indeed very nearly allied to *Phalaris*.— **3. *canadensis*, (*Arundo canadensis*. MICH.)** As this is justly considered a dubious plant, I hope the reader will excuse any additional remarks.

Panicle oblong, appressed, branched near the base; flowers conglomerate, partly inclined to one side; calix glumes lanceolate, somewhat carinate, nearly equal, sharply acuminate, and a little longer than the corolla; outer glume 3-nerved, inner glume with only a single nerve, the carina of both scabrous; valves of the corolla nearly equal in length, acute, entire at the points, and scarious on the margin, the dorsal valve obscurely 5-nerved, awned a little below the summit; awn straight, scarcely half the length of the valve; inner corolla glume narrow, with a deep dorsal channel, near the base of which arises a neutral stipitate tuft of pappus, similar to that

which invests the base of the corolla; true pappus about half the length of the corolla; seed villous, with a hairy tuft at its extremity; nectary (perisporium) bifid, acute. Whatever this plant and the *Arundo colorata* may be considered, they are proximate species. In the latter there are 2 stipitate pappose tufts, in the present species but 1; the resemblance of these to that species of pubescence which invests the base of the corolla is so exact, that I can scarcely think it improper to consider them as any thing else than neutral abortions, and if ever these imperfect rudiments should even produce an empty or stamiferous flower, they might then be almost considered as species of *Holcus*.

4. *confinis*, (*Arundo confinis* WILLD.) To this genus also appertains the *Arundo epigejos*, the *A. Calamagrostis*, and the *A. stricta* of Europe, probably also the *A. conspicua* of New Zealand.

71. ANTHOXANTHUM. L. (Sweet-scented, Vernal Grass.)

Calix 2-valved, 1-flowered. *Corolla* 2-valved, valves unequal, acuminate, awned from near the base. *Stamina* 2.

Flowers spiked, bracteolate, spike terminal, somewhat lobed, glumes of the calix very unequal, sheathing and scariose. Flower glumes much smaller than the calix, obtuse, nearly equal, each awned nearly from the base, one of the awns longer and geniculate. Stamens much exerted, bifid at either extremity.

SPECIES. 1. *A. odoratum*. (naturalized.—From Europe.) Of this genus there are only 4 species, 2 of which are natives of India, and the 3d was discovered by Forster in New Zealand, but appears to belong to some other genus.

72. AULAXIA. AULAXANTHUS. Elliott.

Calix 2-valved, 1-flowered, with the rudiment of a second; valves equal, furrowed, the furrows villous. *Corolla* 2-valved, valves nearly equal.

Flowers disposed in a narrow appressed panicle, resembling a raceme; calix and corolla nearly equal. Seed roundish obovate. Stigmas plumose.

SPECIES. 1. *A. ciliata*. EL. (*Phalaris villosa*? MICH.). 2.

rufa. EL. This genus appears to be very closely allied to *Panicum*, and somewhat to *Milium*, particularly to the *M. amphicarpon* of Pursh. The *Milium villosum* of Jamaica may probably belong to this genus.

73. PHALARIS. L. (Canary-Grass.)

Calix 1-flowered, 2-valved; valves subovate or lanceolate, carinate, equal and nerved, including the corolla. *Corolla* 2-valved, mostly hairy at the base.

Flowers generally in terminal cylindrical or ovate spikes. In *P. canariensis*, the corolla consists of 4 valves, in *P. aquatica* of 3.

SPECIES. 1. *P. maritima* (*Arunda arenaria*. LIN.) This species may be considered as intermediate between *Arunda* and *Phalaris*.—On the coast of New-Jersey. Z. Collins, Esq. In Europe considered of great importance for arresting and consolidating the movable sands of the sea-coast. The rest of this genus is chiefly confined to the south of Europe and Northern Africa (Barbary.)

74. BRUCHMANNIA. Jacquin. PHALARIS *erucæformis*. L.

Calix 2-valved, 1-2-flowered, valves semiobcordate, inflated, equal. *Corolla* 2-valved, included within the calix, valves unequal, the dorsal valve setaceously acuminate; one of the flowers often abortive or wanting.

Culm erect, panicle irregularly spiked, spikelets interrupted and subdivided; flowers disposed in 2 rows on one side of the rachis. (Valves of the calix somewhat margined or slightly carinate, gibbous, and abruptly acute, with scariose margins, in the American plant generally 1-flowered, corolla glumes unequal, the dorsal valve convex, terminated by a short setaceous mucrone; smaller valve flat, rather acute; stigmata long, filiform and hirsute.)

SPECIES. 1. *B. erucæformis*. Around Fort Mandan, on the Missouri, in alluvial soil. Flowers in July. There is only as yet one species of this curious genus discovered, there being no apparent distinction observable betwixt the American plant and the one figured and described by Jacquin in his *Hortus Schoenbrunnensis*. It is equally

common to Siberia, the south of Europe, Hudson's Bay, and the Missouri.

75. **CRYPISIS.** *Lamarck.* (Thorn-Grass.)

Calix 2-valved, oblong, 1-flowered. *Corolla* 2-valved, longer than the calix. *Stamina* 2 or 3. (Spike surrounded at the base by the sheath of the leaf; or the flowers collected into a leafy capitulum.)

Culm decumbent or procumbent, extremely branched; leaves rigid and pungent; flowers collected in squarrose heads, or short and dense irregularly involucrate, lobed spikes.

SPECIES. 1. *C. * squarrosa.* Stem decumbent, much branched; leaves short, all rigid, and sharply pungent; capituli squarrose, few flowered; dorsal valve of the corolla coriaceous, somewhat cleft at the point, with a shortish subulate central cusp.

On arid plains near the "Grand Detour" of the Missouri, almost exclusively covering thousands of acres, and as pungent as thorns. ☉ Not more than 3 or 4 inches high; the flowers not collected into heads, as in the European species, but merely in squarrose terminal fascicles; the outer glume of the corolla is likewise cleft so as to present 3 short coriaceous subulate points.

2 *Virginia* Spike oblong, thick and lobed, generally sheathed by the inflated vaginæ of 2 short leaves; stem procumbent, geniculate, nodes numerous, approximating; leaves involute, rigid, and pungent; calix carinate, shorter than the corolla.

Agrostis virginica. WILLD Sp. Plant. *Agrostis pungens.* Schreber. Gram.

Leaves short, filiform subulate, rigid and divaricate, almost entirely smooth, and somewhat glaucous; culm decumbent branched from the base; spikes closely sheathed, axillary and terminal, about an inch long, sometimes oblong-ovate, lateral spikes often very short and roundish, rachis thick and angular at the base; calix nearly equal, compressed carinate, acute, shorter than the corolla, ciliate on the carina (seen through a lens); corolla valves often rather unequal, inner valve somewhat obtuse, naked at the base; style exerted, long.

Grows in the streets of Philadelphia. DR. W. BARTON. In Virginia. Pursh.

It appears to be allied to *Phleum*, but more distinctly

to *Phalaris*; its habit is that of *Crypsis*. To *Agrostis* it has no affinity whatever.

Of this genus there are only 2 other species, the *C. aculeata*, common to the south of Europe and Barbary, and like the *C. squarrosa* annual. The 2d species, *C. Schoenoides*, grows in Italy, the south of France, Spain and Smyrna. These 2 species are nearly related to the genus *Phleum*. The *C. squarrosa* in the structure of the corolla glume, appears much more nearly allied to the genus *Cenchrus*.

76. PHLEUM. L. (Cat's-tail Grass. Timothy-Grass.)

Calix 2-valved, 1-flowered, valves linear with a retuse point, prominently carinate, each terminating in a cusp (or short awn). *Corolla* included within the calix.

Flowers in dense cylindric spikes, simple, or partially divided, calix indurated, generally rough, ciliate or hispid, flat and truncate, with the mid-rib going out into a shortish awn.

SPECIES. 1. *P. pratense*. (Introduced, now naturalized in the United States, and of great importance in agriculture.) The few species of this genus (7) are all natives of Europe, with the exception of the *P. dentatum* of the Cape of Good Hope, which evidently belongs to some other genus.

77. POLYPOGON. Desfontaines.

Calix 2-valved, 1-flowered, each of the valves awned. *Corolla* 2-valved, shorter than the calix, the exterior valve terminating in an awn.

Culm simple or branched, flowers in spiked panicles, awns of the calix long and straight (being properly an elongation of the mid rib.) awn of the corolla slender, also terminal and erect.

SPECIES. 1. *P. crinitum?* (*Phleum crinitum*, SMITH.) The *Phleum* described by Mr Elliott, must either be this plant, or a new species, as he describes the spike to be compound, and the mid-rib of the calix extended into an awn twice its length, with a corolla "much smaller than the calix." Mr. E. found it upon Sullivan's island, apparently naturalized, and not more than 6 to 10 inches high. Of the *P. pratense*, Sir J. E. Smith, in *Flor. Brit.* says

"aristis brevibus, subdivaricatis." Desfontaines remarks in his '*Flora Atlantica*' of the same plant as growing in Northern Africa "glumæ—mucronatæ, mucrone brevissimo, horizontaliter conniventes;"—2. **racemosum*, † (*Agrostis racemosa*, MICH.) Of this genus there are now 5 species described. The *P. monspeliense* (or *crinitum*) on the sea-coasts of France and England, and probably in the United States; 2 the *P. maritimum* discovered by Bonpland, near Rochelle in France, 3 the *P. vaginatum* found by Pallas in the Crimea, and lastly, the *P. fasciculatum* near Estremadura in Spain.

78. ALOPECURUS. L. (Fox-tail Grass.)

Calix 2-valved, 1 flowered. *Corolla* 1-valved, awned from the base.

Culm generally simple, terminating in a dense and usually cylindric, simple or lobed spike. In the *A. pratensis* and the *A. agrestis*, the glumes of the calix are connate

† Culm very tall, compressed, branched, and somewhat decumbent; panicles interruptedly spiked, both axillary and terminal; many-flowered; flowers conglomerated in approximating lobes; calix glumes nearly equal, narrow lanceolate, 1-nerved, each nerve terminating in a very long scabrous seta (after the manner of *Festuca*); corolla glumes nearly equal, almost terete, much shorter than the calix. (the exterior valve terminating in a straight awn, nearly its length) pilose below; seed cylindric.

HABITAT. On the alluvions of the Mississippi and Missouri; abundant around St. Louis, (Louisiana.)

Obs. Arista of the calix more than its length; leaves smooth and linear, culm much branched, often 8 feet high, and decumbent upon the neighbouring plants. Pubescence of the corolla hairy, principally near the base, but not as long as the corolla; the awn of the flower appears to be often wanting. This species seems to be somewhat allied to the *P. fasciculatum* of Spain, but differs very essentially in the nearly equal length of the calix valves, and indeed from the genus in the rather rigid structure of the awns, and the entire but membranaceous margins of the calix; (in *P. Monspeliense* the calix is cleft at the point;) the pubescence also near the base of the corolla, but not absolutely so, and much shorter than it in length, separates it from *Calamagrostis*; neither is this pubescence disposed in 2 lateral tufts as in *Agrostis*, at the same time it is in this genus an anomalous circumstance.

(or united near the base). In most of the species the awn is geniculated or bent at an obtuse angle.

SPECIES. 1. *pratensis*. (Naturalized; frequently assuming the decumbent habit of *A. geniculatus*. According to Desfontaines this species is subject to the parasitic affection of microscopic *fungi*, called in France *Ergot*.) 2. *subaristatus* † MICH.

Nearly all the genuine species of this genus are confined to Europe, also extending into Barbary in Africa. There are 10 species described, of which there are 2 at the Cape of Good Hope, and 1 at the straits of Magellan.

79. PANICUM. L. (Panick-grass.)

Calix 3 valved, exterior valve often very small, 1-flowered, (mostly with the rudiments of a sessile, neutral or masculine floret.) *Corolla* (hermaphrodite) 2-valved, cartilaginous and persistent.

Flowers densely or loosely paniculate, the panicle sometimes recemosely divided, with lateral conglomerations upon an angular rachis; but for the most part diffuse or spreading, pyramidal, divaricate, or dichotomous, every where terminated by single flowers, approximating by pairs. In many species, the accessory, now considered the outer glume of the proper calix, is very minute, in these species the calix is often oval, or obovate, pubescent, with the imperfect flower always destitute of sexual rudiments, and the panicle divaricate. Some other species

† Culm about a foot high, and as well as the sheathes glaucous, repent at the base, or geniculate. Leaves smooth, 2 or 3 inches long on the culm; stipula elongated, semicylindric, Spike 1 to 2 inches long, somewhat attenuated above, cylindric, a little lobed or divided near the base. Flowers ovate obtuse, a little dilated. Calix connate at the base, conspicuously ciliate on the carina and margins. Corolla obtuse, smooth, edged with green as well as the calix; awn a little exserted, straight, originating somewhat below the middle of the valve. Stigmata white, filiform, exserted more than the length of the corolla, scarcely plumose.

In the waters and on the margins of ponds, in Upper Canada. *Mr. Whitlow* In New-Jersey, near Philadelphia. Nearly allied to *A. geniculatus*, but the flower is not awned from the base, and the awn is also straight.

have the valves of the calix approaching to equality, mostly acuminate; in these there is generally, if not constantly, an imperfect floret producing stamens, and they are usually furnished with a dichotomous panicle, either appressed, or diffuse and pyramidal.†

The generic character of *Panicum* is now described by Schreber as follows:

Calix of 2 very unequal valves, containing 2 flowers, the outer one male or neuter. Corolla of 2 unequal valves, finally cartilaginous and investing the seed.

Schreber remarks, that the inner glume of the imperfect flower being overlooked, its outer glume was conceived to belong to the calix: hence the calix was thought to consist of 3 valves, of which the third was much the least.

SPECIES. § I. Paniculate; flowers in dense racemes.—1. *Crus-galli*. 2. *Walteri*. 3. *gibbum*, EL. 4. *molle*, (calix only 2-valved? but 2-flowered, one of the flowers stamiferous only, allied to *Milium*? MICH.) 5. *gymnocarpon*, EL. (A very remarkable species, with the valves of the calix somewhat carinated, and nearly all equal, with an imperfect neutral rudiment attached to the base of the perfect flower; the whitish indurated corolla in seed almost resembles a *Scleria*, and is scarcely half the length of the calix. This species is closely allied to the genus *Orthopogon* of Brown, but the valves are only acuminate, not awned) 6. *geniculatum*, EL. 7. *anceps* 8. *hians*, EL. (*P. divaricatum*, MICH.) 9. *fusco-rubens*.—§ II. Flowers in panicles.—10. *virgatum*. 11. *nitidum*. 12. *dichotomum*. 13. *capillare*. 14. *latifolium*. 15. *scoparium*. 16. *pauciflorum*, EL. 17. *amarum*, (of an extremely bitter taste! EL.) 18. *scabriusculum* 19. *nervosum*, E. 20. *multiflorum*, E. 21. *ovale*, E. 22. *lanuginosum*, E. 23. *viscidum*, E. (remarkably viscid or glutinous near the nodes of the culm. Several other species in the United States have glandular exudations.) 24. *villosum*, EL. 25. *pubescens*. 26. *sphaerocarpon*, E. 27. *ciliatum*, E. 28. *ensifolium*, E. 29. *barbulatum*. 30. *microcarpon*, E. 31. *Melicarium*. 32. *debile*, E. 33. *angustifolium*. 34. *divergens*, E. 35. *elongatum*, PURSH.

The southern and middle states of North America now afford about one third as many species of this genus as are at present discovered in the world. About 110 genuine species of *Panicum* are described, independent of those with involuclate spikes, which are now placed in the genus *Pennisetum*, and a few others in *Orthopogon*.

† This habitus merely describes the American species.

Of these, besides what we have enumerated, New Holland affords 32 new species, according to Mr. Brown, besides several others common to various quarters of the world. In Great Britain it is doubtful if there be a single indigenous species of this genus, if we except the *P. Crus-galli*, which may, however, have been introduced from the continent of Europe. Desfontaines describes 8 species in Barbary, of which only 2 are peculiarly indigenous, the *P. debile* and *P. Numidianum*, the other 6 are equally common to the South of Europe, but of these there are only 3 which correctly appertain to the present genus. Nearly all the other Panicums are pretty equally divided betwixt India and America within the Northern tropic, particularly the West India islands. In Jamaica there is a shrubby species, the *P. divaricatum*, and in India 2 others, viz. the *P. arborescens* and the *P. curvatum*. The *P. Milium* or Millet, now cultivated in the South of Europe, is also from India. From this view, it is evident that the genus *Panicum*, generally speaking, belongs to the tropical regions; hence we find this genus to increase upon us in America, as we proceed through the southern states, where they are often in such abundance as locally to exclude almost every other grass; still we find many species of this genus in the United States, extending to, and some even greatly beyond, the 40th degree of North latitude.

80. PENNISETUM. *Richard.* (Some species of *Panicum* of *L.*) (Bristly Panick-grass.)

Involucrum composed of many setæ (or bristles.) *Calix* 2-valved, valves unequal, 2-flowered; one of the flowers hermaphrodite, the other masculine (or rarely neuter) both sessile. (Flowers spiked, polygamous.)

Spikes simple or compounded; partial involucre, composed of several deeply divided or separate bristles, including 1 or 3 flowers, many of the flowers abortive; in some species apparently a bristle at the base of each embryo flower whether perfect or abortive. Most of the foreign species, on which the name was founded, have an involucre of two kinds of setæ, a few of the lower ones, (as in *P. orientale*) being longer and plumose.

SPECIES. 1. *P. pungens.* (*Panicum Cenchrroides* of Mr. Elliott, but this name being already adopted in the present genus, a change becomes necessary; very nearly al-

hed to *Cenchrus*, and furnished with a spiny involucre.) 2. *lævigatum*, EL. 3. *glaucum*. 4. *viride*. 5. *verticillatum*. (These two last appear to have been introduced.) 6. *corrugatum*. 7. *Italicum*. (This species is supposed to be the true *Panicum* of the ancients, and its drooping panicle is described by Pliny, who speaks of it as not so much used as the Millet (*Panicum miliaceum*) in making bread, but weighing more than any other grain, as well as increasing more in bulk when cooked. It is still cultivated in Italy and other parts of Europe, and from the vast size of its spike must be very productive. Mr. Elliott remarks, that in Carolina it sometimes attains the height of 10 feet. Of this genus, though not numerous, there are species in Europe, India, the West Indies, Africa, and New Holland.

81. ORTHOPOGON. Mr. R. Brown.

Calix 1-flowered, with 3 nearly equal valves, all awned, the awn of the exterior valve much longer than the others; awns straight, and smooth.

With the exception of the present species, these are tropical grasses, growing in shady places. Their leaves flat, and broadish. Spike composed of alternate spikelets directed all one way, and sometimes consisting of very few flowers.

SPECIES. 1. *O. hirtellum*. (*Panicum hirtellum*, LIN.) In Florida and South Carolina. In this species, as it appears in the United States, the spikelets contain from 5 to 8 flowers, the partial and general rachis often smooth as well as villous, sometimes the valves of the calix are multiplied to 4, of which the external ones whether above or below are furnished with very long, smooth, straight, and viscid awns; the neutral rudiment at the base of the inner valve of the indurated perfect flower is very minute and bifid, constantly attended with an oblique and imperfect lateral valve, ciliate at the upper edge as are all the valves of the calix, whether the other pubescence be present or not. Of this genus Mr. Brown describes 4 species in New Holland, the *P. compositum* of Ceylon as well as the present plant are also included in this genus by its founder, and there appears to be some other species in India and the West India islands.

82. DIGITARIA. Haller. Richard. (Crab-grass.)

Calix 2 or 3-valved, concave; exterior valve minute, or none, second variable, the innermost

as long as the corolla. *Corolla* 2-valved, oblong-ovate, terete, and awnless. *Style* very long. *Nectary* cleft.

Spikes digitate, linear; flowers by pairs alternately subsessile. Species of *Panicum* of Linnæus and others; with which they nearly agree in structure, but possess the habit of *Paspalum*.

SPECIES. 1. *D. sanguinalis*. 2. *villosa*. 3. *filiformis*. 4. *paspalodes*.

Except the *D. sanguinalis* and the *D. humifusa* of Europe, the few other species of this genus, about 12, are confined to India and North America.

83. CYNODON. *Richard*. (Bermuda-grass.)

Calix 2-valved, spreading, lanceolate. *Corolla* larger than the calix, 2-valved; the exterior valve large and ovoid. *Nectary* truncate.

Spikes digitate, flowers imbricated in a single series, solitary.

A remarkably creeping grass, growing very luxuriantly in the sands of the sea-coast, as well as the poorest loose soils, and were not its extirpation so difficult, might be of importance for forming pastures where scarcely any other vegetable could exist.

There is only 1 species, the *C. Dactylon*, common to Europe, North America, and the West India islands.

84. PASPALUM. *L*.

Calix 2-valved, equal, mostly orbicular. *Corolla* 2-valved, of the same figure and magnitude. *Stigma* plumose.

Flowers in digitate spikes arranged on one side; mostly in 2, 3, or even 4 rows; rarely alternating in a single row, in some species ovate as well as orbicular. Spikes generally digitate and definite, in a few species allied to the genus *Ceresia*, viz. *P. membranaceum* (*Ceresia frutans* of Mr. Elliott) and the *P. stoloniferum*, the spikes are very numerous, and disposed almost verticillately upon a raceme, in these also the flowers are ovate, and the rachis membranaceous. This genus, as Mr. Brown very justly observes, is closely allied to *Panicum*, at least to the species which produce spikes.

SPECIES. 1. *P. seticeum*. 2. *debile*. 3. *ciliatifolium*. 4. *dasyphyllum*, EL. 5. *præcox*. 6. *læve*. 7. *Floridanum*. 8. *plicatulum*. 9. *purpurascens*, r. 10. *distichum*. 11. *vaginatum*.—
 § II. Spikes in racemes.—12. *membranaceum*. 13. *stoloniferum*. In New-Jersey. Pursh. Near New Orleans abundant. I suspect these 2 last marked as species, are varieties of the same plant. This species, originally discovered in Peru, has been greatly recommended to agriculturists. In warm, maritime situations, it continues growing and flowering throughout the year, and is undoubtedly productive and important in South America; but in Europe it is entirely destroyed by the earliest frosts of the autumn, being quite a tropical annual.

This genus, with the exception of the above species, is confined to the West Indies and the tropical portions of the American continent; there is at the same time, 1 species in Japan, 2 in India, 1 in Surinam (Africa), and another in China. The *P. conjugatum* is common both to Jamaica and Surinam. There are also a few species in New Holland. Europe produces no species of this genus.

85. ARISTIDA. L.

Calix 2-valved, 1-flowered. *Corolla* 1-valved, terminated by 3 awns.

Culm paniculate; panicle sometimes contracted like a dense spike, or elongated into a compound raceme, in others spreading or divaricate, in some species trichotomous, in others dichotomous. Flowers commonly approximating by pairs; calix as in *Avena* and *Stipa*, longer or shorter than the corolla. Corolla generally described as consisting of a single glume; Mr. Elliott detects the rudiments of a minute inner glume in *A. spiciformis* and *A. lanosa*. The corolla of all the species is terminated by 3 awns, sometimes of very unequal length, scabrous or plumose, inclined in various directions, the central awn often horizontal, sometimes all equal and then divaricate, the awns very rarely contorted.

SPECIES. 1. *A. spiciformis*, EL. 2. *stricta*. 3. *lanosa*, EL. 4. *gracilis*, E. 5. *oligantha*. 6. *dichotoma*: (the larger contorted awn of this species is hygrometric.) 7. *pallens*, (in depressed situations, near Fort Mandan on the Missouri.)

8. **tuberculosa* Culm rigidly erect, dichotomous, with tumid articulations and small tubercles or callosities in the axillæ of all the branches; panicle rigid, rather short, ramuli approximating towards the summit of the culm,

distinct at the base; calix valves carinate, with very long subulate points, and twice the length of the corolla; corolla cylindrical, stipitate; awns smooth, nearly equal, very long, spirally convolute, and growing together towards the base.

Culm with very few articulations, (2 to 3 feet high.) Sheaths of the radical leaves mostly tomentose; leaves smooth, very long and subulate. Branches erect, removed from the culm, and the flowers often from each other by the interposition of small callosities at their base. Valves of the calix subulate, often more than an inch long. Flowers distinctly stipitate, stipe villous; awns twisted together at the base, nearly equal, more than 2 inches long.

In the sandy pine forests of Georgia, a few miles from Augusta.

Of this genus there are 5 other species described as growing in the West Indies and South America, 1 in the island of Teneriffe, 7 in India or the neighbouring islands, 2 at the Cape of Good Hope, 1 in New Holland, 1 in Spain, and 3 in Barbary, of which the *A. pungens* is a shrub with plumose awns.

36. STIPA. L. (Feather-grass, Long-awned grass.)

Calix 2-valved, 1-flowered. *Corolla* shorter than the calix, 2-valved; valves involute and truncate. *Awn* terminal, very long, deciduous, and contorted at the base.

The habitus of this genus is so very similar to that of the preceding that we shall omit the repetition. Here, however, the corolla glume is only terminated by a single awn, but often of prodigious length, in some species elegantly plumose, frequently contorted near the base. It is described as deciduous though apparently often without any good reason.

SPECIES. 1. *S. avenacea*. 2. *Canadensis*. 3. *juncea* (of Europe as described by Linnæus with the "awns (nearly) straight and without pubescence." The African variety figured by Desfontaines, has twisted pubescent awns, and blunt seeds; the Missouri plant has a nerved chaffy loose calix, filiformly acuminate to more than double the length of the seed, which last is acutely stipitate about one third of its length, the stipe pubescent, the seed rather obtuse, distinctly articulated to the awn, which is

smooth and slender, scarcely contorted, and near half a foot in length. This species grows very commonly on the grassy plains of the Missouri, as well as the *S. Virginica*, and are very troublesome when in seed, adhering by the pungent stipe to every thing which comes in their way. 4. *bicolor*. (*S. barbata*, MICH.) Also in Brazil. 5. *expansa*. 6. *stricta*. 7. *parviflora*.† There are now about 18 species of this genus, of which 5 are European; there are 2 species at the Cape of Good Hope, 1 in Siberia, 3 in the warmer parts of America, (many more probably discovered by Humboldt and Bonpland), the rest exist in North America and Barbary; of these the *S. juncea* is common to this part of Africa, Europe, and North America, the *S. parviflora* of Barbary also grows on the plains of the Missouri, and is probably the same plant as the *S. aristella* of Europe.

Not a single species of this genus is useful in agriculture. In Europe the species are thinly scattered, in Barbary and Upper Louisiana they appear in many places the prevailing herbage, communicating to the desert plains in autumn the colouring of harvest, called *pay-jonal* by the American Spaniards.

37. SACCHARUM. L. (Sugar-Cane.)

Flowers all hermaphrodite.—*Calix* with a long woolly involucrum at the base, 2-valved.

† This species is figured and described by Desfontaines in his *Flora Atlantica*, 1. p. 98. t. 29. as growing in Barbary. The Missouri plant appears, however, to be a distinct variety, though assuredly not a distinct species.

Stem from 1 to 2 feet high, smooth. Leaves smooth, sheathing the stem and the panicle, filiformly attenuated, but not rigid. Panicle long, appressed, many-flowered. Peduncles filiform. Calix about one half longer than the corolla. Glumes compressed carinate, partly 3-nerved, nearly equal, abruptly and capillary acuminate, corolla somewhat villous, sessile, or nearly without stipe, awn smooth, becoming capillary towards the extremity, somewhat flexuose, about an inch and a half long.

Grows abundantly with the other species on the plains of the Missouri. Differs from the African plant in the leaves not being rigid, and the seeds villous, also by the capillary acumination and compression of the calix, and as well as the obtuse form of the seed.

Corolla 1 or 2-valved, with or without a terminal awn. *Stamina* 1 to 3.

§ II. *ERIANTHUS*, *Michaux*. Panicles appressed, almost in the form of a spike; inferior glume of the corolla always terminated by a long awn. *Stamina* 2. (Nearly allied to *Andropogon*.)

Culm tall and solid, terminated by an appressed spike-like panicle; involucrate villus, of various lengths; inner glume of the corolla always awned, awn straight; (in *E. contortus* spirally twisted, and the flowers alternately pedicellate; perhaps an *Andropogon*;) leaves expanding; calix 1-flowered.

SPECIES. 1. *aloppecuroideum*. (The trivial name of *giganteum* given by Walter and retained by Persoon, can only be used with propriety relative to the genus with which Walter at first associated it; as a *Saccharum*, which it is, although indeed tall, it is almost every way inferior in size to the other species of the genus.) 2. *brevibarbe*. 3. *strictum*, *EL*. 4. *contortum*. *EL*.

This genus, with the exception of the North American section, is confined to the tropics. There is 1 species in Teneriffe, 1 in Japan; the *S. officinarum* or true sugarcane, with four other species are natives of India; there is another species in the West Indies, 1 in Guinea, and 1 in Italy, with the *S. cylindricum* common to the South of Europe and Barbary.

88. ANDROPOGON. *L.* (Beard-grass.)

Flowers in pairs, polygamous; the hermaphrodite sessile; the masculine or neutral flower, without awn and pedicellate.—**HERMAPHRODITE.** *Calix* 2-valved, 1-flowered. *Corolla* of 3 valves; the second valve smaller and awned, the third interior minute. *Stamina* 1 to 3. *Receptacle* or *rachis* mostly villous. *Involucrum*, a fasciculate villus at the base of the flowers. (In many species the leaves are boat-shaped, or like tumid sheathes.)

Culm tall, generally cleft into numerous flat branches, terminating usually in proliferous or concatenated branchlets (called spikes), disposed by pairs, by threes, or more, and then digitate arising from the summit of single lateral or terminal peduncles, either naked, or more

frequently sheathed by cymbiform acute or acuminate leaves, in some species so closely as not to admit the expansion of the spikes; flowers alternate and sessile, with lateral abortive pedicellate florets, sometimes mere barren pedicells, arising near their base. In the American species, the involucrate villus is often short, sometimes inconspicuous.

SPECIES. 1. *A. nutans*. 2. *avenaceum*. 3. *ciliatum*, EL. 4. *melanocarpus*, EL. 5. *scoharium*. 6. *macrourum*. 7. *ternarium*. 8. *virginicum*. 9. *bicorne*. 10. *argenteum*, EL. 11. *dissitiflorum*. 12. *vaginatum*, EL. 13. *tetrastachyum*, EL. 14. *furcatum*.

In India there are 11 species of this genus, 2 of which, the *A. Nardus* and *A. muricatum*, are every where cultivated for their aromatic odour. There are also 3 species in Japan, 5 in the south of Europe, most of which are also indigenous to Barbary, 1 species peculiar to that country, and 1 at the Cape of Good Hope, 2 in the West India-islands, and now 14 species enumerated in the United States, of which, several are also common to the tropical regions of the American continent. Excepting the continent of India, there appears not to exist a single genuine species of *Andropogon*, within the southern hemisphere.

§ II. *Calices 2-flowered, dispersed.*

89. TRisetum. Persoon. (Three-awned Oat-grass.)

Calix 2 to 3-flowered, acuminate and carinate. *Corolla*, (outer valve) terminated by 2 shorter, almost tooth-like awns (or the apex of the glume setaceously bilid,) and 1 longer straight dorsal awn, not contorted.

Species of *Avena* of other authors, distinguished chiefly by a deeply cleft acuminate and carinate dorsal valve, a central straight awn, with compressed pale coloured spikelets, and flosculi which are generally smooth.

SPECIES. 1 *T. pratense*, (*Avena flavescens*, L.) The rest of this genus is chiefly confined to the South of Europe, Barbary, and the Cape of Good Hope.

90. AIRA. L. (Hair-grass.)

Calix shining, 2-valved, 2-flowered. *Corolla* awnless, or awned from the base, 2-valved.

Florets without a third rudiment between them.

Flowers scariose and shining, disposed in capillary panicles. In many species the valves of the calix or the corolla are obtuse. From *Avena* the awned species are distinguished by producing straight or geniculate awns, arising from the base of the flower.

SPECIES. 1 *pumila*? 2. *aquatica*, (this species is nearly allied to *Poa*.) 3. *obtusata*. 4 *brevifolia*? 5 *capillacea*. 6. *præcox*. 7. *flexuosa*. 8. *cespitosa*. 9. *mollis*.

This genus is almost exclusively confined to Europe and North America; some species, however, are common to Barbary, and the South of Europe.

91. *URALEPSIS. †

Calix scariose, 2-valved, 2 or 3-flowered, somewhat terete, much shorter than the outer valve of the corolla, acute at the base. *Flowers* alternate, distinct. *Corolla* 2-valved, stipitate, valves very unequal, the *outer* tricuspidate, central cusp much longer, terminated by a straight awn, nerves all pubescent; *inner* glume short, arched inwards. *Seed* somewhat gibbous, enlarged above, arillate.

Grasses with the habit of *Andropogon*, and partly the structure of *Aira*. Culm simple, leaves and sheathes short; racemes few-flowered, remote, nearly simple, and solitary, axillary and terminal, sheathed; sheathes deciduous; (flowers and culm purple)

SPECIES 1. *U. purpurea*. (*Aira purpurea*, WALTER and ELLIOTT.) Culm terete and somewhat hairy below the commencement of flowers, semicylindric above; racemes shorter than the internodes, few-flowered, flowers nearly sessile. Leaves flat, very narrow, above atmos: filiform. Calix 1 or 2-flowered, valves nearly equal in length, each with a single nerve, somewhat acute, rarely lacerate. Corolla acutely stipitate; outer valve more than twice the length of the calix, in seed deeply 3-parted, 3-nerved, and reflected, dentures acuminate, the central one terminating in an awn as long as the valve, nerves all pubescent; in-

† From οὐρά *cauda*, and λεπῖς, *squama, palea* or *gluma*, intended to indicate the singularly caudate appearance of the outer corolla valve.

ner valve about the length of the calix, 2-nerved, arched over the seed, nerves margined above with interrupted tufts of dense villus. Seed subterete, enlarged and inflected above. At the base of the inner valve in the uppermost flower there is either a barren pedicel with an obtuse point, or a third imperfect awned flower.

2. *aristulata*. Valves of the calix unequal, obtuse, and lacinate, about 3-flowered; lateral teeth of the outer corolla valve obtuse, and the awn very short.

Near Wilmington, Delaware,—Dr. Baldwin.

Obs. Perhaps only a variety of the former. Upper leaves entirely sheathing; spikelets almost terete, 3 flowered, dorsal awn merely visible, lateral teeth obtuse, nerves pubescent; inner valve inflected, fringed to the summit.—Calix very acute at the base, purple, in both species persistent, corolla stipitate, villous at the base.

Near as this genus approaches *Trisetum* in its artificial character, it is still widely separated by habit, and would never probably be referred to *Avena*, being distinguished from both those genera by the remarkable smallness of the calix, its truncate appearance, and want of nerves, as well as the singular inequality or gibbosity of the corolla.

92. MELICA. L. (Melic-grass.)

Calix coloured, 2-valved, 2 flowered; glumes loose, obtuse, membranaceous, and unequal. *Corolla* 2-valved, ventricose, smaller than the calix; the rudiment of a third flower betwixt the flosculi.

Panicle in the form of a spike or raceme, rarely more compound; flowers large. In the *M. uniflora* the calix is but 1-flowered; and in the *M. aspera* 3-flowered. To the generic character of *Melica*, Schrader adds "stamens dilated and combined at their base; nectary of 1 leaf."

SPECIES. 1. *M. glabra*. 2. *diffusa*? (I have seen a third species from the Northern states collected by Mr. Bigelow, in which the corolla glumes are obovate and villous, a little shorter than the scariose calix, disposed on a raceme-like panicle.) Of this genus there are species in Africa, Europe, and South America. It is, however, a genus neither numerous nor common.

93. HOLCUS. L. (Soft-grass.)

Calix 2 flowered, 2-valved, (opaque and nervous.) *Corolla* smaller, 2-valved, the exterior

valve awned. *Nectary* linear, 2-parted. *Stigmata* nearly sessile.

Flowers polygamous, one masculine, the other hermaphrodite, paniculate.

SPECIES. 1. *H. lanatus*. 2. *striatus?* 3. *fragrans*. (called Sweet-grass, and Seneka-grass, nearly allied to the *Holcus odoratus*; certainly not a congener with the *H. lanatus* and *H. mollis*, but apparently a *Melica*.)

Grasses of Europe, with the exception of the *H. fragrans*. The *H. lanatus* is now naturalized in the United States.

94. SORGHUM. L. (Broom-grass.)

Flowers polygamous, by pairs, the hermaphrodite flower sessile, the masculine or neuter pedicellate.—**HERMAPHRODITE.** *Calix* 2-valved. *Corolla* 3-valved; the 2d valve awned, the 3d connecting with the villous nectary. *Corolla* of the male flower awnless. *Seed* large.

Culm tall, flowers diffusely paniculate, leaves expanding. Seed sufficiently large to be cultivated for food somewhat resembling millet.

SPECIES. 1 *H. bicolor*. (By Persoon considered a variety of the *S. vulgare*; cultivated around Lancaster, according to Dr. W. Barton, who has been induced to recommend it to public economy, as a substitute for chocolate or coffee, when parched.) 2. *saccharatum*. (Extensively cultivated in the United States, though no where naturalized. Its large panicles are used for brooms; the seed is given to poultry, and might probably answer the same purposes as that of the *S. bicolor*. The whole plant is highly saccharine, and attempts have been made in France and elsewhere to extract sugar from it; but without sufficient success.)

Of this genus there are only 4 species described by Persoon; 2, if not 3, in India, and 1 in Syria;—the *S. bicolor* is a native of Persia.

95. SESLERIA. L. (Moor-grass.)

Calix 2 to 5-flowered. *Corolla* 2-valved, valves toothed at the point. *Stigmata* somewhat glandulous.—Flowers spiked, often purplish, base of the spike bracteate, or involucrate.

Early flowering subalpine grasses, growing in calcareous mountains.

SPECIES. 1. *S.* **Dactyloides*. Culm setaceous, leafy; leaves short, flat, subulate, and somewhat hairy; stipules bearded; spikes 2 or 3, few-flowered; flowers in 2 rows, disposed upon an unilateral rachis, calix mostly 2-flowered, and with the corolla acuminate and entire.

HAB. On the open grassy plains of the Missouri; abundant. Flowers in May and June. *v.v.* Root after flowering resembling a bulb.

Culm smooth and round, furnished with 2 or 3 leaves, about 4 or 5 inches high. Leaves flat, subulate, and somewhat hairy, 1 to 2 inches in length, and about 2 lines wide; sheathes shorter than the internodes, very hairy around the stipules. Spikes 2 or 3, somewhat oval, subtended by a single leaf, with which they are at first sheathed; rachis compressed, margined, spikelets 6 to 8, by pairs, inclined to one side. Calix 2-valved, 2 or 3-flowered, valves very unequal, each with a single nerve and carinate, the larger oblong-ovate, mucronulate. Outer valve of the corolla oblong-lanceolate, entire, 3-nerved, smooth, and membranaceous, longer than the calix; inner 2-nerved, nearly the length of the outer. Anthers linear, entire, fulvous, exerted. Styles filiform, pubescent.

This species appears on the one hand, allied to *Atheropogon*, and on the other to *Dactylis*. Though rather a *Sesleria* than any other genus, it recedes from it in having the valves of the corolla entire at the apex, and thus it approaches *Dactylis*, at least, the *D. glomerata*.

With the exception of the present species, the genus *Sesleria* is confined to the alpine regions of Northern Europe.

§ III. Calyces many flowered, scattered.

96. POA. L. (Meadow-grass.)

Calix 2-valved, many-flowered. *Spikelets* more or less ovate, without awns, valves somewhat acute, discoloured, with scariose margins.

Flowers paniculate, panicles many-flowered, branches often semiverticillate, one sided, coarctate, or spreading; in several species the flower glumes are connected at the base by a tomentum or villus

SPECIES. 1. *P. trivialis*. 2. *pratensis*. 3. *viridis*, (distinguished from *P. pratensis* by the remarkable compres-

sion and almost pungent acuteness of the calix and corolla; valves connected at their base by a very copious, long tomentum; panicle semiverticillate and coarctate.) 4. *nemoralis*. 5. *annua*. 6. *alpina*? 7. *compressa*. 8. *nervata*. 9. *autumnalis*, F. L. † 10. *angustifolia*. 11. *aquatica*. 12. *fluitans*. 13. *rigida*. (These are nearly all introduced species, or common to Europe as well as America, and of great importance in agriculture.) 14. *capillaris*. 15. *tenuis*, EL. 16. *hirsuta*. 17. *subverticillata*. 18. *crocata*. ‡

§ II. BRIZOMA. || Spiculi erect, closely imbricated, flower-glumes often angularly 3-nerved; without a connecting villous; valves short, ovate, obliquely pointed, (sometimes producing the appearance of marginal serratures,) inner valve small, seeds more or less spherical.

† *Pungens* would perhaps have been a better name for this early flowering vernal grass.

Obs. Root somewhat caespitose and perennial; culm partly ancipital, about a foot high. Radical leaves erect, long, and narrow; leaves on the culm generally 2, flat, oblong, lanceolate, scabrous only on the margin, the lower about an inch long, the upper just visible; all erect and carinate, with a coarctate pungent point; stipula truncate, lacerate, sometimes abruptly acuminate; sheathes long, but a little shorter than the nodes. Panicle small, semiverticillate, alternate, horizontally spreading, terminating in an almost simple raceme; branches capillary, mostly by twos or threes; fasciculi 3 or 4. Spiculi crowded towards the extremities of the ramifications, cuneate-ovate, or lanceolate, before flowering somewhat acute, 3 or 4-flowered. Calix smooth, inner valve acute. Corolla ovate lanceolate, a little obtuse and scariose at the point, villous at the base, obsoletely 5-nerved, 3 of the lesser nerves ciliate pubescent below. Stamina exserted, tremulous, bifurcate at either extremity. Styles sessile, complicately plumose, white.

HAB. Around Philadelphia in rocky situations, on the banks of the Schuylkill, &c. Flowers in April.

‡ Culm leafy, round, 18 inches or 2 feet high. Leaves smooth, flat, acuminate, 4 to 6 inches long; stipula elongated. Panicle elongated, semiverticillate, branches appressed, numerous, many-flowered. Spikelets in attenuated racemes, small, nearly sessile, acutely ovate, generally 2-flowered, pale green, with yellowish, and sometimes purplish scariose points. Calix acuminate, nearly as long as the flosculi, obsoletely 3-nerved, and carinate. Flowers oblong, rather obtuse, with a dorsal line of pubescence near the base.

HAB. In Canada.—Mr. Whitlow. *Poa hydrophila*? Persoon

|| Species of *Poa* allied to the genus *Briza*.

Panicles lateral and terminal, spikelets often crowded, flowers numerous; stipula obsolete, densely ciliate.

* *Flowers entirely deciduous.*

19. *conferta*, E.L. (panicles long and very erect, axillary and terminal; branches in conglomerate sessile clusters, crowded with membranaceous flowers, spikelets appearing pectinate or serrate.) 20. *nitida*, E.L.

** *Inner valve of the corolla and rachis persistent.*

21. *parviflora*, (branches of the panicle dichotomously divaricate; flowers distant, terminal, approximating by pairs upon unequal pedicells, inner valve of the corolla and rachis persistent; seed nearly spherical, rugose. The spikelets of this plant are somewhat glutinous. This is certainly not the *P. striata* of Lamark.) 22. *tenella*. (Culm slender, leaves short and subulate, panicle somewhat verticillate, erect, branches capillary, flexuose and appressed, flowering towards their extremities. Spikelets few, linear, somewhat acute, closely and incumbently imbricated. Calix unequal and very short; flowers erect, appearing alternate, short ovate, with an oblique apex, and almost obtuse, obscurely nerved, with a purple margin, and a white scariose line at the point. Possessing considerably the appearance of a *Briza*.)

23. *pectinacea*. 24. *eragrostis*. 25. *megastachya*, KOEHLER (*Briza Eragrostis*, LIN) 26. *obtusa*.† 27. *spectabilis*.

† Panicle elongated, almost simply branched at the base, branches erect; spikelets compressed, oblong-ovate, obtuse, upon very short peduncles, 8 to 15-flowered; valves of the calix acute, nearly the length of the 3-nerved flowers, inner valve with 1 nerve, the outer with 3; culm rather weak and compressed? leaves flat and smooth, stipula obsolete, softly bearded.

Obs. Culm simple, about 18 inches high; leaves few, rather long, flat, and smooth, a little asperate on the margin; panicle about 4 or 5 inches long, simply branched near the base, running out almost into a raceme above; flosculi closely imbricated, compressed; outer valve 3-nerved, truncate at the point; stamina 3, short; styles slender, simply pennate.

Briza virens? Walter. Flor. Car. 79.

Closely allied to the *B. Eragrostis*, (*Poa megastachya*) but readily distinguished by its unbranched, weak, and compressed stem, the length of its leaves, which are not involute and rigid, the scattered few-flowered panicle, and particularly the obtuse points of the flower glumes, and lastly by the calix, in which the larger valve is 3-nerved, and consequently similar to the corolla, while the calix glumes of the *Poa megastachya* have each but a single nerve, a character which not only distinguishes it well from the present species, but also from the *P. Era-*

28. *reptans*. Ambiguous species.—29. *melicoides*.† 30. *Airoides*.‡

Of the 78 species of this genus in Persoon, there are 28 in Europe, the rest in North America, Barbary, India, the tropical islands of America, a few species at the Cape of Good Hope, and some in the isle of New Zealand. As yet there are only 2 species described as growing in the whole continent of South America.

A genus of the utmost importance in agriculture.

97. BRIZA. L. (Quaking-grass.)

Calix 2-valved, many-flowered. *Spikelets*

grostis, in which the larger valve of the calix is also 3-nerved, similar to the corolla.

HAB. Collected in the neighbourhood of Philadelphia, by Dr. W. Barton, professor of Botany.

† Panicle small, composed of a few simple racemes; calix unequal, obtuse, shorter than the corolla, 2 or 3-flowered; flowers oblong-obovate, obtuse, nerved, connected to the rachis by a tomentose villus; culm long and slender; leaf short, smooth, attenuated

Aira melicoides, MICH. *A. triflora?* EL.

‡ Culm 4 or 5 feet high, erect, leaves with very long sheaths, short and acute; panicle erect, attenuated; branches semiverticillate, few and capillary; spikelets oblong, obtuse, nearly sessile, or upon short peduncles, 4 to 6-flowered; calix very unequal, shorter than the corolla; flowers distinct, somewhat cylindrical, obtuse, shining, purplish, scariose, and often lacerate at the point, obsoletely 5-nerved, inner valve scabrous on the margin.

HAB. In depressed situations around the Mandan village, on the Missouri. &c.

Scarcely distinct from *Poa distans*, except in habit; being 4 or 5 feet high, with leaves sometimes embracing the culm for 8 inches, scabrous on the margin, acute, and scarcely more than an inch, or an inch and a half long. The panicle is also attenuated, the branches capillary, loose, but erect, never refracted. In most of which characters it differs from the *P. distans*, and does not at all agree with Curtis's figure. It is another of those ambiguous grasses, which, (like the *P. distans* and *Aira aquatica* now considered the same plant,) combines the characters of 2 genera; it has the artificial character of *Poa*, but it is in fact an *Aira*, although producing 4, 5, and 6 flowers in a spikelet. It is probably an important meadow-grass, like the *Aira aquatica*.

distichous, valves ventricose, cordate, obtuse; interior valve minute.

Flowers usually in capillary panicles; spiculi, generally nodding and tremulous. A genus nearly allied to *Poa*.

SPECIES. 1. *B. Conadensis*. † *virens*?

There are but 8 species of this genus described by Persoon; of which, besides the above, there are in Europe 4 species, 1 in India, 1 at *Montevideo*, (South America), and 1 confined to the Cape of Good Hope. Three of the European species are also common to the Cape.

98. UNIOLA. L.

Spikelets many-flowered, ovate, compressed, ancipital. *Calix* of 3 to 5 glumes. *Corolla* 2-valved, awnless; *interior valve* smaller. *Stamina* 1 to 3. *Nectarium* 2 leaved, emarginate. *Stigmata* long, muricate. *Seed* ovate, compressed.

Panicle various; in *U. Spicata* nearly a simple raceme; in *U. latifolia* the spiculi are very large and tremulous, as in the European species of *Briza*; in the *U. gracilis* the spikelets are only 3-flowered, in the other species the spiculi have 7 to 10 flowers, in *U. spicata* sometimes as many as 15, and the corolla glumes often numerously nerved. This genus, apparently intermediate between *Poa* and *Festuca*, is readily distinguished by its large, flat spikelets, and abortive flowers, both at the base and extremity of the spike, hence described as having a calix of more than 2 valves; though in the *U. spicata*, referred to *Festuca* by Michaux, there is seldom more than that

† Culm erect, thick and leafy. Leaves flat, attenuated, from 6 to 12 inches long, smooth; stipula truncate. Panicle semiverticillate, rather long, loose, and erect, branches decompound, coarctate, racemiform; pedicels capillary, flexuose. Spiculi cunnate-oval, obtuse, 4 to 6-flowered. Calix very small, nerveless. Flosculi turgid obovate, prominently 7-nerved, terete, sometimes purplish at the point; inner valve concave, flat, large as the outer, with an indurated nerved margin, inflected, and extended a little beyond the edge of the outer valve; nerves somewhat scabrous. Stamens generally 2, not exerted? Styles short; stigmata plumose.

HAB. In Canada and Pennsylvania. Scarcely belonging to this genus; apparently connecting *Poa* and *Briza*.

number. The perisporium appears almost precisely the same as that of many species of *Festuca*.

SPECIES. 1. *U. paniculata*. 2. *spicata*. 3. *latifolia*. 4. *nitida*. 5. *gracilis*. (An American genus)

99. *WINDSORIA. †

Calix carinate, many-flowered, 2-valved; valves rather large, scarioso, uninervial, acute or cuspidate. *Spikelets* thick; flowers closely incumbent, and distichally imbricated; nerves of the dorsal valve macronate, with intermediate demures, ciliate below; inner valve mostly naked, emarginate. *Styles* slender, with simply pectinated stigmas. *Seed* calciform, corrugate, impressed with a flat, central, oval hilum near its base.

Flowers paniculate, branches few, decomposed, spreading, and flexuose, stipules always pilose; spikelets nearly sessile, tumid, generally purple; corolla glumes short, indurated, somewhat cartilaginous; nerves ending in short cusps or minute awns; flowers villous at the base, and along the lower margin of the nerves in the outer valve; the inner valve impressed, smooth, or when seen through a lens obsoletely margined with a slender ciliate pubescence, (never conspicuous as in *Bromus*;) the lower inflected margins projecting. Stamina 3. Styles 2. Germ angularly truncate. Seed short, nearly in the form of a slipper, on the external side obliquely compressed, on the other convex. Perisporium 2-leaved, obtuse, entire.

SPECIES. 1. *W. Poaformis*, (*Poa Sesleroides*, MICH. *P. quinquefida*, Pursh. Spikelets mostly 5-flowered, exterior valve of the corolla ovate, convex, tricuspidate, with 2 intermediate teeth, inner valve with 2 setaceous points, smooth.) 2. *ambigua*, (*Poa ambigua*, ELLIOTT) Panicle small, naked, ramuli nearly simple, alternate; spikelets ovate, thick, sessile, 5 to 6-flowered, dorsal valve 5-toothed, interior valve deeply impressed, smooth. In both these species the stigmas are purple and plumose.

This genus appears to be considerably allied to *Bromus*, possessing, however, much more the habit of *Poa*.

† In respect to my earliest Botanical friend, John Windsor, M. D., F. L. S., an assiduous English Botanist, not unknown to the president of the Linnæan Society, as a humble though not a popular contributor to his classical Flora of Britain.

From *Danthonia* of Decandolle, (*Festuca decumbens*, LIN.) it is scarcely distinguishable except by habit, producing in both species a spreading and ramified panicle, with a culm of 3 or 4 feet elevation, in place of a simple raceme, and a culm of 6 inches or a foot. It is also destitute of the large folliculose calix of *Danthonia*, which includes, and indeed exceeds in length all the flosculi of the spikelet. The calix of *Windsoria* is, however, larger than the glumes of the corolla, taken singly, and also of a very different structure, but the spikelet is at the same time about twice the length of the calix.

100. DANTHONIA. Decandolle.

Calix 2-valved, many flowered, very large, equal to or exceeding the included spikelet. Exterior valve of the corolla concave, with the points emarginate, mucronate, awned, or unarmed and then trifid.

Small grasses, producing for the most part, a simple raceme of spikelets, (usually from 4 to 13); calix confluent-ly nerved, folliculose, exceeding or equalling the spikelet; spiculi from 4 to 9 flowered. dorsal valve acute or acuminate, (not obtuse or almost truncated as in *Windsoria*.) bifid, with a central, membranaceous, and flattened awn, contorted at the base, or simply trifid, (never quadrifid or 5-toothed); inner valve ciliate.

SPECIES. 1. *D. spicata*, (*Avena spicata* L.) Culm about a foot high, slender, erect, decumbent at the first and second node; leaves subulate, short, those of the root often hairy on the upper surface; stipula obsolete, ciliate; raceme simple, or subdivided near the base; spikelets 4 to 9; calix longer than the spikelet, confluent-ly 5-nerved, convex, acute, with scarioso purple margins; flosculi 6 or 7; outer valve oval, convex, acuminate, setaceously bifid, with an intermediate, flat, exserted, smooth awn, discoloured and contorted at its base, obsolete-ly many-nerved, nerves piliferous, margin scarioso; inner valve deeply appressed, ciliate styles sessile, simply plumose, slender, white; perispermium 2-leaved, obtuse.

This species is very nearly allied to *Bromus*.

2. **sericea*. Culm erect; raceme compounded, branches 2 and 3-flowered; spikelets 9 to 13, 8 and 9-flowered, somewhat shorter than the calix; corolla valves very unequal, outer lanceolate, densely vilous on the margin, setosely bifid at the point, with a central contorted awn; inner valve ciliate, much shorter.

Avena spicata, ELLIOTT, p. 174.

Culm erect, often more than 2 feet high, nodes distant. Leaves short, flat, and subulate, smooth or pubescent on the under side; sheath very long, sometimes hairy: stipules a minute, silky fringe, with 2 lateral hairy tufts. Panicle 2 or 3 inches long, branches several, (3 or 4) 2 and 3-flowered. Calix striate, scariose (as in *Avena*), longer than the spikelet. Corolla, dorsal valve oblong-lanceolate, with a long shining villos particularly conspicuous along the margin, terminating in 2 setaceous points nearly its length, awn contorted, and discoloured at the base, more than twice the length of the valve, and (seen through a lens) scabrous; inner valve about half the length of the outer, distinctly ciliate as in *Bromus*.

From Carolina to Florida. Closely allied but very distinct from *D. spicata*, particularly in the panicle, and the conspicuous silky villus of the corolla, as well as the form and proportion of the valves. These 2 species are scarcely congeners with the *Dunthonia decumbens*; they appear to form a distinct genus, approximating to *Bromus*.

To this genus are referred by Decandolle *Festuca decumbens* and *Avena calycina*, of Europe.

101. FESTUCA. L. (Fescue-grass.)

Calix 2 valved, many-flowered. *Spikelets* compressed, distichal, acute at either extremity. Outer valve of the corolla entire, generally terminating in an awn. "Seed growing to the corolla." SCHRADER.

Culm paniculate, rigid, or flexuose and expanding, spikelets erect or nodding; flowers sometimes awnless, mostly terete, inner valve of the corolla with a smooth margin. Nectarium "of 2 ovate-lanceolate acute leaflets, gibbous at their base, or of 1 rather concave horizontal notched leaf," SCHREBER. Seed oblong, slender, acute at each end, marked with a longitudinal furrow.

SPECIES. 1. *spicata*. Panicle spiked after the manner of *Uniola spicata*, to which it is nearly related, spikelets rather large, about 5-flowered; glumes of the calix and those of the corolla in the lower flowers very long, and pungently acuminate, but not distinctly awned; valves linear-lanceolate; leaves very short, and with the whole plant glaucous. On the banks of the Missouri, not a foot high, covering extensive tracts. 2. *tenella*. 3. *myurus*. 4. *diviuscula*. 5. *elatior*. 6. *polystachya*. 7. *diandra*. Culm

remarkably naked, rather compressed, asperate above, with 3 or 4 broad flat leaves near the base, from 3 to 4 feet high, terminating in an almost simple, few-flowered raceme. Leaves about a foot and a half long, near three quarters of an inch wide, with the sheath a little pubescent. Spikelets compressed, flowers divaricate. Calix extremely unequal, valves acute, 2 to 5-flowered. Exterior valve of the corolla somewhat coriaceous, and much longer than the calix; inner valve much shorter than the outer. Seed partly coated, with an indurated, cartilaginous arillus.—Considerably allied to *Uniola gracilis*. 8. *grandiflora* 9. *nutans* 10. *Poaoides*. 11. *Unioloides*. 12. *nutans*. 13. *parviflora*, ELLIOTT.

The genus *Festuca* is almost peculiar to Europe and North America; a few species exist in Barbary, (Africa) and in Northern Asia.

102. BROMUS. L. (Brome-grass.)

Calix 2-valved, many flowered. *Spikelets* oblong, distichal. Outer valves of the corolla often bifid at the point, and awned below the summit; interior glume pectinately ciliate.

The habit of this genus is entirely similar to the preceding; the spikelets are, however, generally more or less terete and tumid; the valves of the corolla often furnished with a scariose margin, and in the inner valve, the flexures of the nerves are ciliate; in many species the panicle is nutant, and in some the seed so large as to have been cultivated for the use of horses and other cattle.

SPECIES. 1. *B. secalinus*. 2. *mollis*, (both introduced) 3. *purgans*. In this species, the leaves, which are alternate, approach so near to each other as to appear almost distichal. 4. *ciliatus*. 5. *altissimus*, PURSH. Near Fort Mandan, on the Missouri, very large; scarcely distinct from the *B. canadensis* of MICHAUX?

This genus is chiefly confined to Europe, and Barbary in Africa, there are also, 2 species in South America.

103. DACTYLIS. L. (Orchard-grass.)

Calix 2-valved, many-flowered, compressed, one of the valves larger, and carinate, somewhat awned. *Corolla* 2-valved.—*Spikelets* aggregate and capitate.

SPECIES. 1. *D. glomerata*. (Introduced.)

The genus *Dactylis*, as it now stands in Persoon, appears to exist chiefly in the milder regions of Africa, the Cape of Good Hope, and Barbary; there are also 2 or 3 species in India. These species appear, however, to possess little or no affinity with the *D. glomerata* of Europe.

104. KOELERIA. Persoon.

Calix irregularly 2 or 3 flowered, 2-valved, valves compressed-carinate. *Corolla* acuminate-oblong, 2 valved, shortly awned, longer than the calix, glumes nervose. (Spike composed of compressed spikelets, often pubescent and sessile.)

Flowers in a simple lobed spike, almost as in *Phleum*; spikelets crested; calix 2 or more flowered, resembling *Dactylis glomerata*, to which some of the species of this genus are nearly allied.

SPECIES 1. *K. cristata*. 2. **nitida*. Spike elongated, lobed: lobes crowded appressed, approximate; spikelets oblong-ovate, smooth and awnless, lower 2-flowered, upper 3, both with an additional setaceous rudiment; pedicels very short, and with the leaf and sheath somewhat pubescent; stipule hairy.

Obs ☉? Culm about a span, smooth, and striate; leaf very short, sheath long, spike about 2 inches; spikelets, greenish, sericeous, shining, compressed; calix unequal, carinate, acute; larger valve linear-oblong, smooth, (through a lens) ciliate on the keel; corolla similar to the calix, inner valve included in the outer.

On the plains of the Missouri, &c. &c. Very nearly allied to the *Aira cristata* of Smith, and in the structure of its flowers to the *Dactylis glomerata*!

This genus, now containing 8 species, indigenous to Europe, to North America and Barbary, though perfectly natural, is not at present sufficiently defined, except by habit; at the same time it ought never to have been confounded with *Poa*, with *Aira*, or *Avena*.

105. AVENA. L. (Oat-grass.)

Calix 2-valved, 2. 3. or many-flowered. *Corolla*, exterior valve lanceolate, somewhat terete, furnished with a dorsal awn. Awn geniculate, and contorted. "Seed for the most part

invested by the corolla." SCHRADER. (Glumes of the calix membranaceous, resembling follicles.)

Flowers in spreading or contracted panicles, valves of the corolla often becoming coriaceous.

SPECIES. 1. *A. pennsylvanica* 2. *palustris*, (nearly allied to the genus *Aira*) 3. *striata*. 4. *mollis*.

Of this genus there are many species in Europe, in Barbary, and at the Cape of Good Hope. A single species has been found at the extremity of South America.

106. ARUNDO. L. (Reed.)

Calix 2-valved, many-flowered. *Corolla* smooth, surrounded at the base by a long villous wool.

Subaquatic: culm tall, in some species perennial; panicle large, diffusely branching; calix 2 to 5-flowered; generally long, smooth, and membranaceous, with flowers of nearly the same form, alternately aggregated, often shortly and straightly awned, and always surrounded at the base with a persistent, conspicuous villous involucre. The genus *Arundo* is nearly related to *Saccharum*, but in the latter the calix, instead of the corolla, is surrounded by a villus.

SPECIES. 1. *A. Phragmites*. 2. *airoides*.

The genus *Arundo*, exists in Europe, in Barbary, in India, and North America. The *A. Donax*, and *A. mauritanica* of Algiers, are shrubs, and the latter is there made use of to construct hedges for gardens.

††† *Flowers collected into spikes; common receptacle mostly scrobiculate.*

107. ELEUSINE. Gærtner. Lamark.

Spikes digitate.—Flowers awnless, disposed on one side of the rachis (or receptacle.) *Calix* carinate, many-flowered, dorsal valve larger, 5 to 9-nerved. *Corolla* 2-valved, awnless. (Flowers all hermaphrodite.)

Low decumbent grasses, growing in the sands of the sea-coast, or in arid wastes. Culm simple, many from the same root, terminated by digitate clusters of one-sided

spikes; spikelets many-flowered, (5 or 6) ovate, or lanceolate, somewhat resembling those of *Poa*, but more compressed; valves of the calix and corolla similar, and nearly equal, persistent; outer valve of the calix about 9-nerved, seed 3-sided, arillate, gibbous, transversely rugose, and grooved on one side. (Character from *E Indica*)

SPECIES. 1. *E. Indica*.

The very few genuine species of this genus are found in India, Barbary, and North America. The *Cynosurus durus* of Europe, is also referred to this genus by Linnæus.

108. *OXYDENIA.†

Spikes paniculate, filiform; spiculi 3 to 4-flowered, alternating on a 1-sided rachis.— Common calix 2-valved, subulately acuminate, longer than the flosculi contained, persistent; valves uninervial. Corolla 2-valved, minute, deciduous, valves obtuse, with or without a terminal awn. Seed roundish, naked, smooth, and somewhat gibbous.

An American genus of grasses existing chiefly within the tropics; nearly allied to *Eleusine*, but producing long filiform spikes, disposed in panicles; leaves, in some species, scattered with glandular hairs; the calix and flowers of different forms, and the latter deciduous with the seed, which is naked, nearly spherical and smooth.

SPECIES. 1. *O. attenuata*. Panicle simple, spikes very long, numerous and attenuated; somewhat subdivided near the base; spikelets about 3-flowered; flowers included in the calix; leaves flat, subulate at the point, and with the sheaths scattered with glandulous hairs.

Eleusine mucronata? MICH. 1. p. 62. PURSH, 1. p. 87. ELLIOTT, 1. p. 175.

Root annual. Culm erect, round, 2 to 3 feet high. Leaves 8 to 12 inches long, 3 to 4 lines wide, slightly hairy, the sheath more conspicuously so towards the nodes; the pubescence exuding a viscous and somewhat acid fluid; panicle simple, 12 to 18 inches long; spikes numerous, (30 or 40) filiform, alternate, 3 to 5 inches long, a little subdivided near the base; calix about 3-flow-

† From *οξύς*, acid, and *αδην*, a gland; because the pubescence exudes an acid fluid.

ered, valves linear, subulate, awnless, each with a single nerve, larger than the flosculi; corolla valves, small, ovate, obtuse, smooth, the outer 3-nerved, the inner 2. Stamens and styles very short, purple.

On the banks of the Mississippi, near New Orleans.

This is probably the *Eleusine mucronata* of Mr. Elliott; but he remarks that the glumes of the corolla are hairy, and the stipules bearded, neither of which particulars appear to exist in the present plant. As the valves of the calix are not mucronate it cannot but be improper to apply Michaux's name to this species, which may be probably distinct. To this genus belongs the *E'eusine filiformis* of Persoon, growing in the tropical regions of America, and nearly allied to the present species, having also the same kind of glandular pubescence, and we may probably add the *Eleusine virgata* of Jamaica.

109. CHLORIS. Swartz.

Flowers polygamous. Spikes digitate, unilateral.—*Calix* 2-valved, 2 to 4-flowered; valves carinate, with or without an awn: (flowers dissimilar, the abortive florets pedicellate.)

The habit of this genus is similar to *Eleusine*, but the fertile flowers, particularly in *C. petrea* are coriaceous, and gibbously carinated, so as to appear transversely seated in the calix; the flower glumes when in seed, greatly exceed the calix in length, and are of a dark brown colour, the hermaphrodite terminated by a short cusp, the neuter or male flower being inflated and obtuse, like the rudiment in *Melica*; the outer valve of the calix from its emargination, has a cuneate obcordate appearance, with the middle nerve terminated by a short awn; the seed is naked, triquetrous, and smooth.

SPECIES. 1. *C. petrea*. 2. *mucronata*. In this species the flowers are also transversely seated in the calix, but not distinctly coriaceous; the seed is very unequally 3-sided, scabrous, naked, and compressed. This structure of the seed appears to indicate some affinity to *Eleusine Indica*, but the habit is widely distinct.

110. ATHEROPOGON. Muhlenberg.

Flowers polygamous, in unilateral spikes.—*Calix* 2-valved, 2-flowered, inner valve almost setiform. *Hermaphrodite corolla* 2-valved, ex-

terior valve tridentate or 3-awned, interior bidentate. *Neutral corolla* of 1 valve, with 3 exerted awns. *Seed* naked, oblong, compressed, with a longitudinal furrow.

Spikes alternately disposed in a long or short raceme, definite or numerous; glumes by pairs, opposite, appearing pectinate; rachis acuminate beyond the spikes; valves of the calix narrow, rigid, mucronate, of a bluish purple, persistent. Nerves of the corolla mucronate or awned; awns short, longest in the neutral flower, 2 of the 3 nearly unconnected, arising from the base of the neutral valve. Anthers 3, linear, fulvous. Styles 2, filiform, stigma plumose. (A genus nearly allied to *Sesleria*.)

SPECIES. 1. *A. apludoides*, (*Chloris curtispindula*, MICH. *Cynosurus secundus?* PURSH, Appendix, p. 728.) Spikes short, numerous, (30 or 40) reflected downwards, alternately disposed upon a long raceme, each containing from 4 to 10 glumes, disposed by pairs upon a compressed rachis, mucronately terminated; outer valve of the calix oblong lanceolate, rigid, shortly mucronate, without pubescence, generally with a single cartilaginous nerve, which is a little hispid, (seen through a lens); inner valve adhering to the rachis, nearly the length of the outer, very narrow, 1-nerved, resembling a bristle. Corolla smooth, outer valve of the hermaphrodite 3-toothed, inner 2. Neutral flower of one folded valve, 3-awned, the central awn exerted beyond the calix, the 2 others included, arising nearly from the base of the valve, (improperly considered, and described by Michaux, as the rudiments of 2 other flowers.)—This grass begins to appear in the Western parts of Pennsylvania, and continues to be met with through Ohio, Illinois, Louisiana, and up the Missouri, probably to its sources. Like the *Sesleria cerulea*, it appears to be confined to calcareous soil.

2. *A. *oligostachyum*. Spikes 2 or 3, nearly terminal, many flowered; calix and corolla pilose; outer valve of the corolla distinctly 3-awned, the 2 lateral awns shorter, arising near the middle of the valve; neutral valve 3-awned.

On the plains of the Missouri with the above. Common.

Culm round, filiform, nearly naked, or with a single leaf, 8 to 12 inches high, smooth and erect. Leaves very short, smooth, and subulate, stipule and base of the spikes shortly bearded. Spikes 1, 2, or 3, about an inch long, usually curved backwards, unilateral, compressed, and pectinate, the second spikes bibracteate, rachis semiterete. Glumes in a double row, opposite; each 2-flowered;

calix bluish-purple, exterior valve lanceolate, mucronate with a single nerve; the nerve beset with a few scattered hairs arising from so many tubercles; inner valves shorter, very narrow. Corolla, outer valve lanceolate, carinate, 3-awned, pilose along the margins of the nerves, and at the base; inner valve smooth, shortly bi-cuspidate. Neutral flower 1-valved, obtuse, with 3 awns, and pubescent at the base.

This species, though certainly a congener of the preceding, is very considerably allied to *Chloris*, appearing to unite that genus and *Sesleria*, agreeing partly with the latter in the structure of the flowers, and with the former in its habitus. (A North American genus.)

111. MONOCÉRA. *Elliott*.

Flowers polygamous, disposed by 2 rows, in an unilateral pectinate spike.—*Calix* 2-valved, rigid, fixed, many-flowered; valves unequal, the inner very small, the outer obtusely carinate, and cuspidate, sending out an horizontal awn above the middle, tuberculate at its base. *Flowers* within the common calix, 3 to 4, neuter, and 1 hermaphrodite; the upper neutral rudiments pedicellate, awnless, the lowest neutral flower sessile, with a long awn: *hermaphrodite* 2-valved, with a 3d. accessory valve, dorsal valves awned; awns all arising below the summit, unequal, and erect.

Culm pubescent, erect, and solid, terminated by a single recurved, appressed spike; calix smooth, nerves glandiferous; corolla membranaceous, sessile flowers villous at the base and midway along the margin, awned from below the summit. The whole plant aromatic when bruised; aroma gramineous, (resembling *Anthoxanthum odoratum*, *Holcus odoratus*, &c.)

SPECIES. 1. *M. aromatica*. (*Chloris monostachya*, MICH. 1. p. 59.)

Culm terete, 3 to 4 feet high. Leaves long, glabrous below, scabrous above; stipules hairy. Spike terminal, solitary, one-sided, spikelets opposite, in 2 rows. Rachis semi-cylindric, margined; receptaculum grooved. Calix rigid, fixed, 2-valved, attached to a callous tubercle at its base; outer valve oblong-lanceolate, mucronate, a little oblique, obtusely carinate, 3-nerved, with a broader mem-

branceous margin on one side, and a lateral tooth on the other, lateral nerves set with 2 rows of globular resinous glands, the central one, a little pubescent, (seen through a lens) sending out from above the middle, a straight, *horizontal* awn, tuberculate at its base! rigid, and inclined inwards; inner valve acute, 1-nerved, awnless, about one fourth the length of the outer valve. Flosculi deciduous, various, 4 or 5, valves lanceolate, membranaceous, carinate, 3 or 4 neutral, only 1 hermaphrodite, flowers all bivalved; fertile and lowest neutral *sessile* flower villous on the margin about mid-way, the lowest florets also villous at the base; the perfect flower sheathed by an auxiliary valve similar to that of the corolla; sessile dorsal valves all awned below the summit, that of the lowest neutral floret the length of the valve; awns straight: terminal neutral florets pedicellate, smooth, uppermost very small and entirely awnless. Stamens 3. "Styles 2, shorter than the corolla. Stigmas plumose, purple. Nectaries 2, obovate, shorter than the germ." ELLIOTT. Seed arillate, truncate at the apex, oblong, subtriquetrous, smooth, corculum merely attached to the separated farinaceous perisperm.—(Seen persistent in winter, and in a dried state with Dr. Baldwin, of Savannah.)

Although I have not been able, with Mr. Elliott, to observe a 3-valved calix in this singular grass, there still appears to be sufficient reason to separate it from any genus which can include the *Chloris petrea*, and *C. mucronata*. The form and character of the calix, the singular abortion of the flosculi, in which one side of the spikelet is neutral, the membranaceous consistence of all the valves, a large sessile accessory valve or single glumed rudiment applied to the dorsal valve of the only hermaphrodite flower, and the awns all arising from beneath the summit of the valves, are circumstances combined which perhaps no other known genus possesses.

It exists only, with many other North American plants, in the primitive maritime soil, and in depressed situations. Its glandulous aroma is so powerful as to create pungency on being masticated.

112. MANISURIS. L.

Flowers polygamous, spiked.—*Hermaphrodite* calix 1-flowered, 2-valved, valves unequal, exterior coriaceous, roundish, the base emarginate on either side. *Corolla* 2-valved, smaller, in-

cluded by the calix. Masculine and neutral calix, uniform or regular.

Flowers imbricated in an articulated, unilateral, compressed rachis; the masculine and hermaphrodite flowers intermixed.

SPECIES. 1. *M. granularis*. (On the sea-coast of Carolina and Georgia. MICH.)

A genus of India and America within the tropics, consisting of 2 species.

113. LEPTURUS. *R. Brown.* (ROTBOLLIA, species, *Willd.*)

Flowers polygamous, spiked. *Rachis* articulated, filiform; articulations single-flowered.—*Calix* fixed, or growing to the rachis, 1 or 2-valved, the valve simple, or biparted.

With the precise characters of this genus, as described by Mr. R. Brown, I am unacquainted, but satisfied with the propriety of separating plants of such dissimilar habits, as have been hitherto referred to *Rotbolla*, I have ventured to give it, however imperfectly.

SPECIES. 1. *L. paniculatus*. *Rachis* incurved, compound, acutely triangular, branches and summit flower-bearing; spikes on one side, subulate and compressed, unilateral; calix 2-valved, acuminate, 1-flowered; flowers all hermaphrodite, 2-valved.

Obs. Annui. Culm scarcely a foot high, roundish, compressed, leaves short, rigid, sheathing the base of the panicle; panicle or naked rachis, slender, rigid, angular, bearing 6 to 10, compressed, subulate, spikes on one side, not soluble or fragile at the articulations, each 1 or 2 inches long; flowers remote, on one side of the rachis. Calix rigidly fixed, of 2 unequal parallel valves closing the scrobiculum; flower 2-valved, the exterior valve resembling the calix, the interior membranaceous.

On dry saline plains, near Fort Mandan, on the Missouri. Flowering in June.

114. *ANTHOPOGON. † (ANDROPOGON *ambiguum*, Mich.)

Flowers polygamous, irregularly alternating

† From *ανθος*, a flower and *πωγων*, a beard. The neutral rudiment going out into a long awn.

upon setaceous spikes disposed in a panicle.—*Calix* 2-valved, 2-flowered, one of the flowers in the form of an abortive pedicellate seta, valves rigid, subulate, and unequal, growing to the impressed angular rachis. *Corolla*, hermaphrodite, 2-valved, outer valve terminated by a long and straight awn. *Neutral* rudiment pedicellate, of one minute valve going out into an awn. *Seed* linear-oblong, internally marked with a longitudinal furrow.

Allied to the genus *Lepturus*, of Mr. R. Brown; differing, however, much in habit, and considerably in character, but destitute of all affinity with *Andropogon*.

SPECIES. 1. *A. Lepturoides*. Root perennial. Culm 18 inches to 2 feet, decumbent at the base, upwards assurgent and erect, leafy, with short and numerous articulations. Leaves short, (1 and a half to 2 inches long) ovate-lanceolate, very acute, smooth, flat, rigidly spreading, and distichally approximate, perceptibly nerved on the under side, and exquisitely striate, near half an inch broad; sheaths bearded externally at the summit, stipula obliterated. Panicle subverticillate; spikes or racemes numerous (20 to 30) simple, setaceous, and very long, (4 to 6 inches;) rachis angular, scabrous. Flowers interrupted, approximating towards the extremities, appressed to the rachis. *Calix* 2-valved, 2-flowered, (one of the flowers always imperfect and neutral,) growing to the rachis, persistent, valves unequal in length, very narrow, carinate, rigid and pungently subulate, each with a single nerve; the inner valve shorter, appressed to superficial depressions in the rachis; rachis and calix purplish. *Corolla* hermaphrodite, 2-valved, dorsal valve linear lanceolate, obtusely carinate, 3-nerved, terminated by a slender, straight, scabrous awn, nearly 3 times its own length, a little villous on the margin, and at the base; inner valve flat, membranaceous, 2-nerved, acute. *Neutral* rudiment pedicellate, very minute, 1-valved, with an awn somewhat longer than the pedicell. Stamens 3, exserted. Styles 2; stigma plumose. *Seed* naked, linear-oblong, with a depressed furrow on the inner side, and an obtusely angular ridge on the other.

On the banks of the Potomac, near Harper's Ferry, Virginia, and in the pine barrens of Carolina and Georgia.

This plant is in many respects very closely allied to

*Lepturus *paniculatus*, and ought perhaps to be united with that genus as a subgeneric section.

115. ROTBOLLIA. L.

Flowers polygamous. *Rachis* articulated, cylindrical, often filiform; *articulations* 2 or more flowered.—*Calix* ovate-lanceolate, flat, 1 or 2-valved. *Corolla* smaller. 2-valved.

Spike mostly solitary, terminal; rarely axillary, or fasciculated, in a panicle. Flowers alternating on a flexuose or sinuated rachis. Hermaphrodite calix 1-flowered, 1 or 2-valved; the exterior valve indurated, and cartilaginous, or coriaceous, growing firmly to the rachis, often emarginate at the base, and closing the depressed sinus of the joint, or scrobiculum like a lid; the cavity itself often answering the purpose of a second calicine valve. In this genus there is always more than a single flower on each joint of the rachis, which is fragile.

SPECIES. 1. *R. dimidiata*? On the sea-coast of Carolina and Georgia.

§ II APOGONIA. Articulations 2-flowered; flowers awnless; the hermaphrodite sessile, with a 2-valved calix, the male or neuter pedicellate—Grasses considerably allied to *Andropogon*, but with awnless glumes, and collected into cylindrical or filiform spikes upon a scrobiculate or alternately excavated rachis.

2. **ciliata*. Culm erect, tall; spikes terete, upon long peduncles, pedicellate flowers on one side of the rachis, pedicells and margin of the rachis villous, calix and corolla each 2-valved.

Culm erect, solid, compressed, very smooth, sometimes with a few scattered hairs near the joints, 3 or 4 feet high, not fragile at the joints, above and contiguous to the branches, deeply grooved. Leaves long, very narrow, subulate, and acute, sharply and conspicuously serrulate towards the point; sheathes much shorter than the internodes; stipules minute, smooth. Axillary branches terminating in a single spike: spikes 4 or 5, more or less, 3 or 4 inches long, subcylindrical, a little compressed, with the pedicellate male or neuter flowers on one side; rachis slender, flat, and externally villous, fragile at the joints. Calix 2-valved, 1-flowered; the hermaphrodite sessile, the masculine or neuter pedicellate; outer valve of the hermaphrodite calix linear-lanceolate, acute, scabrous on the margin, cartilaginous and polished, often minutely bifid

or emarginate, inner margin closely inflected, including the corolla, and the shorter membranaceous inner valve (almost after the manner of *Nardus stricta*). Corolla 2-valved, very thin and membranaceous. Masculine or neutral flower and calix smaller. Stamens 3. Styles 2, brown, plumose, and exerted.

Collected by Dr. Baldwin, on the sea-coast of Georgia. v. s. This species has very much the habit, and indeed the character of *Andropogon*.

3. **rugosa*. Culm erect, leafy; spikes cylindric, solitary, axillary, and proximate; joints of the rachis smooth, sub-semicylindric, tumid; outer valve of the hermaphrodite flower transversely rugose, 3-valved; accessory flower mostly neuter, upon an emarginated pedicell.

Culm erect, tall, smooth, and solid, deeply grooved at the commencement of the branches. Leaves rather short, scabrous on the margin and midrib; sheathes compressed, shorter than the internodes, in the stem leaves nearly open, and cloven to the base, with membranaceous margins. Spikes 2 to 3 inches long, axillary, solitary, cylindric, approximating, furnished with cymbiform sheathes, as in the genus *Andropogon*; perfect and imperfect flowers inclined to different sides of the spike, the latter pedicellate, mostly neuter; flowers and rachis entirely smooth, articulations deeply excavated, closed conjointly by the compressed neutral pedicells, and the valve of the perfect flower. Outer valve of the hermaphrodite calix obliquely ovate, acute, cartilaginous, externally marked with 2 or 3 transverse rugose elevations, inner valve acute, coriaceous, covered by the excavated arch of the rachis, and laterally impressed by the contiguous pedicell of the neuter flower; corolla 3-valved, exterior auxiliary valve, or neutral rudiment? nearly the length of the calix, proper corolla valves oval obtuse, considerably shorter than the calix; valves of the neutral calix smooth and even, scarcely 1-fourth the size of those of the perfect flower. Stamens 3. Styles 2, very short.

Collected by Dr. Baldwin, on the sea-coast of Florida. v. s. This species appears to be less allied to *Andropogon* by character than the former, but possesses at the same time much of the habit of that genus, having axillary pedicellate, solitary spikes, of which there are frequently 2 in the same sheath of the leaf; each of the spikes are also partly closed in a proper spathose acuminate leaf with membranaceous margins. This species appears to be very considerably allied to the *R fasciculata*, of Desfontaines as figured and described in the

Flora Atlantica. To the present section of this genus appertains the *R. hirsuta* of Egypt, and the *R. Coalorachis* of the isle of Tanna in the Pacific. The *R. monandra* of Spain, appears to be almost an Andropogon, from the diagnosis.

The genus *Rotbollia*, though not numerous in species, appears to have been dispersed upon every known sea-coast; they are found upon all the coasts of Europe, of Northern Africa, of America, of India, and of Australia, as well as upon the remotest shores of the latest discovered islands in the Pacific.

116. TRIPSACUM. L.

Masculine calix 2-valved, 2-flowered. *Corolla* 2-valved, membranaceous, imperforate at the base. *Female* calix 1-flowered, 2-valved, exterior valve indurated, resembling an involucrem of one leaf, with 2 small perforated sinuses at its base. *Corolla* valves numerous, very thin and membranaceous. *Styles* 2, exserted. *Seed* large, ovate, arillate.

Nearly allied to many species of the preceding genus. Flowers monoicous, disposed in spikes, which are simple or aggregated, upper ones masculine, brought together by pairs, each 2-flowered; female calix 2-valved, the exterior valve indurated, firmly closing the scrobiculum, but perforated by 2 small sinuses at its base, and an emargination, or bifid apex for the egress of the styles which are plumose and exserted; valves of the corolla involute, membranaceous, about 6, extremely thin, 4 of them probably rudiments of flowers which are constantly abortive for want of space. Seed large, roundly ovate, arillate, and somewhat gibbous. Perisperm large, corneous and farinaceous: corculum laterally attached, naked. Nectarium of the male flowers 2-leaved, truncate and emarginate.

SPECIES. 1. *T. dactyloides*. On the sea-coast, and also in the vast prairies of the western states. Z. Collins, Esq. informs me of its existence near the banks of the Schuylkill, 25 miles above Philadelphia 2. *monostachyon*.

A North American genus.

117. ÆGILOPS. L.

Calix lateral, 2-valved, mostly 3-flowered,

valves coriaceous, broad, with many awns; awns rigid and divergent. *Corolla* 2-valved, outer valve terminated by 2 or 3 awns.—*Flowers* spiked, intermediate masculine; lateral, hermaphrodite, sessile.

Small grasses, allied to *Elymus*, valves of the calix remarkably rigid and truncate, deeply divided into many flat and long scabrous awns; valves of the corolla also similarly divided and awned.

SPECIES. 1. *Æ. *Hystrix*. Spike squarrose, with very long recurved and divergent awns: calix smooth, generally 4-parted to the base; segments mostly bifid, unequally 2-awned; spikelet about 4 flowered, the 2 masculine or neuter pedicellate, and intermediate; dorsal valve of the corolla terminated by about 2 or 3 unequal awns.

Considerably allied to *Elymus*. Culm 4 to 6 inches high. Leaves scabrous, striate, pungently acute, about 2 inches long. Spike 1 or 2 inches, sheathed at the base. Rachis flexuose, compressed, narrow, articulations distinct. Spikelets alternate, about 4-flowered, lateral hermaphrodite flowers 2, sessile; intermediate, pedicellate, the lower masculine, the uppermost smaller, abortive. Calix as in *Elymus*, mostly 4-cleft to the base; segments usually bifid, striate, divergent, terminating in very long unequal awns, exterior awn more than 2 inches, subulate, and recurved at an obtuse angle, interior awn shorter and more slender. Corolla, dorsal valve terminated by a long awn arising from betwixt two slender and unequal setæ; inner valve somewhat ciliate, terminated also by 2 short capillary awns.

On the arid plains of the Missouri.

Of this genus there are 2 species in the South of Europe, one of them also common to Barbary, and the other to Candia, there are likewise 2 other species peculiar to those two places.

118. ELYMUS. L. (Lyme-grass. Wild-Rye.)

Calices lateral, 2-valved, many-flowered, aggregated by pairs, in the manner of a 4-leaved involucrem. *Corolla* 2-valved.

Flowers in simple spikes, alternately imbricated around a common axis; spikelets 2, 4, or 6-flowered, by pairs, or more rarely by threes in each indenture of the axis; valves of the calix or common involucrem, very narrow and ri-

gid, often setiform, mucronate or diminishing into a mere awn. Exterior valve of the corolla generally awned.

SPECIES. 1. *E. philadelphicus?* 2. *canadensis*. These 2 are probably the same species. 3. *glaucofolius*. A very imperfectly defined species, and very nearly allied to No. 2. 4. *villosus*. 5. *virginicus*. 6. *striatus*. 7. *europæus*. —§ II. ASPERELLA. Calix 0. Corolla 2-valved. Exterior valve larger, mucronate.—Humboldt. 9. *Hystrix?* Spikelets 4-flowered; involucrate calix 0, but corresponding callosities in its place.

A genus of but few species, existing in Europe, America, Northern Asia (Siberia), and Northern Africa (Barbary). Except in North America where 8 out of 11 species exist, this genus is confined to the sea-coast. The *E. arenarius*, is one of those grasses which assist in arresting the progress of moveable sands.

119. HORDEUM. L. (Barley.)

Calyces laterali, 2 valved, mostly 1-flowered, aggregated by threes, so as to resemble a setaceous 6-leaved involucre; the central flower sessile, the lateral ones stipitate, usually sterile. *Corolla* 2-valved, acute; exterior valve awned.

Very nearly allied both by habit and character to the preceding genus. Flowers spiked, imbricated mostly in 2 rows; calycine involucre setaceous, 6-leaved, divisions approaching by pairs. In the *H hexastichon*, the flowers are imbricated in 6 ranks, because all the flowers are hermaphrodite; probably a mere effect of cultivation.

SPECIES. 1. *H vulgare*. Cultivated. Flowers all hermaphrodite; probably the effect of culture? Still found wild about Margamen in Sicily. 2. **pusillum*. Lateral masculine or neutral flowers awnless, acute; four internal calycine glumes, coriaceous and dilated, those of the hermaphrodite sublanceolate; internal valve of the lateral masculine flower, subsemi-ovate.

Culm 4 to 6 inches, decumbent, or somewhat geniculate at the base. Leaves rather glaucous, a little pubescent on the under surface, striate, about one and a half inches long, and almost obtuse; uppermost sheath tumid and very smooth, embracing the spike. Spike linear; about one and a half inches long. Glumes by threes, distichally imbricated. Lateral imperfect flowers awnless, acute; central sessile flower awned, the awn almost exactly the length of that of the subtending calix; awns

scabrous. Calix smooth, nerveless, exterior valve in the outer flowers setaceous from its base, the inner valves obliquely dilated, and rigidly coriaceous, all awned, the inner divisions of the lateral flowers, appearing nearly semi-ovate, the central ones sublanceolate. Corolla nerveless, the inner valve furnished with a short awn, arising from its base. Nearly allied, apparently, to the *H. maritimum*.

On the arid and saline plains of the Missouri.

3 *jubatum*. On the calcareous islands of Lake Huron and Michigan, also on the banks of the Missouri.

The genus *Hordeum* exists chiefly in Europe, extending into Northern Africa, and Tartary in Asia. The 2 species above described are natives of North America, and the *F. jubatum* is also common to Smyrna.

120. SECALE. L. (Rye.)

Calix 2-valved, valves opposite, or 1-valved and many-flowered; glumes linear-lanceolate, smooth, or channelled on either side; exterior valve terminated by a long awn.—*Flowers* spiked, rachis toothed.

SPECIES. 1. *S. cereale*. Cultivated. No where naturally or indigenous in the United States. Native in the isle of Crete.

121. TRITICUM. L. (Wheat.)

Calix 2-valved, solitary, many-flowered; valves parallel to the rachis. *Flowers* somewhat obtuse, glumes unarmed, or interruptedly awned. *Spikelets* rather short, approximating on the sides of a flat rachis.

SPECIES. 1. *T. sativum*. Cultivated. Of this important species there are 3 well known varieties, as α . *æstivum* (Spring-wheat). β . *hybernum* (autumnal or winter-wheat). γ . *durum*, with the culm solid, and the seed hard, and affording but little farina. This worthless variety is the only one cultivated throughout Barbary. The native place of this species, as well as the *T. polonicum* and *T. Spelta*, can now no longer be ascertained; still it appears probable that the *T. sativum* originated in Egypt, the cra-

dle of agriculture and the arts. With the exception of a variety of the *T. caninum* discovered in South America, this genus appears almost peculiar to Europe.

122. LOLIUM. L. (Darnel.)

Calix of one leaf, fixed to the rachis, many-flowered. *Flosculi* distichally imbricated. *Seed* coated by the corolla.—*Spike* simple.

SPECIES. 1. *L. perenne*. 2. *temulentum*. Introduced, now naturalized. In this genus there are species which sometimes produce an inner valve, in which case the *Lolium* approaches very near to *Triticum*.

Order 3.—TRIGYNIA.

123. HOLOSTEUM. L.

Calix 5-leaved. *Petals* 5, croted, or biparted. *Capsule* 1-celled, subcylindric, bursting at the summit.

Leaves opposite; flowers axillary and terminal, in dichotomous corymbs, in *H. umbellatum*, umbellate, sometimes with 4 or 5 stamens, and 4 styles.

SPECIES. 1. *H. succulentum*. Probably nothing more than *Arenaria peploides*, which grows on the sea-coast of New-Jersey, as this *Holosteum* cannot now be found.

A genus of but 5 species, of which there are 2 in the West Indies, 1 in Malabar, and another in Europe.

124. POLYCARPON. L.

Calix 5-leaved. *Petals* 5, very short, emarginate and persistent. *Capsule* ovate, 1-celled, 3-valved.

Leaves opposite, or verticillate in fours, furnished with scariose stipules; flowers in a dichotomous terminal corymb.

SPECIES. 1. *P. tetraphyllum*. Around Charleston, (South Carolina) abundant.—ELLIOTT. Probably introduced.

125. MOLLUGO. *L.*

Calix 5-leaved, coloured inside. *Corolla* 0.
Capsule 3-celled, 3-valved.

Leaves mostly verticillate; flowers axillary and terminal.

SPECIES. 1. *M. verticillata*. A genus consisting of 6 species, inhabiting India, Africa, and America.

126. LECHEA. *Kalm. L.*

Calix 3-leaved. *Petals* 3, linear. *Styles* 0, stigmata 3, plumose. *Capsule* 3-celled, 3-valved, with as many other interior valves. *Seeds* 1 in each cell.

Herbaceous or suffruticose plants, with the habit of *Linum*; leaves alternate or opposite; peduncles many-flowered, either axillary or in terminal panicles. Stamens sometimes 4 or 5.

SPECIES. 1. *L. villosa*, (*L. major*, MICH.) 2. *minor*. 3. *racemulosa*. 4. *thymifolia*. 5. *tenuifolia*.

An American genus, with the exception of the *L. verticillata* of India.

127. ERIOCAULON. *L.* (Pipe-wort.)

Common calix many-leaved, many-flowered; proper calix superior of 2 or 3 leaves.—*Male* flowers central. *Corolla* monopetalous, cloven.—*Female* flowers marginal; corolla of 2 petals. *Stigmas* 2 or 3. *Capsule* of 2 or 3 cells, cells 1-seeded.

Scapes angular, sheathed at the base; leaves radical, gramineous; flowers imbricated in an hemispherical capitulum within a common calix, (as in Syngenesious plants), the central flowers masculine, marginal feminine.

SPECIES. 1. *E. decangulare*. 2. *gnaphalodes*. 3. *pellucidum*. 4. *villosum*. 5. *flavidulum*.

A genus confined to India, Australasia, South and North America. There is also 1 species in Europe. Mr. R. Brown has ascertained about 30 species of this genus, many which are indigenous to New Holland.

123. PROSERPINICA. L.

Calix superior, 3-parted, persistent. *Corolla*
0. *Nut* triquetrous, 3-celled.

Subaquatic; leaves alternate, under water pinnatifid, above lanceolate, serrate; flowers axillary, sessile.

SPECIES. 1. *P. palustris*. 2. *pectinata*. Probably only a variety of the preceding.

A genus peculiar to the United States.

CLASS IV.—TETRANDRIA.

Order 1.—MONOGYNIA.

§ I. OVARIUM INFERIOR.

† *Monopetalous.*

129. CEPHALANTHUS. L. (Button-wood.)

Common *calix* 0; *proper* superior, small and angular, 4-cleft. *Corolla* tubular, slender, 4-cleft. *Stamina* exerted; stigma globose. *Capsule* mostly bipartite, (2 to 4,) 2-celled, 2-seeded; cells semibivalve; exterior valve angular, indurated, interior flat and flexile. *Seed* solitary, sheathed at the apex with a suberose cal-
lus. *Receptacle* globose, hairy.

A shrub with entire leaves, which are opposite and ternate; producing flowers in a pedunculate globose capitulum. Seeds 2 to 4.

SPECIES. 1. *C. occidentalis*. From Canada to Florida; near stagnant waters. The bark is considered to be a tonic. A variety, or perhaps a distinct species, with pubescent leaves, is said by Dr. Baldwin, to exist near Riceborough in Georgia.

Peculiar to North America; but scarcely differing from the *Nuclea* of India and Africa, excepting in the number of its parts, which are 4 in place of 5.

130. DIPSACUS. L. (Teasel.)

Flowers collected into an ovate or roundish capitulum.—Common *calix* many-leaved, foliaceous, (involucrum): *proper* superior, of 1 leaf. *Corolla* 4-lobed. *Receptacle* paleaceous, chaff ri-

gid, mostly longer than the flowers. *Pappus* cup-shaped.

Herbaceous, prickly or asperate; leaves of the stem often connate at the base; capitulum terminal.

SPECIES. 1. *D. sylvestris*. Introduced; now becoming naturalized.

A genus indigenous to the South of Europe. The *D. fullonum* with hooked chaff is used in dressing woollen cloth.

131. GALIUM. L. (Bed-straw. Cleavers.)

Calix 4-toothed. *Corolla* monopetalous, 4-cleft, flat. *Seeds* 2, nearly round.

Smooth or asperate; flowers terminal, often corymbose-ly paniculate, or axillary. Leaves verticillate. Flowers rarely 3-cleft, with 3 stamens.

SPECIES. 1. *G. trifidum*. 2. *latifolium*. 3. *uniflorum*. 4. *tinctorium*. 5. *asprellum*. 6. *Aparine*. 7. *uliginosum?* 8. *brachiatum*, Pursh. 9. *triflorum*. 10. *hispidulum*. 11. *Bermudianum*. 12. *pilosum*. 13. *circzans*. 14. *boreale* 15. *cuspidatum*, Elliott. (with the segments of the corolla caudate.)

The principal part of this numerous genus, exists in Europe, several are alpine, there are also species in Siberia, Barbary, and at the Cape of Good Hope; 7 in Peru, and 1 at Montevideo; 1 in the forests of Arabia, described by Forskall, and another around the ruins of Jerusalem; in the isle of Crete there are 2 species with shrubby stems. Several species of Galium, like the Madder (*Rubia tinctorum*) to which they are nearly allied, afford scarlet or orange dyes. Of these the *G. tinctorium* and *G. boreale?* are made use of by the aborigines of North America. in the same manner as the Peruvians did of the *G. corymbosum*. (V. Flor. Peruv. i. p. 59.)

132. RUBIA. L. (Madder.)

Calix 4-toothed. *Corolla* campanulate, 4 or 5 cleft. *Berries* 2, roundish and smooth, single-seeded. (*Stamina* 4 or 5.)

Habit similar to *Galium*.

SPECIES. 1. *R. Brownei*. From Carolina to Florida.

Of this genus, besides the above, there are 2 species indigenous to the continent of Europe; 1 to Chili, 1 to Madras in India, 1 to Minorca, and 2 to Majorca, of

which the *R cordifolia* is also common to Siberia, China, Japan, and the Cape of Good Hope; in the Isle of Teneriffe there exists a shrubby species of *Rubia*.

133. SPERMACOCE. L.

Calix 4-toothed. *Corolla* funnel-formed, 4-cleft. *Seeds* 2, each bidentate.

Flowers axillary, verticillate, more rarely corymbose or terminally capitate.

SPECIES. 1. *S. tenuior*. 2. *glabra*. 3. *Diodina*. 4. *involutrata*.

Of this genus there are 6 species in India, and 20 in North and South America, chiefly within the tropics. The *S. verticillata* is a shrub common to Jamaica and Africa.

134. DIODIA. Gronovius. L.

Calix bifid. *Corolla* tubular, funnel-formed, 4-cleft. *Capsule* 2-celled, cells 1-seeded.

Mostly procumbent; rarely scandent; stem herbaceous or suffruticose, flowers usually solitary and axillary.

SPECIES. 1. *D. virginica*. 2. *terragona*. 3. *hirsuta*.

An American genus, of which 5 other species are indigenous to the West India islands.

135. OLDENLANDIA. L.

Calix 4 parted, superior. *Corolla* 4-cleft, (4-petalled, PERSOON.) scarcely tubulose. *Capsule* 2-celled, many-seeded.

Mostly herbaceous, many species annual; flowers axillary or terminal, sessile or pedunculate, peduncles 1 or many-flowered; in some species the flowers are umbellate.

SPECIES. 1. *O. glomerata*. 2. *uniflora*. Probably a mere variety of No. 1.

This genus appears to be almost equally divided betwixt India and the tropical regions of America. The genus *Hedyotis* to which Mr. Elliott is inclined to refer the *O. glomerata* is also almost equally divided betwixt India and South America.

136. HOUSTONIA. L.

Calix 4-toothed. *Corolla* of 1 petal, funnel

form, 4-cleft. *Capsule* 2-celled, many-seeded, half superior, opening transversely.

Flowers terminal, rarely axillary; stem dichotomous, mostly quadrangular.

SPECIES. 1. *H. patens*, EL. (*pusilla*.) The smallest and earliest flowering species of the genus. Leaves petiolate, ovate, acute, margin and angles of the stem a little scabrous; segments of the corolla short, rounded, obtuse. \odot . 1 to 2 inches high. Flowers saturate blue. 2. *cærulea*. Smooth; radical leaves ovate, spatulate; stem dichotomous, peduncles 1-flowered, very long; segments of the corolla oblong oval, with acute points. 3. *serpyllifolia*. 4. *tenella*, PURSH. 5. *rotundifolia*. Peduncles axillary. 6. *longifolia*, (*H. angustifolia*, MICH.)

7. *tenuifolia*. Smooth; stem erect, divaricate, extremely branched; leaves very narrow and linear; ramuli subtrichotomous, flowers terminal, subfastigate, corymbulose, long and setaceous pedunculate.

Stem about 6 inches high, dichotomously subdivided 4 or 5 times. Leaves an inch long, scarcely a line wide, nearly of an equal breadth, and somewhat acute. Peduncles setaceous, from half an inch to 1 inch long, 1 to 3 and 4-flowered. Calix 4-cleft, setaceous. Flowers small. —Near the confluence of Pidgeon river, and the French Broad, Tennessee, on dry gravelly hills.

8. *purpurea*. Flowers subcampanulate, stamens exerted beyond the tube of the corolla.

With the exception of the splendid *Houstonia coccinea*, of Mexico, this genus is thus far confined to the United States.

137. POLYPREMUM. L.

Calix 4 parted. *Corolla* 4-cleft, rotate, bearded at the orifice. *Stamina* included. *Capsule* compressed, 2-celled, many-seeded.

Herbaceous, erect, or procumbent, dichotomous; leaves opposite, membranaceously connate; flowers small, dichotomal and terminal, each surrounded by a bracteal involucre.

SPECIES. 1. *P. procumbens*. A genus consisting of but a single species, peculiar to the United States, and extending from Virginia to the Gulf of Mexico; nearly allied to *Houstonia*, differing principally in habit.

138. MITCHELLA. *L.* (Partridge-berry.)

Flowers by pairs upon the same germ, superior.—*Calix* 4-toothed. *Corolla* funnel-form, tube cylindrical; limb 4-parted, spreading villous on the inner side. *Stamina* 4, scarcely exerted. *Stigma* 4 cleft. *Berry*, by the union of the 2 germs, didymous, 4-seeded.

An herbaceous repent evergreen; flowers by pairs terminal or axillary, berry scarlet, hibernal, edible, but insipid.

SPECIES. 1. *M. repens*. The only species known; extending in the shade of forests from Canada to Georgia. The genus *Mitchella* appears to be somewhat allied to *Aegiphila* or *Nuxia*, and also to *Symphoricarpos*.

139. LINNÆA. *Gronovius. L.*

Calix double: that of the fruit 2-leaved, of the flower 5-parted, superior. *Corolla* turbinate, subcampanulate, 5-lobed. *Stamina* somewhat didynamous. *Stigma* globose. *Berry* small, ovate, dry, 3-celled, cells 2-seeded.

Herbaceous, creeping, and sempervirent; leaves opposite; surculi erect, the upper part naked and 2-flowered; fruit crowned by the permanent calix.

SPECIES. 1. *L. borealis*. A small plant dedicated by Gronovius to the name of Linnæus, who discovered it in the wilds of Lapland; it was afterwards found in Sweden, in Germany, and in Scotland, where it had been overlooked or neglected, and it is now also met with in all the northern regions of the American continent, from the mountainous banks of the Susquehannah, to the arctic circle: (abundant in the shady pine forests of Lake Huron.) In America, the *Linnæa* is confined to the dark forests of the *Abies canadensis*, *A. nigra*, and *A. balsamea*, accompanied by the *Trientalis*, *Polygala paucifolia*, *Mitchella*, and *Gaultheria*. Unchanged by the vicissitudes of climate, it always apparently presents the same character, whether growing in the forests of America or of Europe, and in every system it stands alone, without distinct affinity to any other genus. Bauhin, indeed, after the manner of the older botanists, judging from the mere form of the corolla, referred it to *Campanula*, and called it *C. serpyllifolia*.

†† *Apetalous.*140. ELÆAGNUS. *L.* (Oleaster.)

Calix 4 cleft, campanulate, coloured on the inner side. *Stamina* alternating with the divisions of the calix; anthers sessile. *Style* short. *Drupe* dry, 1-seeded, marked with 8 furrows.

Trees or shrubs; flowers axillary, solitary or aggregate, sometimes polygamous. In the *E. angustifolia*, cultivated in Europe and Africa, for the fine odor of its flowers, the calix occurs sometimes from 5 to 8 cleft, with the same irregular number of stamens. *V. Desfont.* Flor. Atlant. i. p. 144.

SPECIES. 1. *E. *argentea*. Unarmed; leaves undulated, oval oblong, rather acute, on either side smooth, and covered with silvery scales; flowers aggregate, nodding, berry rather large, subglobose, covered with silvery scales.

Obs. *Drupe* cartilaginous, roundish-ovate, with 8 grooves; nucleus subcylindric, surrounded by a tenaceous woolly integument.

HAB. At Hudson's Bay, and on the argillaceous broken banks of the Missouri, near Fort Mandan. A shrub from 8 to 12 feet high, apparently dioicous, producing a dry farinaceous edible drupe, about the size of a small cherry.

This genus is so nearly allied to *Hippophae*, as well as to another which I am about to propose, that it is to be regretted any artificial system should ever separate them. They are, however, distinctly dioicous, having male and female flowers of different structure. Of this genus, besides the above, (which appears to be more nearly related to the *E. macrophylla* of Japan, than the *E. latifolia*), there are 10 species; 1 in the South of Europe, another in Russia and the East, another in Egypt, and a 4th in Ceylon, with 6 in Japan.

††† *Polypetalous.*141. LUDWIGIA. *L.*

Calix 4 parted, persistent, superior. *Corolla* 4-petalled. or 0. *Capsule* 4 sided, 4-celled, inferior, many-seeded.

A genus chiefly consisting of herbaceous plants, with

alternate or opposite simple leaves, and flowers which are solitary and axillary, or tending to be terminally aggregated. Petals generally yellow and caducous.

SPECIES. § I. Petaliferous.—1. *L. macrocarpa*. 2. *alata*, E. L. 3. *sphaerocarpa* E. 4. *cylindrica*, E. 5. *lanceolata*, F. 6. *hirsuta*. 7. *angustifolia*. 8. *virgata*. 9. *Jussiaeoides*. 10. *capitata*. 11. *pedunculosa*.—§ II. Apetalous.—12. *microcarpa*. 13. *mollis*.

A genus confined to the United States, with the exception of 2 species in India, growing principally in the Southern States, on the margins of ponds and swamps, the *L. macrocarpa* being the only species which extends beyond the 38th degree of north latitude, except perhaps the *L. hirsuta* in a few peculiar localities.

142. ISNARDIA. *L.*

Calix campanulate, 4-cleft. *Petals* 0, or minute. *Capsule* surrounded by the base of the calix, 4-sided, 4-celled, many-seeded.

A creeping aquatic herb; leaves opposite; flowers minute, axillary, opposite and sessile.—With the habit of *Pepelis*, but more closely allied to *Ludwigia*.

SPECIES. 1. *I. palustris*. (*Ludwigia nitida*, MICH.) Common to Europe and America, from Canada to the West Indies. Of this genus there is only another species in Peru.

143. CORNUS. *L.* (Cornel. Dog-wood.)

Flowers sometimes aggregated in a 4-leaved involucre.—*Calix* 4-toothed. *Petals* 4, small, broader at the base. *Drupe* inferior, not crowned by the calix; nut 2-celled, 2-seeded.

Small trees or shrubs; leaves opposite, without stipules, in one species alternate; flowers in some species disposed in terminal corymbs, coming out later than the leaves, in others earlier, collected in umbells or capituli subtended by a common 4-leaved involucre, which is sometimes large and coloured, (as in *C. florida*, *C. suecica*, and *C. canadensis*.) Coraculum of the seed long, involved in a carnosous perisperm.

SPECIES. 1. *C. canadensis*. 2. *florida*. 3. *circinata*. 4. *sericea*. 5. *asperifolia*. 6. *stricta*. 7. *sanguinea*. 8. *alba*. (The fruit of this species, though bitter and unpalatable, is eaten by the savages of the Missouri, from whence it seems to extend across the continent, and appears again

in Siberia.) 9 *paniculata*. 10. *alternifolia*. Of this genus there are 2 other species in Europe, and 2 which are common to that continent, Asia, and America.

§ II. OVARIUM SUPERIOR.

†. *Monopetalous*.

144. CENTUNCULUS. L. (Bastard Pimpernel. Chaff-weed.)

Calix 4-cleft. *Corolla* 4-lobed, tubulose, persistent, border spreading. *Stamina* short, naked. *Capsule* 1-celled, dividing hemispherically, many-seeded.

Annual; leaves alternate, rarely opposite; flowers solitary, axillary, sessile, or minutely pedunculate, frequently 5-cleft, and with 5 stamens. Scarcely distinct from *Anagallis*.

SPECIES 1. *C. lanceolatus*. (*Anagallis ovalis*, Flor. Peruv. vol. ii. p. 8. t. 115. f. a.) Stem irregularly angular, 3 to 5 inches high, simple, or alternately branched, the lower joints often sending out roots. Leaves oval or oval-lanceolate, acute at either extremity. Flowers minutely pedunculate, (peduncle about half a line.) Calix as well as the corolla often 5-parted, segments linear and acuminate. Corolla tubular, scarcely ever expanding, divisions lanceolate, acute, tube wide at the base.—In Carolina. 2. *minimus*. Stem simple, or sometimes with a single branch from near the base, obsoletely angular. Leaves alternate, spatulate-ovate, acute; flowers nearly sessile, often 5-cleft and pentandrous.—In depressed, and inundated situations on the margins of ponds, near Fort Mandan on the Missouri.—Abundant. 4 to 6 inches high; flowering in July. Probably both these plants are mere varieties of the same species, which may then be considered indigenous to Europe and both the continents of America.

145. PLANTAGO. L. (Plantain.)

Calix 4-cleft. *Corolla* 4-cleft; border reflected. *Stamina* mostly exerted, very long. *Capsule* 2-celled, opening transversely.

Leaves all radical; flowers in densely spiked scapes, each subtended by a bracte.

SPECIES. 1. *P. major*. 2. *lanceolata*, (introduced, now every where naturalized.) 3. *cordata*. 4. *cucullata*. 5. *interrupta*. 6. *maritima*. 7. *caroliniana*. § II. Stamina not exerted. Capsule 2-celled, 2-seeded. Stemless. (Allied to *PSYLLIUM*.) 8. *virginica*. Segments of the corolla ros-
tately connivent. 9. **gnaphaloides* (*P. Lagopus*, PURSH, a name already applied to a very distinct species). Every where covered with a silky villus; leaves linear-oblong, entire; stamina included; calix rigid. —On the summits of high and gravelly hills; commencing to appear near the confluence of the river Jauke, and the Missouri. 10. **pusilla*. Minutely pubescent; leaves linear, entire, narrower towards the base, and a little carnose, shorter than the scape; scape round, filiform; spike, subcylindric, interrupted; calix rigid; bractes ovate, acute; stamina included. —On arid saline hills near the Missouri. Flowers in May. Only 1 to 3 inches high. ☉.

P. aristata, MICH. (One or two plants only out of many others which I obtained from seeds, gathered in Upper Louisiana, produced the long subulate bractes described by Michaux, from whence his specific name is derived.)

P. elongata, Pursh, in Suppl. ii. p. 729. *P. pauciflora*, of the same, i. p. 99. On all the sea-coasts from Labrador to Florida.

11. **glabra*. Leaves ovate, denticulate, smooth; scape slender, somewhat compressed, nearly equal to the leaves; flowers scattered; bractes ovate, acuminate.—In arid soils, near Fort Mandan.

About two-thirds of this extensive genus, as enumerated by Persoon, are indigenous to Europe, (more particularly to the south,) and Northern Africa, (Barbary, &c.) there are also species at the Cape of Good Hope, in Peru, and other parts of South America, also in Siberia. To the subdivision *Psyllium*, constituted a genus by Jussieu, appertain several branching, shrubby, and one arborescent species.

146. CALLICARPA. L. (Bermudian Mulberry.)

Calix 4-cleft. *Corolla* tubular, border 4-cleft. *Stamina* exerted. *Berry* 4-seeded.

Mostly tomentose shrubs, with opposite leaves, and axillary subverticillate flowers; peduncles dichotomous or cymose, many-flowered; cymes in some species terminal as well as axillary.

SPECIES. 1. *C. americana*. (Calix 4-toothed; berries purple, edible; but scarcely wholesome.) Of this genus, besides the present species, there are 2 others in the island of Jamaica, 1 in Carthage, 2 in Peru, 1 in Japan, and 5 in India.

147. LYCIUM. L. (Box-Thorn.)

Calix urceolate short, 4 or 5-cleft, or 4 to 5-toothed. *Corolla* longer, tubulose, border erect, 4 to 5-lobed, or flat, and 4 to 5-parted; orifice, (or margin of the tube) closed by the beard of the filaments. *Stamina* exserted. *Berry* roundish, 2-celled, many-seeded; seeds reniform.

Shrubs for the most part spiny; ramuli pungently terminated; leaves alternate, sometimes fasciculated; flowers axillary, solitary, or by pairs.

SPECIES. 1. *L. carolinianum*. (Without thorns.)—Of this genus there are 3 species indigenous to the South of Europe, 2 of them at the same time common to Northern Africa, with two others peculiar to this portion of Africa; 4 to the Cape of Good Hope; 1 species and a permanent variety were discovered by Pallas in the deserts of Tary, contiguous to the shores of the Caspian sea; 2 if not 3 other species appear to be peculiar to China; and 6 to Peru.

148. CENTAURELLA. Michaux. CENTAURIUM. Persoon.

Calix 4-parted, appressed. *Corolla* subcampanulate, 4-parted; segments somewhat erect. *Stigma* thick, glandulous, and partly bifid. *Capsule* 1-celled, 2-valved, many-seeded, surrounded by the persistent calix and corolla.

Small annuals; appearing almost leafless: leaves minute, opposite, sessile, subulate. Flowers subpaniculate.

SPECIES. 1. *C. verna*. 2. *æstivale*, PURSH. Probably a mere variety of the following. 3. *paniculata*. (*Bartonia tenella*, Muhlberg.)

A North American genus, nearly allied to *Gentiana*.

149. EXACUM. L.

Calix deeply 4-parted. *Corolla* 4-cleft, tube

globose. *Capsule* bisulcate, 2-celled, many-seeded, opening at the summit; cells 2-seeded.

Flowers axillary, or dichotomously corymbose and terminal, with a single flower in the bifurcations. Several species have a 5-cleft corolla, with 5 stamens.

SPECIES. 1. *E. pulchellum*, Pursh. Is not this plant a *Sabbatia*?—Of this genus there are 4 species described by Persoon, as existing within the tropical regions of America, 1 in Europe, with 11 others in India and Africa, principally at the Cape of Good Hope.

150. SWERTIA. L. (Felwort.)

Calix 4 or 5-parted. *Corolla* rotate, tube very short, border flat, 4 or 5-parted, segments lanceolate, with 2 nectariferous ciliate pores at the base of each. *Germ* attenuated into a short style, terminated by 2 stigmas. *Capsule* 1-celled, 2-valved.

Habit similar to *Gentiana*. Flowers axillary and terminal, peduncles often many-flowered.

SPECIES. 1. *S. fastigiata*, Pursh. 2. *pusilla*, P. (*S. tetrapetala*? of Pallas)—§ II. CERATIA. *Corolla* subcampanulate, calcarate at the base.—3. *corniculata*.

Of *Swertia*, besides the above, there are but 7 species described in Persoon, and of these, the *S. difformis* appears referable to *Sabbatia*. Europe produces 1 species, (the *S. perennis*,) Arabia Felix, another, Siberia 2, as well as the *S. corniculata*, but almost specifically distinct from the American plant; there is 1 species also in the Andes of Peru. All the species of this genus appear to be alpine.

151. FRASERA. Walter. Michaux.

Calix deeply 4-parted. *Corolla* 4-parted, spreading; segments oval, with a bearded orbicular gland in the middle of each. *Capsule* compressed, partly marginated, 1-celled. *Seeds* few. (8 to 12) imbricated, large, elliptic, with a membranaceous margin.

Biennial; stem tall; leaves verticillate; segments of the corolla furnished with very conspicuous ciliated glands.

SPECIES. 1. *F. Walteri*. From Canada to Carolina. In the dry and open woods of western Pennsylvania and New-York, in certain localities abundant. It is there called Columbo-root, and appears to be a tonic no way inferior to the *Gentiana lutea*.

A genus peculiar to the United States.

152. OBOLARIA. L.

Calix 0, or in the form of 2 bractes. *Corolla* campanulate, 4-cleft, segments entire, (the margin sometimes crenately torn.) *Stamina* equal, proceeding from the clefts of the corolla. *Stigma* emarginate. *Capsule* ovate, 1-celled, 2-valved, many-seeded; seeds minute.

A very small vernal plant, with a simple stem, and opposite leaves; flowers sessile, terminal and marcescent, collected by pairs or by threes towards the summit of the stem; stigma minutely bifid. (Bitter, and probably tonic.)

SPECIES. 1. *O. virginica*. Perennial? about 3 or 4 inches high, with a small branching root; leaves thick, green, almost carnose, frequently purplish on the under side; flowers bluish-white, subtended by foliaceous bractes.

Peculiar to North America.—In the neighbourhood of Philadelphia, rare.—Dr. W. P. Barton. Near West Chester, (Pensylvania.)—Dr. W. Darlington. Abundant in the shady forests of Lake Erie, (Ohio.) In the revision and arrangement of this genus, which distinctly appertains to the Natural Order *Gentianeæ* of Jussieu, I am happy to have been corroborated by the interesting remarks of Dr. W. Darlington, who for four years in succession has been in the habit of examining the *Obolaria*.

†† *Flowers tetrapetalous.*

153. AMMANNIA. L.

Calix 1-leaved, striate, 8-toothed, inferior. *Corolla* of 4 petals, or none, inserted upon the calix. *Capsule* 4-celled, many-seeded.

Subaquatic herbs with opposite leaves; flowers very small, axillary, sessile, or shortly pedunculate, opposite, and sometimes almost verticillate. In *A. indica*, and *A. verticillata*, the calix is 4-toothed, and shorter than the capsule.

SPECIES. 1. *A. ramosior* 2. *humilis*.—Of 9 species now enumerated, including the above, 3 are indigenous to India, 1 to Italy, 1 to Senegal, and 2 to the West Indies.

154. PTELEA. L.

Calix 4-parted, inferior. *Petals* 4, spreading. *Stigmata* 2. *Capsule* (samara) compressed, membranaceous, with a broad and circular margin, 2-celled, 2-seeded.

A shrub with alternate leaves; mostly ternate, rarely 5-leaved; flowers almost corymbose, axillary and terminal, odorous. Each cell of the germ 2 seeded, one of the seeds habitually abortive; stamina sometimes 6, with 5 petals, and the samana 3-celled, 3-winged.

SPECIES. 1. *P. trifoliata*.—A North American genus, now reduced to a single species, nearly allied to the *Blackburnia* of the island of Norfolk in the Pacific. The *P. monophylla* of Lamark, appears to be the *Mylocarium ligustrinum!* Probably a bad specimen in fruit and without flowers.

††† *Apetalous.*

155. RIVINA. L.

Calix 4-parted, persistent. *Petals* 0. *Berry* 1-seeded. *Seed* lentiform, scabrous. (*Stamina* 4, 8, and 12.)

Stems somewhat shrubby; leaves entire, often acuminate; flowers in axillary racemes. (Stem in *R. levis*, herbaceous)

SPECIES. 1. *R. levis*. v. s. in the Herbarium of Z. Collins, Esq. communicated by Muhlenberg, and said to be collected in Pennsylvania. Possessing very much the habit of *Phytolacca decandra*.

There are 5 species of this genus enumerated by Persoon, all indigenous to the tropical parts of America on either side the equator. Of the *R. levis* there is, on the authority of Lamark, a distinct variety in the island of Madagascar.

156. CAMPHOROSMA. L.

Calix urceolate, 4-parted, alternate segments larger. *Corolla* 0. *Stamina* exerted. *Style* bifid. *Capsule* 1-seeded, covered by the calix.

Stem shrubby or herbaceous, branching and diffuse,

thickly covered with minute linear leaves; flowers axillary

SPECIES. 1. *C. glabra?* Said to have been found on the American sea-coast.—A genus of 4 species, (Persoon) inhabiting arid soils in Spain, Tartary, Italy, Helvetia? and the Cape of Good Hope.

157. **SYMPLOCARPUS.** *Salisbury.* **POTHOS** *fæ-tida,* Mich. (Skunk-cabbage.)

Spatha ventricose-ovate, acuminate. *Spadix* roundish, covered with hermaphrodite flowers. *Calix* deeply 4-parted, persistent, segments cucullate, truncate, becoming thick and spongy. *Petals* 0. *Style* pyramidal, 4-sided; *stigma* simple, minute. *Seeds* solitary, immersed in the spongy receptacle.

Stemless and subaquatic; leaves very large, strongly veined and entire, preceded by conspicuous sheathing stipules; scapes radical, appearing before the leaves; spatha discoloured calix, style, and filaments persistent, enlarging with the spongy receptacle.

Root verticillately fibrous, truncate. Leaves smooth, and green, ovate-cordate, enlarging, protected by large glaucous, spatulate-linguiform, veinless bractes. Spatha ovoid, roundish, cucullate, obliquely acuminate, point coarctate, plaited, involutely auriculate at the base, thick and spongy, livid purple, blotched and spotted with pale green. Spadix pedunculate, simple, almost spherical. Bractes none. Flowers tessellately imbricate, adnate. Calix 4-parted, divided to the base, segments cucullate, compressed at the apex, emarginated, at length becoming very thick. Petals none. Stamina 4, opposite the divisions of the calix; filaments subulate, flat; anthers exerted, short, oblong-oval, 2-celled. Style thick, quadrangular, acuminate; stigma minute, pubescent, shorter than the stamina. Germ immersed, 1-seeded. Seed naked, large, round, inclosed in the common receptacle. Corculum small, involute, erect, umbilicately attached to a large solid, carneous perisperm.†

† The seed of the *Symplocarpus* does not appear to possess any thing like a proper cotyledon, the embryo formed in the exact posture of the growing plant, (with the radical downwards), differs not from it in any particular but that of size. In

SPECIES. 1. *S. fetida*. Well known as a rank and offensive weed throughout the United States, from Canada to Carolina. The genus *Pothos* to which this plant is allied, though very distinct, exists almost exclusively within the tropical parts of America.

158. **ALCHEMILLA. L.** (Ladies-mantle.)

Calix tubulous, border spreading, 8-cleft, segments alternately smaller. *Petals* 0. *Stamina* very small. *Germ* 1; *style* 1, lateral, from the base of the germ. *Stigma* 1. *Seed* 1, covered by the connivent calix.

Herbs with palmate or subdigitate leaves; flowers corymbose axillary and terminal.

SPECIES. 1. *A. alpina*. On the mountains of New Hampshire. A plant common to the alpine regions of Europe. This genus, containing 6 species, with the exception of 1 at the Cape of Good Hope, and another in New Granada, is confined to Europe.

Order II.—DIGYNIA.

159. **APHANES. L.** (Parsley Piert.)

Calix 8-cleft, alternate segments minute. *Petals* 0. *Stamina* minute. *Styles* 2. *Seeds* 2,

place of a cotyledon there is a sheathing stipule similar to that which is ever after produced; in fact it is viviparous. The embryo is seated in a small umbilical or hemispherical depression, in the upper end of what may be called a *vitellus* rather than a perisperm, judging from its functions; this callus, or seminal tubercle is roundish and turbinate, nearly as large as a filbert nut, very solid and carneous, possessing in a high degree the alliaceous factor of the grown plant; the mutual point of attachment subsisting betwixt this body and the embryo is at first a minute and nearly central funiculus which enlarges and becomes more distinct during the progress of germination; but what appears to be most singular in it, is the length of time which it continues attached to the growing plant, apparently inert at the base of the caudex for twelve or even eighteen months.

covered by the connivent calix, 1 of them sometimes abortive. (Stamina 1, 2, and 4.)

Small herbs with trifid or biternately divided leaves, sheathing at their base; flowers sessile, in axillary clusters, or terminal and dichotomously corymbose. In *A. orbiculata* the leaves are round and lobed.

SPECIES. 1. *A. arvensis*. In the fields of Virginia. CLAYTON. (Introduced?)

Besides the preceding European species there are 3 others indigenous to the alpine mountains of Peru.

160. HAMAMELIS. L. (Witch-hazel.)

Calix 4-cleft, persistent, with 3 bractes. *Petals* 4, long and linear, with a short dilated filament at the base of each. Filaments and anthers united; *anthers* 2-celled, each cell having a vertical valve. *Capsule* coriaceous, (nut) 2-celled, 2-lobed, 2-awned, apex 2-valved, valves cleft. *Seeds* 2, arillate.

A small tree with the habit of *Alnus*; leaves alternate, stipulate, oblique at the base; flowers sessile, by threes, in axillary or lateral pedunculate clusters; calix pubescent, foliaceous, and persistent; petals ligulate, alternating with the stamina; capsule indurated, half inclosed in the base, of the persistent calix, bursting elastically; seeds arillate, black and shining; corculum flat, inclosed in a carneous perisperm, radicle descendant, opposite to the hilum.

SPECIES. 1. *H. virginica*. From Canada to Florida. *β. macrophylla*, leaves suborbiculate cordate, with elevated scabrous spots on the under side — In Georgia. PURSH. Catabaw mountains, (North Carolina) *Α. γ. *parvifolia*, leaves smaller, oblong obovate, upper part undulately and grossly crenate, the under side pubescent, somewhat hirsute; segments of the calix oblong, stamens and perigynous filaments often nearly equal — A shrub every way smaller than the common *H. virginica*, with the branches nearly erect, calix somewhat coloured and diaphanous, petals bright yellow. From the mountains of Pennsylvania, v. v. in Hort. Landretu, Philadelphia.

The flowers of the *Hamamelis*, like those of the Natural Order *Amentaceæ*, to which it is somewhat allied, appear either in the winter or very early in the spring, and in some of the varieties they are odorous. The under side of the leaves, and more sparingly the upper, as in *Fother-*

gilla, is clothed with a very short stellate pubescence. The fruit of the *Fothergilla*, as was long ago sagaciously remarked by the celebrated A. L. Jussieu, is almost exactly similar to that of the *Hamamelis*, but in the flowers there exists a strange disparity; by the intervention of the *Pachysandra*, however, which appears more properly referable to the *Amentaceæ*, than the *Euphorbiaceæ*, and at the same time allied both to *Hamamelis* and *Fothergilla*, we have something like a connected series. In these 3 genera, the anthers and filaments are united, the anthers also become papyraceous, and are for a considerable length of time persistent, not deciduous as in the *Berberides*. From the *Amentaceæ*, they differ in possessing a perisperm, and the *Hamamelis* is excluded from the 15th class of Jussieu by the existence of petals, but this exception is scarcely universal, as the order in question includes *Comptonia*, described as having 6 petals, at all events, an interior and dissimilar calix. Wherever these 3 contiguous genera may be placed, either as a distinct order, (FO THERGILLEÆ) or as a neighbouring section, they cannot but be considered as closely allied to the *Amentaceæ*, notwithstanding the singular construction of the anthers in the genus *Hamamelis*, which is indeed the sole character by which it is in any manner allied to the *Berberides*, the carceous perisperm being equally common to the *Euphorbiaceæ*. There is some reason to suspect that the genus *Hamamelis* is polygamous, independent of the mistake of Linnæus in confounding this genus with *Fothergilla*. The variety, for instance, which I have designated, γ . **parvifolia*, although flowering freely every year, has never produced seed since transplanted into a garden out of contact with other individuals. This subject, however, requires more general and accurate examination. The three genera proposed are thus far exclusively confined to North America.

161. SANGUISORBA. L. (Great Burnet.)

Calix 2-leaved, inferior, resembling bractes.
Corolla 4-lobed, superior. *Capsule*, between the calix and corolla, 2 seeded.

Herbaceous; leaves unequally pinnate, stipules growing to the base of the petiole; flowers capitate terminal.

SPECIES. 1. *S. canadensis*. 2. *media*. Probably a mere variety of No. 1. Of this genus there are but 2 other species, 1 in Europe and the other in Algiers (Africa.)

Order 4.—TETRAGYNIA.

162. MYGINDA. *Jacquin. L.*

Calix small, 4-parted. *Corolla* deeply 4-parted or of 4 petals. *Stigmas* 2 or 4. *Drupe* globose, 1-seeded.

Shrubs with opposite leaves; peduncles axillary, 2 or 3-flowered; flowers minute.

SPECIES. 1. *M. Myrtifolia*. (*Ilex myrsinites*, PURSH.) Found on the North-west coast, and on the Rocky mountains, by Captain M. Lewis.

A genus confined to the tropical parts of America, with the exception of the present species.

163. ILEX. *L. (Holly.)*

Calix minute, 4 or 5-toothed. *Corolla* rotate, 4-parted. *Style* 0; *stigmata* 4. *Berry* 4-seeded.

Small trees or shrubs; leaves alternate, mostly evergreen, often spinosely or pungently toothed or serrated; peduncles axillary, many-flowered; flowers often polygamous; berries a long time persistent, usually scarlet.

SPECIES. 1. *I. opaca*. β . *laxiflora*, (*I. laxiflora*, appears to be a mere variety of *I. opaca*.) 2. *Cassine*. 3. *vomitaria*. (Used sometimes as a substitute for Tea; also by the savages in their superstitious ceremonies.) 4. *angustifolia*. Leaves mostly entire and mucronate. From 10 to 15 feet high. 5. *Dahoon*. Leaves mostly entire.—§ II. Leaves deciduous 6. *prinosides*. Leaves deciduous, elliptic-lanceolate, acute at both extremities, from about the middle to the point lightly serrate, the under side pubescent; berries large, and nearly solitary, nuts grooved.—Closely allied to *Prinos*. 7. *canadensis* Genus doubtful.

Europe affords but 1 species of this genus, the *I. Aquifolium*, common also to Japan, but certainly not to America as remarked by P. Roon, as it is even very difficult to cultivate; in Japan there are 7 other species. 1 at the Cape of Good Hope, 1 in India, 2 in the island of Madeira, 1 in the isle of Mauritius. 3 in the West Indies, a doubtful species in Guianne, and another (*Paltoria*) in the high mountains of Peru, allied to *Muginda*.

164. SAGINA. *L. (Pearl-wort.)*

Calix 4-leaved. *Petals* 4. *Capsule* 4-celled, 4-valved, many-seeded.

Small herbs; flowers nearly solitary, terminal and axillary, upon long peduncles, petals often caducous.

SPECIES. 1. *S. procumbens*.—An European genus.

165. TILLÆA. L.

Calix 3 or 4-parted. *Petals* 3 or 4, equal. *Capsules* 3 or 4, two or many-seeded. *Stamina* sometimes 8, 4 sterile.

Small succulent herbaceous plants, allied to *Crassula* and *Sedum*; leaves opposite, rarely ternate; flowers minute, axillary, cymose, or umbellate.

SPECIES. 1. *T? cymosa* (*Sedum pusillum*, MICH.) Erect; stem verticillately or trichotomously branched from the base; leaves alternate, almost cylindric, oblong; flowers subdichotomously cymose, alternate and pedicellate, octandrous; capsules connate, 2 to 4 seeded, opening externally.

Annual. Two to 4 inches high, "flowers white, octandrous," MICH. Capsules 4, united, never separable, with subulate and at length long mucronate points, opening on the under side. Seeds germinating as soon as they fall, the young plants remaining green throughout the winter, in these the leaves are oval-oblong and succulent. Branches about 4 from the same point—Collected in winter on the "Flat-Rock," above Camden in North Carolina, growing with mosses in the wet and gravelly excavations of the rock, in the same place where it was discovered by Michaux, and hitherto found in no other spot, as Mr. Parish evidently confounds this plant with the *S. pulchellum*, when he speaks of its growing on the east banks of the Shenandoah river in Virginia, the latter being there sufficiently abundant, and yet he quotes the remote habitat of Michaux, "on rocks around Knoxville," (Tennessee) and indicates by his mark (→) that he has never seen *S. pulchellum*, notwithstanding its prevalence around Harper's Ferry, &c. &c. in Virginia.

Having never seen this plant in flower, I am unable to ascertain its genus; it is, however, at the same time much more nearly related to *Tillæa*, than to *Sedum*. In the structure of the capsule it entirely differs from every other plant in the Natural Order *Sempervivæ*.

Of *Tillæa* there are in America besides the above, 1 species in Peru, 4 also in Europe, and 4 at the Cape of Good Hope.

166. POTAMOGETON. L. (Pond-weed.)

Calix 4-leaved. *Corolla* 0. *Style* 0. *Seeds* 4.

Leaves sheathing, those of the stem often alternate, floral leaves mostly opposite; flowers spiked, terminal or axillary; ramuli and spikes having frequently 2 sheathes at the base. Nut 1-seeded, cochleate; embryo erect, exalbuminous, curved or involute.

SPECIES. 1. *P. natans*. 2. *fluitans*. 3. *heterophyllum*. 4. *setaceum*. 5. *perfoliatum*. 6. *lucens*. 7. *crispum*. 8. *gramineum*. 9. *pectinatum*.—A genus of aquatic plants, apparently confined to Europe and North America; those of the latter continent at the same time common also to Europe.

167. RUPPIA. L. (Tassel Pond-weed.)

Calix none. *Corolla* none. *Seeds* 4, pedicellate.

A maritime aquatic plant with capillary branches; leaves gramineous, sheathing; on the stem alternate, towards the flower nearly opposite; flowers in a spikelet or spadix, solitary, mostly terminal, distichal, peduncle convolute, stretching or contracting according to the depth of water, after the manner of *Valisneria*; "calix 2-valved, deciduous," JESSIEU. Fruit subulate, when mature incurved at the point. Nut gibbous, containing one seed; embryo erect, attached (as in many other plants of the same natural class,) to a germinal body apparently of the nature of the root.†

SPECIES. 1. *R. maritima*. Common probably to every part of the world.

† Being distinct from the ordinary cotyledons, albumen or perisperm, to distinguish it from them I propose the name of *somarhize*, (*somarhiza*) or a radical inactive body affording a temporary nourishment to the embryo with which it possesses a simple vascular connection, but without producing any species of radicles or leaves, often in the form of a cohering callos tubercle, it exists longer than ordinary cotyledons, and differs from an extraneous perisperm in its vascular connection with the embryo.

CLASS V.—PENTANDRIA.

Order 1.—MONOGYNIA.

† Flower monopetalous, inferior; seeds 4, naked.
ASPERIFOLIÆ.

168. HELIOTROPIUM. L. (Turnsol.)

Calix tubulous, 5 toothed. *Corolla* salver-shaped, 5-cleft, with 5 intermediate teeth or plaits; orifice of the tube naked. *Stigma* emarginate.

Spikes recurved, flowers inclined to one side.

SPECIES. 1. *H. indicum*. Apparently native, in the warmer states. 2. *curassavicum*. 3. *europæum*? Around Harper's Ferry, (Virginia.) On the banks of the Shenandoah. Flowers white. Leaves hoary. This genus exists principally in the warmer parts of South America, (Peru and the West Indies) and India, there are also some species in Africa, and 2 in Europe. A few of the species are ornamental and odorous.

169. MYOSOTIS. L. (Scorpion-grass.)

Calix 5-cleft. *Corolla* salver-formed, tube short, border flat, 5-lobed, lobes subemarginate; orifice closed with 5 convex, connivent, squamulæ (or small scales.) *Stigma* 1. *Seed* smooth or scabrous.

Flowers mostly disposed in terminal one sided spikes.

SPECIES. 1. *M. scorpioides*. 2. *arvensis*. 3. *virginiana*. 4. *Lappula*. 5. **glomerata*. Seeds rugose; leaves spatulate-linear, on the stem rather acute, hirsute; spikes pedunculate, axillary, conglomerate, bifid, sessile above; calix extremely hispid; lobes of the corolla entire.

Cynoglossum glomeratum, Pursh. Flor. Am. 2. p. 729. T. N. in Fras. Catal. 1813.

Root biennial. Stem erect, entirely simple, 6 to 12 inches high. Radical leaves villous, spathulate-obovate, obtuse, somewhat hoary; one to one and a half inches long; stem leaves spathulate-linear, rather hispid and somewhat acute, sessile. Spikes very short, axillary, bifid, pedunculate, peduncles mostly shorter than the leaves, flowers crowded, appearing almost in heads, approximating together towards the summit. Calix deeply 5-parted, villous, and also thickly set with sharp hispid hairs. Corolla white, orifice closed, lobes rounded, entire, nearly flat, rather large; tube constricted near the base. Stamina sessile, included beneath the arched protuberances of the orifice. Stigma entire, capitate. Seeds narrow, ovate, acute, with an elevated scabrous or minutely crenate ridge in the centre.

On arid agillaceous hills around the Great Bend of the Missouri. Flowering in June.

The genus *Myosotis* is chiefly European, at the same time there are species in Peru, at the Cape of Good Hope, in Siberia, 1 species in New Zealand, 1 in Chili, and another in the isle of Bourbon.

170. LITHOSPERMUM. L. (Gromwell.)

Calix 5-parted. *Corolla* funnel-form, 5-lobed, orifice open, naked. *Stigma* bifid. *Seed* indurated, shining. (Stamina and style included within the corolla.)

Flowers solitary, axillary, or in terminal bracteate spikes; floral leaves sometimes by pairs.

SPECIES. 1. *L. arvense*. 2. *latifolium*. 3. *angustifolium*. 4. *apulum*

Of this genus there are 5 species in Peru and the warmer parts of Spanish America, 2 at the Cape of Good Hope, 5 in Egypt and the East, 1 on the nitrate banks of the Volga, (Siberia) 1 around ancient Bagdad in Persia, and another in the isle of Teautea in the Pacific; the rest in Europe and North America. The roots of several species afford a lac for dying and painting.

171. BATSCHIA. Gmelin. Michaux.

Calix 5-parted. *Corolla* salverform, rather large, tube straight, much longer than the calix, closed at the base by a bearded ring; ori-

fice naked or partially closed; border orbiculate, nearly flat, segments rounded. *Seed* indurated, shining, (as in *Lithospermum*.)

Flowers yellow or fulvous, axillary, almost fastigate, in short bracteate spikes; leaves narrow, without collateral nerves.

SPECIES. 1. *B. Gmelini*. 2. *canescens*. Flowers fulvous. 3. **longiflora*. Hirsutely vilous, erect; leaves approximating, long and linear, margin reflected; flowers in a fastigate fascicle; tube of the corolla somewhat pentangular, (often from 10 to 15 lines long) border flat, segments fimbriate-crenate.—Flowers sulphur yellow. In open plains; around the Prairie du Chien, Mississippi, and on the banks of the Missouri to its sources. 4. **decumbens*. Hirsutely villous; stem decumbent; segments of the calix and leaves linear; flowers scattered; lobes of the corolla fimbriate-crenate, shorter than the tube.—Around the Mandan village. Nearly allied to the preceding. In both these species the orifice is partly closed by 5 arched protuberances.

All the species of this genus afford a crimson lac from the root.

172. CYNOGLOSSUM. L. (Hounds-tongue.)

Calix 5-parted. *Corolla* funnel-formed, 5-lobed, orifice closed by 5 connivent convex processes. *Stigma* emarginate. *Seed* depressed, affixed to the style on the inner side.

Flowers spiked or clustered, axillary or terminal; leaves villous or hirsute; seeds echinate, muricate or scabrous, rarely if ever smooth.

SPECIES. 1. *C. officinale*. 2. *sylvaticum*. 3. *amplexicaule*. 4. *pilosum?* Erect and hairy; radical leaves spatulate-oblong, the rest lanceolate-oblong, obtuse; flowers axillary, almost spiked, unilateral (or secund); stamina very short included; seed scabrous depressed, oblong, acute, muricate on the margin.—On arid hills above Rapid river, Missouri. Flowering in May; flowers white, small.

Apparently a mere variety of the Peruvian plant; judging from the plate in the *Flora Peruviana*.

Of the genus *Cynoglossum* there are 9 species, chiefly in the South of Europe, several of which are also common to Barbary, besides these there are 4 at the Cape of Good Hope, 6 in Peru and Chili, 5 in Armenia and the East, 1

peculiar to Arabia, 1 to Japan, 1 to Siberia, and another to the summit of mount Lebanon, in Syria.

173. PULMONARIA. *L.* (Lungwort.)

Calix prismatic-pentagonal. *Corolla* funnel-formed, somewhat 5-lobed, orifice open. *Stigma* emarginate.

Flowers almost disposed in terminal corymbs, sometimes racemose. Leaves in the American species and in the *P. maritima* smooth and glaucous, calix short, about half the length of the corolla tube. (MERTENSIA Persoon.)

SPECIES. 1. *P. virginica*. 2. *paniculata*. 3. **marginata*. Small, glabrous, erect; leaves hispid on the margin, on the lower part of the stem oblong-spathulate or oblong-ovate, upper leaves ovate, acute, semiamplexicaule; flowers subpaniculate; fasciculi few-flowered, axillary and terminal; calix acute, about half the length of the corolla tube.

P. lanceolata. Pursh, Flor. Am. 2. p. 729.

Perennial. Stem nearly erect, and somewhat branched, scarcely a foot high. Radical leaves petiolate, stem leaves sessile, uppermost semiamplexicaule, all glabrous, glaucous, and somewhat carnose. Fascicles or ramuli, pedicellate, a little longer than the leaves, 4, 5, 8, or more flowered. Calix 5-parted, smooth, acute, segments somewhat hispid on the margin. Corolla funnel formed, much like that of *P. virginica*, and of the same colour, but smaller, lobes entire. Stamina seated around the orifice of the tube.

Nearly allied to *P. virginica*, and also probably to the *P. paniculata*, but the leaves are never acuminate or hairy, but perfectly smooth, except on the margin where there are a few scattered hooked, hispid hairs, often only visible in a dried state. The name of *lanceolata* is so very inapplicable that it appeared to me necessary to alter it.

On arid hills near the confluence of Teeton river, Missouri. Flowering in June.

4. *paniculata*. 5. *sibirica*.

The only 3 genuine species of *Pulmonaria* described are confined to Europe; the American species all arrange under the subdivision MERTENSIA of Persoon.

174. ONOSMODIUM. *Michaux.*

Calix deeply 5-parted. *Corolla* somewhat tubular-campanulate; orifice naked; border ven-

tricose, half 5-cleft, segments connivent, acute. *Anthers* sessile, included. *Style* much exerted, entire, acute.

Leaves longitudinally nerved; flowers in recurved, leafy spikes.

SPECIES. 1. *O. hispidum*. 2. *molle*. A genus peculiar to the United States, but very nearly allied to *Onosma*. Flowers yellowish-white, somewhat like those of *Symphytum*.

175. LYCOPSIS. *L.* (Small Bugloss.)

Calix 5-cleft, inflated or ventricose. *Corolla* funnel-formed, tube incurved; orifice closed with convex protuberances. *Stigma* bifid.

Flowers solitary or collected into a raceme or spike, axillary or terminal. In some species the tube of the corolla is straight.

SPECIES. 1. *L. arvensis*. 2. *virginica*.

This genus exists chiefly in the South of Europe, in Barbary, and in the East, there is also 1 species in Egypt, 1 in Crete, 1 in Chio, and another in Tartary.

176. ECHIUM. *L.* (Viper's Bugloss.)

Calix 5-parted. Tube of the corolla short; orifice naked; border wider than the tube, campanulate, unequal, and obliquely 5-lobed. *Stigma* bifid.

Flowers in simple or paniculated spikes, spikes unilateral. Most of the African species are shrubby.

SPECIES. 1. *E. vulgare*. Very common in Virginia where it is now but too generally naturalized, and there called "Blue-weed."

The genus *Echium* appears to exist chiefly in the more temperate parts of Africa, particularly at the Cape of Good Hope, in Barbary, in the isle of Teneriffe, and in Egypt; there are a few species also indigenous to the South of Europe. According to Gmelin the women of the Don (in Russia) colour their cheeks with the root of the *Echium rubrum*. The same use is also made of the root of *Onosma Echioides* by the women of Tartary.

†† *Flowers* monopetalous, inferior, fruit covered.

177. PHACELIA. *Jussieu*.

Calix 5-parted. *Corolla* subcampanulate, 5-cleft, with 5 longitudinal margined melliferous

grooves on the inside. *Stamina* exerted. *Style* filiform, *stigmata* 2. *Capsule* 2-celled, 2-valved, 4-seeded, each of the valves septiferous in the centre.

Pubescent, leaves alternate, pinnatifid; flowers in unilateral spikes or racemes, simple or bifid, axillary and terminal. In *P. bipinnatifida* the filaments of the *stamina* are bearded in the middle, as in *Hydrophyllum*.

SPECIES. 1. *P. bipinnatifida*. 2. *heterophylla*. 3. *fimbriata*. Common in alluvial soils, throughout the western parts of Pennsylvania and Ohio. 4. *parviflora*, Pursh. Probably an *Ellisia*.

A genus confined to North America. The *P. fimbriata* is probably an *Ellisia*.

178. HYDROPHYLLUM. L. (Water-leaf.)

Calix 5-parted. *Corolla* campanulate, 5-cleft, with 5 longitudinal margined melliferous grooves on the inside. *Stamina* exerted, filaments bearded in the middle. *Stigma* bifid. *Capsule* globose, 1-celled, 2-valved, 1-seeded, 3 other seeds mostly abortive.

Leaves palmate, or pinnatifid; flowers corymbose, corymbs recurved, pedunculate, terminal, or opposite the leaves. The genus *Phacelia* is too nearly allied to *Hydrophyllum* to admit of separation; in an early state there is even no difference in their fruit.

SPECIES. 1. *H. appendiculatum*. 2. *virginicum*. 3. *canadense*. 4? *lineare*, Pursh. Probably not of this genus.—With the exception of *H. magellanicum*, this genus is confined to North America.

179. ELLISIA. L.

Calix deeply 5-parted. *Corolla* smaller, funnel-form, 5 cleft, internally naked. *Stamina* not exerted; filaments smooth; anthers roundish. *Stigma* bifid. *Capsule* 2-celled, 2-valved, seated in the stellate or spreading calix, cells 2-seeded; seeds one upon the other? punctate.

Herbaceous, diffuse, and dichotomous; leaves pinnatifid; solitary peduncle or raceme, for the most part opposite the leaf.

SPECIES. 1 *E. Nyctelea*. 2. **ambigua*. Decumbent, and branching; stem glabrous, somewhat glaucous; leaves hirsute, lyrate-pinnatifid, subsessile, segments sublanceolate, angularly toothed or lobed; racemes opposite the leaves, both lateral and terminal; flowers small, scarcely longer than the calix, segments emarginate.

Annual. Stem spreading, 4 to 6 inches high. Calix 5-parted, segments lanceolate-ovate, persistent. Corolla subcampanulate, short, 5-cleft, laminae short, roundish-oval, emarginate, tube cylindric, upper part angular, with 10 nectariferous pores at its base. Stamina from the base of the tube; filaments short, not exerted; anthers cordate. Style very short, bifid. Ovarium conic-ovoid. Capsule compressed, rounded-oval, 2-valved, 4-celled, 4-seeded; valves septiferous, dissepiments, intersecting, crossing each valve in two directions. Seed roundish, punctate. Peduncles reflected, when in fruit.

In alluvial soils on the banks of the Missouri; common; flowering in April and May.

A North American genus.

180. ANDROSACE. *L.*

Flowers in an involucrate umbell.—*Calix* 5-cleft, persistent. *Corolla* salverform, 5-lobed, tube ovate, orifice glandulous. *Capsule* 1-celled, ovate-globose, 5-valved, many-seeded.

Annual or perennial. Leaves radical; scapes numerous; calix often angular; flowers usually small, and white.

SPECIES. 1. *A. occidentalis*. Annual. Leaves ovate, smooth, rather thick, and entire. Scapes solitary, or several from the same root, 1 to 3 inches high, minutely pubescent. Leaves of the involucre oval, pedicells long, 1-flowered. Calix smooth, acute, angular, membranaceous betwixt the segments. Corolla a little shorter than the calix, salverform, white, orifice open, tube ovate, segments oblong, obtuse. Capsule globular, 1-celled, 5-valved. Seeds numerous, angular.

On dry and elevated plains, from the Maha village to the mountains, near the river Missouri; flowering in April. Probably a mere variety of *A. elongata*, but the leaves are entire, and the umbell of the same length both in flower and fruit.

The genus *Androsace* is almost exclusively confined to Europe, and most of the species are alpine; there is at the same time, out of 12 species, 1 in Siberia, 1 in Cappado-

cia, and a doubtful species as to the genus in the tropical parts of America.

181. PRIMULA. L. (Primrose. *Prime-vere*, or First flower of the Spring.)

Flowers in an involucrate umbell.—*Calix* tubular, 5-toothed, persistent. Tube of the *corolla* cylindric, orifice spreading, border 5-lobed, lobes emarginate. *Stigma* globose. *Capsule* 1-celled, summit 10-valved.

Habit as the preceding, but perennial; flowering early; most of the species alpine, withstanding and thriving in the most rigorous climates, to the very limits of perpetual snow. Amongst these, more interesting than the rest, is the *P. auricula* of the Austrian and Helvetic alps, originally yellow, it is now to be seen in gardens of the most diversified colours; the calix and corolla of this species and the under side of the leaves in the *P. farinosa* is singularly decorated with a white and deciduous powder.

SPECIES 1. *P. mistassinica* 2. **farinosa*. Leaves crenate, smooth, under side pulverulent, border of the corolla flat,—segments obcordate, SMITH. Flor. Brit. i. p. 224. (Bird's-eye Primrose.) On the calcareous gravelly shores of the islands of Lake Huron; around Michilimackinac, Bois Blanc, and St. Helena, in the outlet of Lake Michigan: abundant, *v. v. sine fl.*

This interesting genus is almost exclusively confined to the cold or alpine regions of Europe, there are also 3 or 4 species in Siberia, and 1 in the Levant.

182. DODECATHÉON. L. (American Cowslip.)

Calix 5-cleft. *Corolla* rotate, reflected, 5-cleft. *Stamina* seated in the tube. *Stigma* obtuse. *Capsule* 1-celled, oblong, opening at the apex.

Leaves radical; scapes umbellate, flowers nodding; seminal receptacle large, ovate acuminate, stipitate.

SPECIES. 1. *D. Meadia*. 2. *integrifolium*. Leaves subspathulate-ovate, short, nearly entire; umbell few-flowered; flowers erect; bractes linear; segments of the calix linear acute.—A much smaller plant than the preceding.

This genus is peculiar to North America, and extends westward to the mountainous sources of the Missouri, where Captain Lewis collected specimens.

183. **MENYANTHES.** *L.* (Buckbean. Marsh Trefoil.)

Calix 5-parted. *Corolla* funnel-formed; border spreading, 5-lobed, equal, densely villous on the upper side. *Stigma* bifid. *Capsule* 1-celled, 2 valved; a seminal receptacle attached to each valve.

Herbaceous, aquatic, leaves ternate, alternate, petiole sheathing.

SPECIES. 1. *M. trifoliata*. A genus of a single species, common both to Europe and North America. "Bitter and sudorific." SMITH. Flor. Brit. i. p. 226.

184 **VILLARSIA.** *Gmelin.*

Calix 5-parted. *Corolla* rotate, 5-lobed, segments bearded at the base, with the margins inflected. *Stigma* 2-lobed. *Glands* 5, alternating with the stamina. *Capsule* 1-celled, valveless.

Floating aquatic herbs; with alternate entire leaves, and clusters of pedunculate flowers, apparently bursting from the sheathing petioles.

SPECIES. 1. *V. lacmosa*, (*Menyanthes trachysperma*, MICH.) 2. *cordata*, ELLIOTT.

185. **HOTTONIA.** *L.* (Water-feather.)

Calix 5 parted. *Corolla* salverform, 5-lobed. *Stamina* seated upon the tube of the corolla. *Stigma* globular. *Capsule* 1-celled, globose, acuminate.

Aquatic herbs. leaves verticillate, pectinately pinnatifid, multifid or simply serrate; flowers solitary, axillary, or terminal, and verticillately spiked, involucre under each verticil, many-leaved. Does this plant really germinate with 2 cotyledons?

SPECIES. 1. *H. inflata*, ELL. Verticilli about 4-flowered; flowers shortly pedunculate; corolla white, somewhat shorter than the calix; scape short, articulated, internodes and lower part inflated; leaves alternate, crowded, pectinately pinnatifid.

Of this singular genus there are 4 other species; viz. 1 in Europe and 3 in India.

186. **SAMOLUS. L.** (Brook-weed. Water Pimpernel.)

Calix 5-cleft, semisuperior, persistent. *Corolla* salverform, 5-lobed; with 5 intermediate scales. *Stamina* included in the tube, and opposite the lobes of the corolla. *Capsule* half-inferior, 1-celled, 5-toothed, many-seeded; receptacle unconnected.

Leaves alternate; flowers racemose, axillary and terminal, pedicells mostly by pairs, geniculate, a single bracte at the articulation.

SPECIES. 1. *S. Valerandi*.

A genus of but a single species, excluding the *S. repens*, which is the *Sheffieldia repens* of Linnæus. The *Samolus* is found in marshes near the sea-coast in every part of the world.

187. **LYSIMACHIA. L.** (Loosestrife.)

Calix 5-cleft. *Corolla* rotate, 5-cleft. *Stigma*

1. *Capsule* 1-celled, globular, mucronate, 5 or 10-valved, few or many-seeded.

Leaves opposite and verticillate; flowers axillary or terminal, solitary, spiked, or corymbose. Stamiferous filaments, in most of the American species glandulous.

SPECIES. § I. Stamens unequal, 3 long and 2 short, united into a short tube.—1. *L. angustifolia*. 2. *recemosa*. Probably a mere variety of the preceding. 3. *Herbemonti*, ELLIOTT. 4. *quadrifolia*. Stem, under side and margin of the leaves conspicuously hairy; leaves verticillate, in fours and fives, ovate-lanceolate, acuminate, opaquely punctate; nerves lateral, confluent in a marginal line; peduncles much shorter than the lower leaves; segments of the corolla ovate, obtuse, often emarginate; capsule 5-valved, about 5-seeded, 2 or 3 of them often abortive; seeds convex, angular, punctate.—§ II. *Stamina* equal, segregate, with intermediate dentures.—5. *ciliata*. 6. *hybrida*. 7. *heterophylla*? Upper part of the stem hexangular; radical leaves lanceolate-ovate, upper leaves linear-lanceolate, subsessile, often obliquely and undulately reflected towards the base, petiole subciliate; floral leaves verticillate; peduncles opposite and verticillate: seg-

ments of the calix ovate-lanceolate, acute; divisions of the corolla roundish, aristate, crenulate; 5 sterile filaments alternating with the stamina; capsule (as in *L. ciliata*) 5-valved, many-seeded.—On the miry strand of the Delaware, &c. 8. **revoluta*. Six to 8 inches high, smooth; stem quadrangular, simple, leaves opposite, all linear, sessile, somewhat oblong, being attenuated at either extremity, revolute on the margin, opaque and very entire, slightly pubescent at the insertion of the stem; only a single peduncle often in the axill of each pair of leaves, about the length of the leaf, cernuous, flowers sometimes all terminal, calix lanceolate, very acute; segments of the corolla roundish-oval, abruptly acuminate, and often irregularly crenulate; stamens separated at the base by intervening dentures.—On the banks of the St. Laurence, Lake Erie, and in the state of Ohio, always in calcareous soil. 9. *longifolia*. 10. *nummularia*? On the calcareous banks of Lake Michigan. 11. *thysiflora*. In the state of Ohio, near the shores of Lake Erie, &c.

The genus *Lysimachia* exists chiefly in Europe and North America; at the same time there are 2 species in the Levant, 1 in Media and Siberia, 1 in Japan, 1 in New Holland, near Port Jackson, and another (*L. decurrens*) in the isle of Tanna; these 2 are the only species yet discovered within the Southern hemisphere. The *L. thysiflora*, *L. quadrifolia* and *L. Nummularia* are common to Europe.

188. ANAGALLIS. *L.* (Pimpernel.)

Calix 5-cleft. *Corolla* rotate, 5-lobed. *Stamina*. filaments hirsute. *Capsule* globular, opening hemispherically, many-seeded.

Leaves opposite; flowers solitary, axillary.

SPECIES. 1. *A. arvensis*. (Introduced; now commonly naturalized.) This plant, probably without much reason, has been at various periods recommended as a specific for Hydrophobia.

This small genus is chiefly confined to the South of Europe; there is also 1 species peculiar to Barbary, 1 to Jamaica and another to Chili. The *A. ovalis* of Peru appears to be a *Centunculus*.

189. DIAPENSIA. *L.*

Calix 5-parted, subtended by 3 bractes. *Corolla* salverform, border 5-cleft, flat. *Stamina*

from the summit of the tube, alternating with the segments of the corolla. *Stigmata* 3. *Capsule* 3-celled, 3-valved, many-seeded.

SPECIES. 1. *D. lapponica*. A small caespitose herb with the aspect of *Sedum*, and the leaves crowded around the root; (as in most alpine plants), peduncles scapiform, 1-flowered. Allied to *Iretia*. 2. *barbulata*. (PYXIDANTHERA, Mich.) A small sempervirent caespitose herb, with erect surculi, and sessile, terminal flowers; anthers somewhat globular, caudate at the base, opening transversely. Probably distinct from the present genus.

Excluding the *Pyxidantha*, there exists but a single species of *Diapensia*, common to the Lapponic alps, and the White Hills of New Hampshire.

190. CONVULVULUS. L. (Bind-weed.)

Calix 5-parted. *Corolla* campanulate, plaited. *Stigmas* 2. *Capsule* 2 or 3-celled, cells 2-seeded.

Lactescent and mostly twining herbs; peduncles axillary or terminal, one or many-flowered, flowers mostly bi-bracteate. A few of the tropical species are shrubby.

SPECIES. 1. *C. tenellus*. (*C. trichosanthes*, Mich. *C. Sherardi*, Pursh.) 2. *aquaticus*. 3. *Sepium*. 4. *stans*. 5. *splithamea*. 6. *paradoxus*. P. (3, 4, 5, and 6, are referred by Pursh to CALYSTEGIA of R. Brown, a genus not sufficiently characterised, without Mr. P. has suppressed something important in abridging it.) 7. *Batatas*. (Sweet Potatoe. Cultivated. No where indigenous probably in America; but spontaneous in India.) 8. *obtusilobus*. 9. *sagittifolius*. 10. *panduratus*. 11. *arvensis*. 12. *purpureus*. 13. *macrorhizon*. (Supposed to have been the *C. jalapa* of the shops by Persoon and others, but as a medicine proves inert, and on the authority of Dr. Baldwyn might rather be used as an article of diet!) 14. *tamnifolius*.

This extensive genus of near 140 species appears to be almost equally divided betwixt India and the warmer regions of America, there are also many species in Africa, some in Australasia, only 3 in England, and an equally small number in the North of Europe, yet there are not species entirely wanting in Siberia; some of those within the tropics are remarkably splendid, whilst others in colder countries are obscure and inconspicuous weeds usually occupying neglected wastes.

191. IPOMŒA. L. (Bind-weed.)

Calix 5-cleft. *Corolla* funnellform or campanulate, 5-plaited. *Stigma* capitate, globose. *Capsule* 2 or 3 celled, many-seeded.

Scarcely to be distinguished from the preceding genus by any other character than the simple and capitate stigma, and the absence of bractes.

SPECIES. 1. *T. Quamoclit*. Leaves pennate pinnatifid, segments linear, flowers bright crimson, capsule ovate 2-seeded? seed subcylindric-oblong. Cultivated. Indigenous, or more decidedly naturalized in the hotter parts of America. 2. *coccinea*. In the Southern states, and westward in Tennessee. 3. *dissecta*. 4. *carolina*. 5. *lucunosa*. 6. *orbicularis*, ELL. 7. *Bona Nox*. 8. *trichocarpa*. 9. *Nil*. 10. *ciliosa*.

This genus of about 60 species is likewise almost equally divided betwixt India and the warmer parts of America. *I. coccinea*, *I. tammifolia* and *I. Nil*, appear by some means to have been introduced,—probably by the aborigines, as they are never to be met with but in the vicinity of settlements. By most, the species of the preceding genus with lobed but capitate stigmas are admitted in *Ipomœa*, but I have followed Mr. Elliott in retaining to this genus such species only as have a simple capitate stigma.

192. IPOMERIA. IPOMOPSIS. Michaux.

Calix subcampanulate, membranaceous at the base, border 5-cleft. *Corolla* funnellform, 5-lobed, segments entire. *Stamina* unequal, emerging from the tube of the corolla. *Stigma* trifid. *Capsule* superior, 3-sided, 3-celled, and 3-valved, many-seeded. *Seeds* in 2 rows, angular, naked.

Biennial or annual and herbaceous plants, with pinnately pinnatifid leaves; flowers aggregated in a racemose panicle, or solitary, axillary and terminal; seeds naked and angular. (In *Cantua* the seeds are winged or marginated.) At present this genus is scarcely distinguished from *Gillia*, except by habit.

SPECIES. 1. *I. coronopifolia*. (*Cantua coronopifolia* Willd.) 2. *aggregata*, Pursh, under *Cantua*. Is this a

variety or a species? *I. inconspicua*. *Ipomopsis inconspicua*, Smith. Exot. Bot. i. t. 14. Altered to *I. parviflora* by Mr. Pursh.

Of this genus, confined thus far to America, there is a fourth species, *I. albidula*, with white flowers, and bipinnatifid leaves, discovered by Dombey, near Lima in Peru.

I have, in restoring this genus of Michaux, altered his name merely for the sake of euphony, but retained the allusion, without venturing to criticise its exceptionable composition as formed in part from the name of the preceding genus, *Ipomæa*, with the addition of $\sigma\psi\iota\varsigma$, as indicative of their common resemblance, sufficiently apt when we compare the *I. coronopifolia* with the *Ipomæa Quamoclit*, deducting, indeed, the diversity of habit. That Michaux's name has been independently derived from the Greek, without any reference to *Ipomæa*, and founded upon its striking appearance, as supposed by the editor of this article in Rees's Encyclopædia, seems altogether improbable.

Nearly all the genera composing the Natural Order *Polemoniaceæ*, are peculiarly indigenous to America.

193. PHLOX. L.

Calix deeply 5-cleft, prismatic. *Corolla* salverform, border 5-lobed, flat; lobes cuneate; tube more or less curved. *Filaments* unequal. *Stigma* trifid. *Capsule* roundish ovate, 3-celled, cells 1-seeded.

Herbaceous, perennial; in *P. speciosa* suffruticose; leaves opposite, simple and entire, those of the corymb often alternate; flowers fastigiate or corymbulose, terminal; calix more or less foliaceous, subulate or mucronate. Corolla various shade of red or purple, accidentally white.

SPECIES. 1. *P. acuminata*. 2. *paniculata*. 3. *undulata*. 4. *pyramidalis*. (*P. latifolia*, Mich.) 5. *cordata*, ELL. 6. *maculata*. (*P. suaveolens*, no where to be found wild, and appears to be nothing more than a white flowered variety of this species, probably raised from seed, as the spotted stem of *P. maculata* is by no means invariable.) 7. *carolina*. 8. *nitida*, PH. 9. *glaberrima*. 10. *speciosa*, PH. 11. *pilosa*. (β . *aristata*, Mich. a smoother variety of *P. pilosa*, not distinct.) 12. *amana*, SIMS. Bot. Mag. No. 1508. *P. pilosa*, of Walter, Michaux, and Pursh; but an irregular, cultivated variety. 13. *divaricata*. 14. *ovata*. 15. *reptans*, Mich. (*P. stoloniifera*, Bot. Mag. 563.) 16. *subulata*. 17. *setacea*. The flowers of this species are commonly white

This hardy and ornamental genus, within its proper limits, is entirely peculiar to North America, with the solitary exception of *P. sibirica* of Northern Asia.

194. *COLLOMIA. †

Calix cyathiform, rather large, border 5-cleft, acute. *Corolla* funnellform, 5-lobed, lobes oval-oblong, very short, tube straight, long, and slender. *Capsule* 3-cornered, 3-celled, 3-valved, 3-seeded, valves obcordate. *Seed* oblong, angular, enveloped by a tenacious mucilaginous integument, (visible when moistened.)

Annual, leaves alternate, simple, and entire; flowers small and inconspicuous, conglomerated in a terminal fascicle, resembling a capitulum, subtended by several bractes which are broader than the leaves.

A genus appertaining to the Natural Order POLEMONIIDEÆ and intermediate with *Phlox* and *Polemonium*.

SPECIES. 1. *C. linearis*. Minutely and pulverulently pubescent; leaves oblong-linear, or sublanceolate; involucrate leaves ovate-lanceolate, acute; bractes and calix viscid.

Phlox linearis? Cavan. ic. 6. p. 17. t. 527.

Root fibrous, annual. Stem round, simple, somewhat more pubescent than the leaves, from 4 to 12 inches. Leaves alternate, the lowest pair sometimes opposite, linear-oblong, sessile, with the margin scabrous and sometimes revolute, rather thick and opaque, without distinct lateral nerves, after the manner of *Phlox*, from 10 to 15 lines long, 2 or 3 lines wide, and attenuated towards the point, upper and floral leaves wider at the base, somewhat amplexicaule, or ovate-lanceolate, acute, with the base near the capitulum diaphanous, and distinctly nerved, proper bractes ovate, about the length of the calix, viscid and pubescent. Calix cyathiform, (or in the shape of a wine-glass) rather large and membranaceous below the incisions, border 5-parted, green, segments semi-lanceolate, acute, each equally 3-nerved. Corolla monopetalous, slenderly funnellform, 5-lobed, lobes oval-oblong, obtuse, short and spreading, (only about a line long), tube straight, slender, subcylindric and erect, about twice the length of the calix, widening towards the border, open

From *κολλα*, *gluten*, in allusion to the character of the seed

above, constricted at the base. Stamina 5, inclosed in the tube of the corolla, unequal, anthers roundish. Style filiform, about the length of the tube; stigma very short, trifid. Capsule obovate, shorter than the calix, with 3 obtuse angles, and as many intermediate salient furrows, cells 3, seeds 3, valves 3, obcordate, carthaceous; receptacle 3-sided, margined, margins parallel to the dissepiments of the valves. Seed cylindric-oblong, coated with a mucilaginous, insoluble, fibrous, and tenacious integument, only visible after immersion in water.

HAB. Near the banks of the Missouri, about the confluence of Shian river, and in the vicinity of the Arikaree village, in moist places. Flowering in June; flower violaceous. It appears to be the same plant figured by Cavanilles, and first discovered in Chili. In upper Louisiana, or above the confluence of the Platte and the Missouri, we no longer meet with any species of *Phlox*. To this genus probably also belongs *Phlox biflora* of Chili, which is also annual, but the habit appears to be different.

195. POLEMONIUM. L. (Jacob's-ladder.)

Calix subcampanulate, 5-cleft. *Corolla* somewhat rotate, 5-lobed, tube short, closed at its base by 5 staminiferous valves or scales. *Stigma* trifid. *Capsule* 3 celled, superior.

Herbaceous; leaves alternate, pseudo pinnate; flowers somewhat corymbose, terminal, blue, varying to white.

SPECIES. 1. *P. reptans*. Stem leaves 3 and 4 pair (from 7 to 9) margin of the common petiole subciliate; partial leaves elliptic-ovate, 3-nerved, flowers nutant, capsule (by abortion) mostly 3-seeded.—The seeds of this plant, after maceration, exhibit something analogous to that of the preceding genus, but the mucilaginous fibres are attached only to one extremity.

This genus appears as yet to contain but 2 genuine species; the other is common to Europe and Asia.

196. SOLANUM. L. (Night-shade.)

Calix 5-cleft, persistent. *Corolla* rotate, or campanulate, 5-lobed, plaited. *Anthers* partly united, emitting the pollen by 2 pores at the point. *Berry* 2-celled, many-seeded.

Stem herbaceous or shrubby, naked or aculeate, rarely spiny; leaves simple, often sinuately lobed, sometimes un-

equally pseudo pinnate, in many species growing by pairs; peduncles solitary or several, one or many-flowered, above the axill, scattered or terminal. Pubescence stellate.

SPECIES. 1 *S. nigrum*, variety *virginicum*. 2. *Dulcamara*. Becoming naturalized. 3. *mamosum*. 4. *virginianum*. 5. *carolinense*. 6. **triflorum*. Stem unarmed, herbaceous and procumbent; leaves dentately-pinnatifid, smooth, segments acute, somewhat undulated, with the margin more or less revolute; peduncles opposite the leaves, 2 or 3-flowered.—Flowers small and white, revolute; fruit about the size of a cherry, green when ripe. Stem a little hirsute, spreading and procumbent, about a foot long; leaves somewhat runcinate. This species, though very distinct, appears to have some affinity with the *S. runcinatum* of Peru and Chili.—HAB. As a weed in and about the gardens of the Mandans and Minitarees, and in no other situations. Near Fort Mandan. Flowering from June to August.

Of this last genus there are now no less than 140 species described, besides what have been recently added from New Holland and other places. Some of the species have become highly important in human economy, such are the Potatoe (*S. tuberosum*) introduced into Europe from the mountainous parts of Peru in the year 1590, according to Bauhin; the *Melongena* sometimes called egg-plant (*S. Melongena*) of Asia, Africa, and America, cultivated for food in the warmer parts of the continent of Europe, as well as in the United States; the Tomatoe (*S. Lycopersicum*) of India and the warmer parts of America, its fruit affording an agreeable and well known condiment; to these we may add the *S. anguivi* of Madagascar, furnishing also an esculent fruit; the *S. scabrum* of Peru producing a fruit like an orange, answering the purpose of a saponaceous abstergent for washing; with the *P. Pseudo-capsicum* of Madeira every one is familiar, an elegant shrub cultivated for the appearance of its fruit, resembling scarlet cherries.

In its geographical distribution the genus *Solanum* is principally confined to the tropical parts of America, and no where more abundant than in Peru and Mexico; there are also a few species in India and Africa, but in America there are no less than 100. With the exception then of *S. Dulcamara* and *S. nigrum* this genus is principally indigenous to the warmer parts of America, extending also into Asia and Africa; the *S. nigrum* is found apparently spontaneous in every part of the world, in North America it exists westward to the sources of the Missouri. The *S. Dulcamara* is now also becoming naturalized in the

United States. It is scarcely probable that these two insulated species originated in Europe.

197. *ANDROCERA.† (Solanum species.)

Calix ventricose, border 5-cleft, at length deciduous. *Corolla* monopetalous, rotate, subringent, 5-cleft. *Stamina* unconnected, unequal, declined, the fifth corniform and much larger than the rest; *anthers* opening by two terminal pores. *Style* simple, declined; *stigma* 0. *Berry* dry, included in the valvular base of the calix. *Seed* immarginate, rugose.

Habit similar to *Solanum*; flowers in erect lateral racemes, irregularly rotate, yellow; anthers separate, one of them remarkably produced; seeds resembling those of *Datura*.

SPECIES. 1. *A. lobata*, aculeate, hirsute, and herbaceous; leaves by pairs, pinnatifidly lobed, segments obtuse, obsoletely crenate, and undulate; racemes lateral, many-flowered.

Solanum heterandrum. Pursh. Flor. Am. i p. 156, and Suppl. ii. p. 730. tab. 7.

Root annual, fibrous. Stem thorny, branched, and pubescent as well as every other part of the plant; pubescence stellate. Leaves petiolate, by pairs, nerves beset with prickles, for the most part simply pinnatifid, and somewhat ovate. Racemes lateral, many-flowered, flowers pedunculate. Calix small, with a ventricose base; limb 5-cleft, segments linear, acute, deciduous after the enlargement of the spherical base. Corolla large, irregularly rotate, plaited, externally hirsute, the two lower segments divaricate and acuminate. Stamina short, separated, anthers declined, one of them twice as large as the rest. Style declined, incurved, obtuse; stigma indistinct. Berry dry, 1-celled? included in the spherical spiny base of the calix, the base dividing at length into 5 valves. Seeds numerous, nearly black, rugose, angular, compressed, and somewhat reniform, but without margin.

HABITAT. Near the banks of the Missouri, in arid, denudated soils, from the confluence of the river Platte

† From *ανδρ*, a man, (also the anther, or masculine organ of plants), and *κερα*, a horn; in allusion to the corniform appearance of one of the anthers.

to the mountains. Flowering in July and August. Nearly allied, though apparently distinct from the *Solanum cornutum*, so well figured in the *Annales du Museum*. To this genus, if such it may be considered, this latter species may also be added, and probably the *Solanum Vespertilio*, of Aiton.

198. **PHYSALIS. L.** (Ground-cherry. Winter-cherry.)

Berry 2-celled, covered by the inflated calix. *Corolla* campanulate-rotate; tube marked with 5 diaphanous concave impressions. *Stamina* connivent.

Annual or perennial, some of the species shrubs; leaves for the most part by pairs; flowers lateral, solitary, or several together.

Although the fruit of this genus has generally been considered narcotic, the berries of all the species indigenous to the United States, are commonly eaten with safety if perfectly ripe; they are sweetish and subacid, and are every where known by the name of "ground-cherries."

SPECIES. 1. *P. viscosa*. 2. *obscura*. 3. *lanceolata*. 4. *pennsylvanica*. 5. *angulata*. 6. *philadelphica*. 7. *pubescens*.

This genus is almost exclusively indigenous to India and America; in Europe there is but 1 species, the *P. Alkekengi*, there is also 1 species at the Cape of Good Hope, and the *P. somnifera*, a shrub indigenous to Mexico, is now naturalized in Crete, and Spain.

199. **NICANDRA. Adanson.**

Calix 5-parted, with 5 angles, angles compressed, segments sagittate. *Corolla* campanulate. *Stamina* incurved. *Berry* 3 to 5-celled, covered by the calix.

Habit similar to the preceding genus. Flowers blue.

SPECIES. 1. *N. Physalodes*. Not naturalized, found merely about the rejectments of gardens. Originally from Peru, and the only species of the genus.

200. **DATURA. L.** (Thorn-apple. Jamestown-weed.)

Corolla funnellform, plaited. *Calix* tubular, angular and deciduous, the base orbicular, and

persistent. *Capsule* 4-celled, 4-valved, smooth or spiny.

Herbaceous and annual plants; extremely fœtid and narcotic, leaves by pairs; flowers solitary, lateral, and dichotomal, opening towards sun-set.

SPECIES. 1. *D. stramonium*. Overrunning wastes and gardens from the coast of the Atlantic to the sources of the Missouri; but originating probably in South America, or in Asia, it is now also naturalized throughout Europe.

Parkinson in his *Paradisius*, p. 362, says, that the *Daturas* (including the present species) were brought from Turkey and Egypt, and that Garcias and Christopher Acosta with others, affirmed that they grew in the East Indies. From Boerhaave, the physician and botanist, we also learn that the *Datura Stramonium* is indigenous to the East Indies, and called *Datura* in the vernacular language of the country, he also adds, that acquainted with its narcotic properties, the natives sometimes employed it as a poison, &c. the same account in part has been recently corroborated by the testimony of Colonel Hardwicke, an interesting botanical traveller. Has then the *Datura Stramonium* been introduced into America from India, and by what means?

Of *Datura* Persoon enumerates 7 species, forming a distinct genus of the *D. arborea* under the name of *Brugmansia*; of these 7, 1 is indigenous to China, 1 to Egypt, the fœtid *D. Metel* to Asia, Africa and the Canary islands, the *D. levis* to Abyssinia, and the *D. ceratacaula* to the isle of Cuba, the real habitat of the *D. tatula* and the *D. Stramonium*, can now no longer be ascertained.

The *D. Stramonium*, lately introduced into medical practice, appears to operate specifically upon the optic nerve when taken in any considerable quantity, producing a remarkable dilatation of the pupil of the eye, and when taken inadvertently in dangerous quantities, it has been known to induce temporary blindness.

201. HYOSCYAMUS. L. (Henbane.)

Calix tubular, border 5-cleft. *Corolla* funnel-form, 5-lobed, irregular, lobes obtuse. *Stamina* inclined. *Stigma* capitate. *Capsule* operculate, 2-celled.

Herbaceous; floral leaves often by pairs; flowers solitary, axillary, often inclined to one side of the stem

SPECIES. 1. *H. niger*. Naturalized in Canada and the

Northern states. The whole plant is poisonous and narcotic, excepting the oil expressed from its cotyledons, which is innoxious.

The genus *Hyoscyamus* appertains principally to the South of Europe, and the East, there is also 1 species in Siberia.

202. NICOTIANA. L. (Tobacco.)

Calix urceolate, 5-cleft. *Corolla* funnel form, border plaited, 5-cleft. *Stamina* inclined. *Capsule* 2 to 4-valved, 2-celled.

Herbaceous or rarely suffruticose, flowers terminal, racemose or paniculate, segments acute or obtuse. Capsule in most of the species partly 4-valved.

SPECIES. 1. *N. Tabacum*. Cultivated. No where decidedly indigenous. Introduced into North America apparently by the aborigines. Near the confluence of Pidgeon river with the Tennessee, and in some other parts of the state of Tennessee, I am assured by the earliest settlers, that Tobacco came up spontaneous around the ruins of the ancient aboriginal stations. The genuine habitat of the *Nicotiana Tabacum*, though so confidently referred to America, still appears to be involved in obscurity; in Europe it was first made known about the year 1560 by Nicot, a French ambassador, who had received seeds of it from Florida during his residence at Lisbon, and it was in honour of him that the genus acquired its name; about the same time also the Spaniards received it from Tobacco, a province of Yucatan, hence its common name. The learned Savary, however, asserts that the Persians have cultivated Tobacco (now) more than 400 years, and that they received it from Egypt. 2. *rustica*. According to the observations of the late Dr. B. S. Barton, cultivated and introduced by the indigenes. Still naturalized near the borders of some of the smaller lakes in the western parts of the state of New York. Cultivated also by the aborigines of the Mississippi, and by some of the tribes on the Missouri. 3. *quadrivalvis*, Pursh. Annual; stem low, erect, and diffusely branched; leaves lanceolate, rather short, acute and sessile, sometimes auriculate at the base; calix campanulate, a little shorter than the tube of the corolla, somewhat inflated, closed, segments acuminate; limb of the corolla expanding, nearly flat, segments acute; capsule roundish, 4-valved.

Stem 1 to 2 feet high; flowers white, in a scattered panicle, opening about sun-set, calix viscid.

Cultivated by the aborigines of the Missouri from the river Platte to the mountains, also by the natives who inhabit on the banks of the Columbia river. I have no where seen it spontaneous, but am informed of its existence as such on the banks of the Columbia. The Tobacco most esteemed by the Indians of the Missouri is that which they obtain from the flowers, preserving the viscid calix and rejecting the corolla.

This genus now consisting of 13 species is for the most part indigenous to South America; there is however 1 species in China, the *N. fruticosa*, and another around Port Jackson in New Holland.

It is doubtful whether all the benefits which have accrued to Europe from the discovery of America, have not been counterbalanced by the introduction of this universal luxury, produced at the expense of human liberty, and of a soil which could otherwise be employed in augmenting the necessaries of life, independent of the diseases inseparable from the use of so powerful a narcotic.

203. VERBASCUM. L. (Mullein.)

Calix 5-parted. *Corolla* rotate, 5-lobed, unequal. *Stamina* declined, bearded. *Stigma* simple. *Capsule* 2-celled, valves inflected, many-seeded.

Herbaceous or rarely suffruticose, mostly biennial; leaves often decurrent on the stem, entire, deeply toothed, or more or less pinnatifidly lobed; pubescence stellate or simple and glanduliferous; flowers densely spiked or racemosely paniculate. Anthers 1 celled.

SPECIES. 1. *V. Thapsus*. Introduced. Now naturalized. Pubescence ramified, and proliferously articulated. The capsules of this plant, about the period of maturity, are said to possess a degree of irritability, suddenly closing with crepitation after being forcibly struck. According to the observations of Dr. Smith in Flor. Brit. 1. p. 250, the whole herb is mucilaginous, emollient, and somewhat narcotic. 2. *Iychnitis*. 3. *Blattaria*. Both these species have been introduced. Now naturalized. 4. *Claytoni*.

This genus is chiefly indigenous to the South of Europe, there are a few species also in the Levant, and a shrubby and spiny species in the isle of Crete. *V. Claytoni* appears to be a mere variety of *V. Blattaria*.

204. SPIGELIA. *L.* (Carolina Pink-root.)

Calix 5-parted. *Corolla* funnel-form, border 5-cleft, equal. *Anthers* convergent. *Capsule* didymous, 2-celled, 4-valved, many-seeded.

Herbaceous or suffruticose; leaves opposite; flowers bracteolate, in a terminal unilateral spike or cyme.

SPECIES. 1. *S. marilandica*. Well known as an anthelmintic. Flowers, externally brilliant crimson, internally greenish, corolla somewhat club-shaped campanulate, style fusiform, exserted. This plant was formerly found near Baltimore, in Maryland; it is now rare in Virginia.

Of this genus there are 2 other species in Brazil and Cayenne.

205. OPHIORHIZA. *L.*

Calix 5-cleft. *Corolla* funnel-form, 5-cleft. *Germ* bifid. *Stigmata* 2. *Capsule* mitre-formed, 2-lobed, 2-celled, many-seeded.

Herbaceous or suffruticose; leaves opposite; flowers bracteolate, in lateral and terminal cymes.

SPECIES. 1. *O. Mitreola*. 2. *lanceolata*, ELLIOTT. (*Cynoctonum petiolatum*, Gmelin, Syst. Veg. 443.)

Of this genus there are but 2 other species; the *O. Mungos* of the East Indies, and *O. subumbellata* of the island of Otaheite, in the Pacific.

206. SABBATIA. *Adanson.*

Calix 5 to 12-parted. *Corolla* rotate, 5 to 12-parted. *Stigmata* 2, spiral. *Anthers* at length revolute. *Capsule* 1-celled, 2-valved, many-seeded.

Annual and perennial; leaves opposite, entire; flowers dichotomal and terminal, often fastigiate. (Bitter and tonic.)

SPECIES. 1. *S. gracilis*, (*S. stellaris*, Pursh.) 2. *angularis*. 3. *calycosa*. 4. *brachiata*, ELL. 5. *gentianoides*, ELL. 6. *chloroides*. 7. *paniculata*. 8. *corymbosa*.

A North American genus, nearly allied to *Chironia*.

207. AZALEA. *L.* (Swamp Honeysuckle.)

Calix 5-parted. *Corolla* funnel-form, or campanulate, 5-cleft, unequal. *Stamina* declined,

inserted upon the torus or receptacle. *Style* declined; *stigma* obtuse. *Capsule* 5-celled.

Shrubs with alternate entire leaves; commonly more or less strigose on the margin and nerves; flowers bracteolate, solitary (in *A. indica*, &c.) more commonly in terminal fastigate clusters, appearing before the expansion of the leaves, or more rarely after (as in *A. viscosa*, &c.) colour white, red, scarlet, and yellow.

SPECIES. 1. *A. calendulacea*. This plant appears to be now considered as nothing more than a variety of *A. pontica* of the Levant. 2. *canescens*. 3. *bicolor*. 4. *nudiflora*. 5. *viscosa*. Of this species the most remarkable spontaneous variety, is the *A. viscosa, glauca*, very unnecessarily made a species by Mr. Pursh; in this plant the leaves are constantly glaucous on both surfaces, in other respects it is not distinguishable from *A. viscosa*. 6. *procumbens*. On the White Mountains of New Hampshire.

This fine genus, so much esteemed by horticulturists and florists for the beauty and fragrance of its flowers, exists chiefly in North America. There is, however, 1 species in India, which has been long cultivated by the Chinese; another in Lapland, but scarcely of the same genus any more than the *A. procumbens* of the European alps which has opposite leaves; the *Azalea rosmarinifolia* of Japan appears to be equally dubious considered as a congener of the *A. pontica* and the American species.

208. BUMELIA. Swartz.

Calix 5-parted. *Corolla* salver-form, deeply 5-parted. *Nectarium* (or inner corolla) 5-leaved. *Drupe* 1-seeded.

Shrubs or small trees, often spinescent, branches flexuose, much divided; leaves simple, alternate, entire, mostly sempervirent; flowers in lateral or axillary clusters; wood more or less foetid.

SPECIES. 1. *B. Lycioides*. 2. *lanuginosa*. 3. *Chryso-philloides*. 4. *reclinata*. 5. **oblongifolia*. Spiny, leaves smooth, oblong, obtuse, deciduous; flowers conglomerate, nearly sessile, very numerous; segments of the nectarium trifid.

A small tree about 18 feet high, with numerous flexuose or tortuous branches. Segments of the calix ovate, concave. Nectarium nearly equal with the corolla, divisions trifid, connivent, opposite the stamina. Drupe carneous purple, at length blackish brown, wood foetid. First no-

ticed by Mr. J. Bradbury, near the lead mines of St. Louis on the Mississippi; it is also abundant as far down the river as Natchez.

The *B. serrata*, inadvertently described by Mr. Pursh, was nothing more than a young branch of the *Prunus caroliniana* without flowers, which I had collected near the town of Natchez on the Mississippi. I have thought it no less than my duty to the public to rectify this mistake, without, I hope, intending any personal reflection, as we are all equally liable to prevailing error.

The rest of this genus, exclusively American, is confined to the West India islands.

†† Flowers monopetalous, superior.

209. CAMPANULA. (Bell-flower.)

Calix mostly 5-cleft. *Corolla* campanulate, the base closed with 5 staminiferous valves. *Stigma* 3 to 5-cleft. *Capsule* inferior, 3 or rarely 5-celled, opening by lateral pores.

Lactescent; herbaceous or rarely suffruticose; flowers bracteate, axillary, solitary or fasciculate, sometimes in terminal spikes or panicles; in a few species the corolla is nearly rotate.

SPECIES. 1. *C. rotundifolia*. Well named *decipiens* by Persoon, as there are very seldom any round leaves to be seen on the plant. 2. *divaricata*. 3. *americana*. 4. *acuminata*. 5. *nitida*. 6. *Erinoides*. (*C. flexuosa*? Mich. *C. aparinoides*, Pursh.) § 11. LEGOUSIA. *Corolla* salver-form. *Stigma* 2 or 3-cleft. *Capsule* prismatic-cylindric, 2 or 3-celled, many-seeded.—7. *amplexicaulis*. (*C. biflora*? Flor. Peruv.)

This vast genus of more than a hundred species is in great part indigenous to Europe, extending into Barbary in Africa, and Siberia in Asia, as well as the Levant, a considerable number of the species are rare and alpine; in the southern hemisphere there are scarcely any but what are afforded by the Cape of Good Hope; in the whole continent of South America there are but 2 species described, viz. the *C. filiformis* of Chili, and the *C. biflora* of Peru, apparently the same plant as the *C. amplexicaulis* of North America.

210. PINCKNEYA. Michaux.

Calix 5-parted, 1 or 2 of the segments very

large, resembling coloured bractes. *Corolla* long and tubulous, border recurved. *Stamina* exerted, inserted near the base of the tube. *Capsule* roundish, at length opening with 2 valves in a contrary direction to the double dissepiment. *Seeds* winged, transversely arranged upon the receptacle.

A small tree, with entire, opposite and stipulate leaves; panicle terminal, fascicles from 4 to 5-flowered; flowers rather large. Nearly allied to *Cinchona*, differing more by the *habit* than the character of the fruit, which when quite mature is distinctly bipartite in the line of the dissepiment, after the manner of *Cinchona*, the partition is therefore not contrary to the valves, but a continuation of their margin, proceeding inwards to the receptacle or axis of the capsule; the fruit of *Pinckneya* is in fact 2-celled and 4-valved, the seed-vessel never completely opening before the destruction of the tenaceous integument which surrounds it.

SPECIES. 1. *P. pubens*. In Sphagnose swamps from Carolina to Florida. Near Savannah in Georgia, &c. usually not far from the sea-coast—Hitherto there is but 1 species discovered. Its bark appears from the taste and appearance altogether similar to that of *Cinchona*, and is probably medicinal. The monstrous and finely discoloured bracteiform segments of its calix, of a pink red, render it highly ornamental, but it does not long survive its transplantation in Europe; it would probably thrive better in bog-soil, on the margin of an aquarium supplied with artificial heat.

211. CHIOCOCCA. *Brown. L.*

Calix 5-toothed. *Corolla* funnel-form, equal. *Berry* compressed, didymous, 2-seeded, inferior. *Seed* oblong, compressed.

Erect or scandent shrubs; leaves opposite, entire; flowers axillary, racemose or solitary.

SPECIES. 1. *C. racemosa*. On the sea-coast of Florida.—Of this genus there are 2 other species; 1 in Peru, and another discovered by Forster in the Society and Friendly islands of the Pacific.

212. **CAPRIFOLIUM.** *Tournefort. Juss.* (Coral-Honey-suckle.)

Calix 5-toothed, bracteate at the base. *Corolla* long and tubulous, 5-cleft. *Berry* 3-celled, many-seeded, distinct.

Shrubs with twining stems; leaves connate at the base; flowers sessile, terminally capitate, or axillary verticillate, verticills 6-flowered.

SPECIES. 1. *C. sempervirens*. 2. *gratum*. (*C. flavum* is probably a variety of this species.) 3. *parviflorum*. This species I have observed as far westward as Fort Mandan on the Missouri, and am inclined to believe the *C. ciliosum* of Pursh a mere variety of it.

Of this genus, so much esteemed in the gardens for its beauty and its odor, there are besides the above species, the *C. Periclymenum* or Woodbine of Europe, and the *C. japonicum*.

213. **XYLOSTEUM.** *Tournf. Juss.*

Flowers by pairs on the summit of the same peduncle.—*Calix* 5-toothed, bracteate at the base. *Corolla* 5-cleft or 5-lobed, nearly equal, or irregular and bilabiate. *Berries* by pairs, united entirely, or only at the base, 2-celled, many-seeded.

Erect shrubs; peduncles 2-flowered, axillary, solitary.

SPECIES. 1. *X. ciliatum*. Pursh. Very distinct from *X. tataricum*; the variety β . *album*. of Mr. Pursh bearing white berries is *Symphoria racemosa* of Michaux, now cultivated in several gardens near Philadelphia from seeds collected by the late governor Lewis. 2. *villosum*.

Of this genus there are five species in Europe, one in Tartary, one in Barbary, one in Asia Minor, and another in Japan.

214. **SYMPHORIA.** *Persoon, Juss.*

Calix small, 4-toothed, bracteolate at the base. *Corolla* tubular, short, 5-cleft, subequal. *Stigma* globose. *Berry* ovate, small, crowned with

the persistent calix, 4-celled, 4-seeded, 2 of the cells sometimes abortive.

Erect shrubs; flowers small, conglomerate and axillary, or in short terminal, racemes, smooth or internally pubescent as in *Mitchella*.

SPECIES. 1. *S. glomerata*. (*Lonicera Symphoricarpos*. Willd. Spec. Plant. 1. p. 989.) Partial racemes axillary, crowded, imbricated in four ranks; flowers cylindrical-campanulate, bractea 3-leaved.—Flowers greenish-red; berries bluish-purple. From Virginia to Florida; in Tennessee and up the Missouri to its sources. Common. 2. *racemosa*. Berries large, opaque, and white.—In Upper Canada, not far from Queenston on the Niagara river; near the outlet of Lake Huron, and on the banks of the Missouri. Not rare. This genus is confined to North America. Allied to *Mitchella*?

215. DIERVILLA. *Tournefort. Juss.*

Calix oblong, 5-cleft, bracteate at the base. *Corolla* double the length of calix, funnellform, 5-cleft, spreading. *Stigma* capitate. *Capsule* oblong, naked, acute, 4-celled, many-seeded. *Seeds* minute.

A shrub with entire serrated leaves; peduncles axillary and terminal, dichotomous, mostly 3-flowered; flowers yellow.

SPECIES. 1. *D. Tourneforti*. The only species of the genus: and exclusively indigenous.

216. TRIOSTEUM. *L. (Fever-wort.)*

Calix 5-cleft, persistent, nearly the length of the corolla; segments linear, acute. *Corolla* tubulous, 5-lobed, subequal, base nectariferous, gibbous. *Stigma* somewhat 5-lobed, capitate. *Berry* 3-celled, 3-seeded, crowned with the calix.

Herbaceous; stem simple; leaves opposite, entire, mostly connate; flowers axillary, sessile, usually by threes, rarely solitary, calix bibracteate.

SPECIES. 1. *T. perfoliatum*. Leaves undulated on the margin and hirsute above. Calix, corolla and younger stems, viscosely-pubescent. 2. *angustifolium*.—This genus

is confined to North America, with the exception of a 3d species said to grow in Madagascar? The root is emetic and cathartic.

+++ *Flowers pentapetalous, superior.*

217. RIBES. L. (Currant and Gooseberry.)

Calix superior, campanulate, 5-cleft. *Petals* and stamina inserted upon the calix. *Style* bifid. *Berry* many-seeded.

A genus of shrubs, with alternate lobed leaves, consisting of two natural sections. First, *GROSSULARIA* (Gooseberry) with simple or divided axillary thorns; peduncles few-flowered, fruit larger. Second, *RIBESIA* (Currant), without axillary thorns; flowers in racemes.—Fruit mostly edible and subacid.

SPECIES. § I. *RIBESIA*.—1. *R. albinervium*. 2. *trifidum*. 3. *rigens*. 4. *prostratum*. 5. *resinosum*. 6. *viscosissimum*. Ph. 7. *sanguineum*. 8. *aureum*. Flowers highly odorous in one of the varieties; berries larger or smaller, red, fulvous, and black, the latter of these colours is that which is natural. 9. *recurvatum*. 10. *pensylvanicum*. Apparently a permanent variety of *R. nigrum*.—§ II. *GROSSULARIA*. (Gooseberry.) 11. *rotundifolium*. 12. *hirtellum*. 13. *gracile*. 14. *triflorum*. 15. *oxycanthoides*. 16. *lacustris*? Axillary spines none? Stem very hispid (as in *Robinia hispida*) leaves deeply cut, 5-lobed, smooth, segments unequally cleft, and toothed; racemes few-flowered, rather long and pendulous; berries roundish-ovoid, hairy, black.—Pubescence ferruginous, berries sour, rather insipid. **HAB.** In dark and swampy forests amongst rocks, on the islands of lake Huron, near Michilimakinak. 17. *Cynosbati*.

Nearly all the species of this interesting genus are alpine. In the north of Europe there are 6 species (all of them spontaneous in Britain;) 5 in Siberia, 2 of them in Dauria, 1 upon the granitic mountains of Songaria, and 2 others also discovered by Pallas upon the loftiest summits of the Mongolian chain; there are 6 other species of this genus indigenous to the Andes of Peru and Chili.

Scarcely any of the American species of *Ribes* produce fruit in England.

†††† Flowers pentapetalous, inferior.

218. DROSERA. L. (Sun-dew.)

Calix 5-cleft, persistent. *Petals* 5. *Anthers* 2-lobed, growing to the filaments. *Germ* superior. *Style* 1. *Stigmas* 3 or 4 divergent, deeply bifid. *Capsule* 1-celled, 3 or 4-valved, many-seeded. *Seeds* attached to the middle of each valve.

Herbaceous; leaves radical, alternate, stipulate, laminæ discoid or elongated, denticulately ciliated and covered with glandulous, capitate filaments, somewhat resembling the tentaculi of some marine animals, and capable of slow contraction in order to retain and destroy irritating insects; flowers in cymose racemes; scape at first circinately involute, petals marcescent. A genus very nearly allied to *Dionea*.

SPECIES. 1. *D. rotundifolia*. **Obs.** Leaf suborbiculate, dilated, petiole elongated, hairy on the upper side; racemes frequently bifid. Segments of the calix linear-oblong, obtuse, smooth; petals oblong; stigmata 3 or 4, deeply bifid, apex clavate, capsule 3-valved; seeds very numerous, subulately alated, imbricate, longer than the breadth of the valves.

2. *longifolia*. **Obs.** Caudex elongated 4 or 5 inches after the manner of a stem. Leaves 2 to 4 inches long, obovate, disk and ciliate margin glandular; stipules about 10-cleft, capillaceous; raceme simple; flowers secund; segments of the calix oblong-ovate, obtuse. Seeds oblong, obtuse, short. **HAB.** Both these species are common near Philadelphia, but principally in New Jersey.

3. *brevifolia*, Pursh. **Obs.** Scape 2 or 3 inches high, simple; leaves cuneate, suborbiculate, denticulately ciliate, disk glanduliferous, marked with an obcordate nerve (as in all the preceding); petiole scarcely longer than the lamina, smooth on the upper side; stipules scarious, 3 or 4-cleft; segments of the calix, which is smooth, and petals oblong-oval, obtuse; stigmata 3, deeply bifid, apex linear, capsule 3-valved; seeds black, minute, shorter than the breadth of the valves, oblong-ovate, obtuse at each extremity.—**HAB.** From North Carolina to Georgia, on the margins of sandy ponds; often in dry and arid situations. Nearly allied to *D. Burmanni* of Ceylon and Cochinchina.

4. *filiformis*. Leaves filiform and subulate, very long (6 to 9 inches), covered from the base to the summit with tentaculoid, glandulous filaments, smooth on the under side, circinnately involute, or rolled inward from the base to the point, (similar to the unexpanded frond of a Fern). Stipule complicately-dissected, resembling a lanuginous web. Scape smooth, about the length of the leaf, racemosely cymose, simple or bifid, few-flowered; bractes subulate, longer than the pedicells. Calix 5-parted, segments unequal, short, the larger oboval, very obtuse, externally covered with a short viscid pubescence. Petals numerous and longitudinally veined, oboval, pale purple. Stamina 5, anthers bilobed, oblong, yellow, pollen large in twin globules. Style sessile, stigmas 3, deeply bifid, summit somewhat incrassated, viscid. Seeds black, minute, ovate, acute, punctured. This singular species of *Drosera* was first discovered in New Jersey by Mr. Rafanisque and described in the second volume of the New York Medical Repository. It appears to be nearly allied to *D. lusitanica* with which it ought to be compared. ;

Of this singular genus there are 4 species in Europe; the *D. lusitanica* appears to be almost a distinct genus, having subumbellate decandrous flowers and consequently very nearly allied to *Dionæa*; there are 4 species at the Cape of Good Hope, of which the *D. cistiflora* seems to be also a separate genus; and one species in Ceylon nearly allied to the *D. brevifolia*; the *D. indica* also appears inadmissible as a *Drosera*, having a branching stem; the very singular *D. peltata!* and *D. pedata!* of New Holland are indubitably distinct from the European *Drosera*

Besides the botanical affinities existing betwixt *Drosera* and *Dionæa*, there is also a similarity in their physical properties. Both give out by expression a yellow and partly resinous fluid, which to the taste is sweet and somewhat astringent, but quickly succeeded by a transient pungency.

219. VITIS. L. (Vine.)

Calix minute, 5-toothed or entire. *Petals* 5, mostly cohereing above in the manner of a calyptrum, coming off at the base, and then deciduous. *Style* 0. *Stigma* capitate. *Berry* 5-seeded, superior, round or rarely ovate. (Flowers mostly dioicous.)

Leaves simple and cordate, angularly or sinuately lobed, rarely digitate or pinnate (*Cissus*?) flowers numerous, in compound racemes, not uncommonly producing 4, 6 and 7 petals, with a corresponding number of stamens, calix mostly entire, or obsoletely crenate; a glandulous disk surrounding the germ; tendril dichotomous, sometimes producing flowers, therefore analogous to a sterile raceme.

SPECIES. 1. *V. Labrusca*. 2. *æstivalis*. Under side of the younger leaves spread with an arachnoid tomentum. 3. *cordifolia*. 4. *riparia*. 5. *rotundifolia*. 6. *palmata*? All the North American species of *Vitis*, are polygamous and dioicous; the male flower mostly contains an abortive germ. It is probable that hybrids betwixt the European vine, (*Vitis vinifera*) and those of the United States would better answer the variable climates of North America than the unacclimated vine of Europe. When a portion of the same industry shall have been bestowed upon the cultivation of the native vines of America, as that which has for so many ages and by so many nations been devoted to the amelioration of the *Vitis vinifera*, we can then no longer imagine the citizens of the United States indebted to Europe for the luxury of wine. It is not, however, in the wilds of uncultivated nature that we are to obtain vines worthy of cultivation, were this the case Europe would to the present have known no other *Malus* than the worthless and austere crab in place of the finest apple, no other *Pyrus* than the acerb and inedible *Pyraster* or stone pear, from which cultivation has obtained all the other varieties. It is from seed that new and valuable varieties are invariably to be obtained. There is, however, at the present time, a variety of one of the native species cultivated under the name of "Bland's grape," an hybrid? no way, in my opinion, inferior to some of the best European grapes. According to the observations of Z. Collins, Esq. who has long cultivated it in a garden, it far exceeds in producing, every other vine in the United States, and is perfectly hardy.

Of this genus there are besides the *Vitis vinifera* of Europe, 2 species in India, one of them said to be common to the West Indies, 2 species in Japan, and 2 without any assigned habitat.

320. CISSUS. L. AMPELOPSIS. Mich.

Calix minute, 4 or 5-toothed. *Petals* 4 or 5, unconnected above, spreading, deciduous. *Germ*

surrounded with a glandulous disk. *Berry* 2-celled, 2 to 4-seeded. (Stamina sometimes 4.)

Sarmentose or twining shrubs similar to the preceding, but brittle or soluble at the joints; leaves simple, ternate, quinate, or pinnate; flowers in di or trichotomous, compound racemes, often corymbose.

SPECIES. 1. *C. Ampelopsis*. 2. *hederacea*. Articulations and petioles tumid; racemes cymose, flowers by 2's or 3's, petals 5, cucullate, unconnected; stamina 5, seated upon the petals, anthers horizontal, connected to the subulate filaments about the middle; glandular disk none. Germ conic, 4-seeded. Style 0. Stigma minute, glandular. Can this be referrible to the genus *Cissus*? 3. *bipinnata*. (*C. stans*. Persoon.)

The genus *Cissus*, with the exception of the above, is entirely tropical; there are 10 species in Peru and the West Indies, 11 in India and the neighbouring islands, 1 in Arabia Felix, and another common to India and Arabia, 2 at the Cape of Good Hope, and 2 in Japan, and 1 according to Lamark in the Levant.

No species of this genus appears to afford edible fruit, notwithstanding its near affinity to *Vitis*. I have nevertheless been informed that the fruit of the *C. bipinnata* becomes agreeable when perfectly matured; to my taste they are always nauseous like the berries of the genus *Caprifolium*.

221. ITEA. L.

Calix small, 5-cleft. *Petals* 5, linear, reflexly spreading, inserted upon the calix. *Stigma* capitate, 2-lobed. *Capsule* 2-celled, 2-valved many-seeded; the seeds attached to the inflected margins of the valves.

A shrub with alternate, minutely bistipulated leaves; spikes solitary, terminal; bractes deciduous. (Flowers white and odorous.)

SPECIES. 1. *T. virginica*. Like the following growing exclusively on the margins of swamps and stagnating rivulets.

The only species, and peculiar to North America.

222. CYRILLA. L.

Calix minute, subturbinate, 5-parted. *Petals* 5, stellately spreading. *Stigmas* 2, (rarely

5.) *Capsule* 2-celled, 2-seeded, not opening. *Seed* ovate, attached to the summit of the receptacular axis by means of an umbilical filament.

Shrubs with subverticillated branches, verticills distant; leaves alternate, entire, without stipules; racemes terminal, clustered; flowers small and white, pedicells bibracteolate.

SPECIES. 1. *C. caroliniana*. Of this genus there is another species described by Michaux or Richard as growing in the islands of the Antilles.

223. **GALAX. L. ERYTHRORHIZA. Mich. SOLANANDRA. Persoon.** (Beetle-weed.)

Calix 5-parted, persistent. *Corolla* twice the length of the calix, 5-petalled: petals affixed to the base of the stamina. *Antheriferous tube* 10-cleft, the 5 shorter segments bearing the anthers. *Stigma* 3-lobed. *Capsule* 3-celled, 3-valved, valves septiferous in the centre. *Seeds* many, affixed to a central axis.

Herbaceous, perennial and sempervirent; leaves coriaceous, all radical, reniform, and crenate on the margin; scape naked, many flowered; flowers small and white, disposed in a long spike. (Is not *Gunnera magellanica* and the *Laupanke* of Feuillée, 2. t. 31. allied to this genus?)

SPECIES. 1. *G. aphylla*. A subalpine plant, abundant on the margins of running springs, beneath the shade of *Kalmia latifolia* or *Rhododendrum maximum*, throughout the high mountains of Virginia, Tennessee, Carolina and Georgia. The root is red and astringent. The whole plant spontaneously exhales a stercoraceous odor, which is not sensible in the bruised leaf! It is from this singular property that it has obtained the name of Beetle-weed, or a vulgarism equivalent to it by the inhabitants and hunters in the mountains of North Carolina.

There is but one species of this genus and peculiar to North America.

224. **IMPATIENS. L.** (Balsam, Touch-me-not.)

Calix 2-leaved. *Corolla* 4-petalled, irregular; the 2 interior petals unequally bilobed; lepanthium (nectarium L.) hooded, calcarate. *An-*

thers at first cohering. *Capsule* superior, 5-valved, elastic.

Tender and herbaceous plants with succulent stems; leaves alternate or rarely opposite, without stipules; peduncles axillary, 1 or many-flowered.

SPECIES. 1. *I. * pallida*, peduncles solitary, 3 or 4-flowered; lepanthium (petaloid nectary) obtusely conic, dilated, shorter than the petals; spur recurved, very short; flower citron yellow, sparingly punctate; leaf rhombic-ovate, mucronulately toothed.

I. Nolitagere. Pursh. Flor. Am. 1. p. 171.

OBS. Stem tall and much branched, tumid at the joints, diaphanous. Leaves of an uniform green, rather acute, lower ones upon longish petioles; Racemes from 3 to 5-flowered; bractes ovate-acuminate. Leaves of the calix roundish, dilated. Petals 4, including the lepanthium; 2 lateral petals very unequally bilobed, larger lobe dilated, retuse, sparingly maculated with brownish red towards the base. Lepanthium obtusely conic, broader than long, spotted; spur of the galea shorter than the calix. Seeds elliptic compressed.—Flower considerably larger than that of No. 2. and of *I. Nolitagere*, and very differently formed. In the vicinity of Philadelphia it is much rarer than the following, and flowers nearly a month later; in July and August.

2. ** fulva*, peduncles solitary, 3 or 4-flowered; lepanthium acutely conic, longer than the petals; spur resupinate, emarginate, nearly as long as the galea; flower fulvous, crowded with spots; leaf rhombic-ovate, obtuse, mucronulately toothed. *I. biflora*. Willd. sp. pl. 1. p. 1175. Pursh, Flor. Am. 1. p. 171. *I. maculata*. Muhl. Catal. As several species are spotted I have not adopted the last name, and changed the former because it was deceptive. *I. Nolitagere*, β . Mich. 2. p. 149. which species it more nearly resembles than the preceding.

OBS. Plant glaucous, and diaphanous, smaller than *I. pallida*, which it, however, closely resembles, excluding the specific character. Capsule 5-angled, 3 to 5-seeded, seed subprismatic with 4 angles. Cotyledones flat, carinate, cupreous green. Perisperm none. HAB. Extremely common on the alluvions of streams.

This species is sometimes used for dying Salmon-red.

The other species of this genus, with the exception of *I. Nolitagere* of Europe, are indigenous to China, India, and the Cape of Good Hope.

225. VIOLA. L. (Violet.)

Calix 5-leaved, produced at the base. *Corolla* 5-petalled, irregular, the lower petal cornute behind. *Anthers* connivent, cohering at the membranaceous apex. *Capsule* superior, 3-valved, 1-celled.

Herbaceous, rarely shrubby; leaves alternate, stipulate; peduncles radical or axillary, 1-flowered, flowers often inverted. (Capsule cartilaginous, obtusely triangular, valves seminiferous in the middle, contracting when open, and ejecting the seeds with elasticity; seeds in 3 rows, covered with a fragile coloured shell; hilum carunculate; corculum erect and flat, in the centre of a carneous perisperm; cotyledons roundish-oval, radicle cylindric.—All the North American species of *Viola*, like the *V. canina*, continue through the summer to produce apetalous flowers and fruit; (with the exception of the anomalous *V. concolor*.) in the stemless species the fruit thus produced is generally near the root and not unfrequently beneath the soil. The *V. striata*, which continues flowering in the vicinity of Philadelphia until June, begins to produce apetalous flowers in July in consequence of the elevated temperature. The genus *Viola* then belongs to the temperate zone, where it continues to flower as long as it produces leaves)

SPECIES. §. 1. Stemless.—1. *V. pedata*. Stigma large, compressed at the sides, apex obliquely truncate, perforate.—I have never seen any other violet with a stigma similar to this.

2. *palmata*. Leaves always more or less pubescent on both sides; during the period of inflorescence, palmate or lobed, before and after flowering, entire, cordate or reniform, and only then to be distinguished from *V. cucullata* by the constancy of the pubescence; stigma capitate, recurved, rostrate, depressed, margined all round; segments of the calix acute.

3. *sagittata*. Leaf, nearly smooth, or sometimes slightly pubescent on the upper side, often hastate; flower scarcely to be distinguished from that of *V. cucullata*. β. **emarginata*. Leaves similar to those of *V. sagittata*, almost triangularly cordate, or hastate, lacerately toothed near the base and decurrent in a narrow margin on the petiole, always smooth beneath, often pubescent above; scape longer than the leaf; petals obovate, all emarginate or bi-dentate, the low-

est cucullate, the 3 lower and sometimes the 2 upper pubescent, segments of the calix glabrous, lanceolate, acute; stigma rostrate, depressed horizontally, distinctly margined around. Flowers of a fine deep blue.—In the sandy fields of New Jersey near Philadelphia, and also on the banks of the Schuylkill. In hundreds of living plants presenting the same characters. The *V. dentata* of Mr. Pursh appears also a mere variety of *V. sagittata*.

4. *ovata*.* Leaves ovate, subcordate, crenate, rather acute, often lacerately toothed at the base, equally and for the most part conspicuously pubescent on either side, petiole margined; scape shorter than the leaves; segments of the calix subciliate; petals obovate, the two lateral ones bearded.—*V. primulifolia*, of Pursh, not of Linnaeus. On dry hills, as correctly remarked by Mr. Pursh. Flowers bright blue, flowering in April and May. Abundant near Philadelphia on the shelving rocks which border on the Schuylkill and also in the sandy fields of New Jersey.

5. *cucullata*. Smooth, leaves reniform-cordate, acute, sinuously serrate, cucullate at the base; peduncle often as long as the leaf; lateral petals bearded.

6. *villosa*. Walter and Elliott. (*V. sororia*. Willd. Hort. Berol. 1. t. 72.) Leaves roundish-cordate, crenate-serrate, obtuse, upper side almost hirsutely pubescent, under side smooth, peduncle about the length of the flowering leaves, petals oblong, the lateral and lowest one bearded.—Leaves rather thick, mostly incumbent on the ground, often purplish on the under side. β . * *cordifolia*. Leaves small, cordate, acute, crenately serrate, flat with a very small sinus, hirsutely pubescent above, smooth beneath; scape always longer than the flowering leaves, segments of the calix smooth, short, rather obtuse, scarcely produced at the base; petals short, obovate,—the 2 lateral and the lower thinly bearded, multistriate.—Leaves thickish, almost of an equal length and breadth, elegantly cordate and subacute, mostly incumbent on the ground, about an inch long, and equally broad; stipules minute, subulate; segments of the calix short and narrow, somewhat oblong; petals rosaceous blue; capsule smooth, stigma small, rostrate and depressed, not margined all round. About 3 or four inches high; growing in dry woods on the banks of the Schuylkill near Philadelphia. Flowering in May. My friend Z. Collins, has long known this plant and considered it as a distinct species; it appears, however, allied to *V. villosa* of Walter, and is decidedly the *V. sororia* figured in the Hortus Berolinensis, although the leaf is said to be pubescent beneath instead of above.

The *V. papilionacea*, and *V. asarifolia* of Pursh, are probably ambiguous varieties of *V. cucullata* and *V. palmata*. Whether *V. clandestina* of the same author be really a distinct species is also equally uncertain, it appears to me nothing more than a smoother variety of *V. villosa*, if the petals of this plant were indeed "chocolate brown," that alone would be a sufficient character, but such anomalies are scarcely to be expected.

7. *rotundifolia*. Michaux, excluding the synonym of Pursh's *V. clandestina*. In this species, so accurately described by Michaux, the leaves are unusually thick, large, and round, constantly appressed to the ground, with a pubescent petiole, and the sinus more closed than in any other species; the flowers, which are of a pale yellow, appear before the complete expansion of the leaves, upon short peduncles; the segments of the calix are oblong; obtuse; the 2 lateral petals are a little bearded and striate; striæ, 3 upon each, the uppermost interrupted by the line of pubescence; the lowest petal is uncommonly small, and also striate, the striæ bifid and crossed by 2 yellow callous converging lines near the base; nectary almost obliterated; style short and thick, capitulum of the stigma small and smooth, recurved at the apex, but without rostrum. HAB. On the shady and rocky banks of Wishahikon creek, about 8 miles from Philadelphia, where it was also found by Mr. Rafinesque; always under the shade of *Abies canadensis*; in similar situations I have also seen it in the mountains of North Carolina.

8. *blanda*. Leaves nearly smooth, or slightly pubescent on the upper side, petiole and under side entirely glabrous, nerves pinnate, also smooth; flowers white, and odorous, segments of the calix linear-oblong, obtuse; stigma capitate, depressed, recurved, acutely margined around, petals all smooth.

9. *primulifolia*. LINN. Persoon, Elliott, excluding the synonym of Mr. Pursh, which appertains to another species. This plant is very nearly allied to *V. lanceolata*, and as such has probably been considered by Walter, Michaux, and Pursh; both of them are indigenous to Siberia as well as North America. It also makes a near approach to *V. blanda*. Leaves oblong, subcordate, crenate, obtuse, the base remarkably and abruptly decurrent on the petiole, so as to resemble the leaves of *Primula veris*; nerves pinnate, mid-rib on the upper side of the leaf with a few scattered hairs; petiole on the under side as well as the nerves on the same side, and the scape hairy; segments of the calyx obtuse, the 2 lateral petals a little bearded, flowers odorous.

10. *lanceolata*. Leaves perfectly smooth, acute and subserrate, gradually attenuated down the petiole; segments of the calix acute; petals all beardless; stigma recurved, distinctly rostrate, capitulum roundish almost without margin. Flowers inodorous.

§ II. *Producing stems.*

11. *canadensis*. Style short, compressed, stigma capitate, without rostrum, on either side somewhat pubescent.

12. *striata*. Nerves of the leaves somewhat pubescent on the under side, calix ciliate, nectary rather large, 2 lateral petals densely bearded; stigma tubular, recurved, a little pubescent on the summit. Flower yellowish white.

13. *debilis*. Pursh. *V. canina*, Walter. Stem decumbent, leaves reniform-cordate, serrulate or crenate, smooth on the under side, base cucullate; petiole short; stipules ovate-lanceolate, serrate-ciliate, peduncles very long; segments of the calix linear-lanceolate, acute, smooth; petals oblong, pale blue, the 2 lateral ones bearded; stigma small, tubular, recurved, rostrate, with scabrous papillæ on the summit. Nearly allied to the preceding.

14. *rostrata*. Nectarium longer than the corolla, petals all beardless; stigma smooth, erect, attenuately clavate, without rostrum. Leaves smooth on the under side. Flowers pale blue, externally purplish.

15. *pubescens*. *V. pennsylvanica*. Mich. Leaves either very pubescent, or nearly smooth, subserrate; stipules ovate, mostly entire; style compressed, stigma roundish, almost spherical, with 2 lateral tufts of pubescence, and without rostrum. Fruit smooth. β . *eriocarpon*. Fruit densely villous; stipules smaller. In fruit this would be taken for a distinct species, as the character is constant; in any other respect it does not materially differ from *V. pubescens*; both these varieties are abundant near Philadelphia.

16. *tripartita*. Elliott. Leaves 3 to 5-lobed, pubescent, lobes subserrate; stipules ovate, entire or serrulate; peduncle rather long and slender; flowers yellow; stigma the same as in *V. pubescens*, to which it appears very closely allied.

17. *hastata*. Leaves commonly cordate-ovate, acute, rarely hastate, (or a distinct variety) margin subserrate; petiole very short, peduncle 2 to 3 inches long; petals yellow, externally purplish, the 2 lateral ones bearded; stigma as in *V. pubescens*, to which this species also is not inconsiderably related; this plant is however always smooth with elongated leaves, often marked with discoloured pale blotches.

18. *Nuttalli*. Pursh. Perennial. Stem simple, erect and leafy, 4 to 6 inches high. Leaves lanceolate-ovate, entire, attenuated down the petiole, opaque, margin and nerves minutely pubescent, leaf and petiole 3 to 4 inches long, scarcely half an inch wide. Stipules long, linear lanceolate, entire. Flowers small, yellow, petals purplish on the under side. Segments of the calix linear lanceolate, acute. Stigma capitate, erostrate, nearly smooth. Flowering in May. Near the confluence of Rock river and the Missouri, and from thence to the mountains. This is the only species of *Viola* on the plains of the Missouri, from the confluence of the river Platte to Fort Mandan.

19. *bicolor?* Hoffman. Flor. German. 2. p. 170. Pursh. 1. p. 175. *V. arvensis*. Elliott, p. 302. Annual. Stem simple, erect, acutely triquetrous. Radical leaves spatulate-oval, with a few denticulations, upper leaves spatulate-lanceolate, or ovate, smooth. Stipules large, cristate-palmate, ciliate, deeply 7 to 9-lobed, segments linear-oblong, terminal one much larger. Peduncle long, quadrangular. Calix divisions ovate-lanceolate, acuminate, ciliate. Petals much larger than the calix, oboval, rather flat, bluish-white, the 2 lateral ones, cristately bearded, the lower petal dilated, marked with 5 blue stræ, at the base a yellow spot. Style short, nearly central, articulated at the base; stigma turbinate-capitate, erostrate, slightly pubescent at the sides, foramen large. Capsule nearly round. Closely allied to *V. tricolor*. Apparently native.

20. *concolor*. Forster. Calix nearly equal with the petals, naked, or not produced at the base, divergent; petals all emarginate and connivent, the lower one bilobed, and not produced behind into a spur or nectary; anthers connate; capsule large; seeds pale, subglobose. Stem erect, roundish; leaves erect, numerous, scattered, sessile, cuneate-lanceolate, acurminate, pubescent, irregularly toothed on the upper part, attenuated below so as to appear subpetiolate; nerves strong, irregular or alternate; stipules subulate; peduncles very short, about 3-flowered; flowers greenish, appearing in April and May. H.A.B. From Pennsylvania to Upper Louisiana. Probably a distinct genus?

Of this genus there are 21 species in Europe; 2 at the Cape of Good Hope, one of them suffruticose, and both very doubtful as genuine species of *Viola*; 1 in the island of Luçon, one in Teneriffe; another in the island of Maclovian, another in India; 2 shrubby species in Chili, 1 in Tierra del Fuego; 3 doubtful species (as *Viola*,) in the tropical parts of America, one of them a scandent thorny shrub, with peduncles bearing many flowers! In the

subgenus *IONIA* of Persoon there are 6 species in the tropical parts of America, including among them the *I. Ipecacuanha*, said to produce the *white Ipecacuanha* of commerce, there are also two other species in India.

The genus *Viola*, within its proper limits, is almost equally divided betwixt Europe and the temperate parts of North America; the few other species in India and the tropical parts of America appear to indicate more than one distinct genus; it is even probable that *Viola* heretofore very unnaturally associated with the *Cisti!* will at last become the type of a natural order.

226. CLAYTONIA. Gronovius. L.

Calix biparted. *Petals* 5. *Stigma* trifid. *Capsule* 1-celled, 3-valved, 3 to 5-seeded. *Seeds* reniform.

Herbaceous and somewhat succulent plants; roots mostly tuberous and perennial, rarely annual and fibrous; leaves radical; scape producing a single pair of opposite leaves, the upper part racemose, many-flowered, petals emarginate or bifid (Germ in *C. virginica*, mostly 5-seeded.)

SPECIES. 1. *C. virginica* 2. *spathulifolia*. (*C. caroliniana*? Mich. *C. lanceolata*? Pursh) Abundant round Pittsburgh, and appears to supercede *C. virginica* as we proceed westward. 3. *alsinoides*. 4. *perfoliata*.

A North American genus, with the exception of *C. sibirica*; *C. lanceolata* of Pursh extends into Siberia, and *C. perfoliata*, which is annual, exists also in the island of Cuba within the tropic.

227. RHAMNUS. L. (*Buck-thorn*.)

Calix urceolate, 4 or 5-cleft. *Petals* 4 or 5, minute, in the form of scales opposite the stamina (sometimes 0.) *Stigma* 2 to 4-cleft. *Berry* 3 or 4-seeded. (Flowers mostly polygamous and dioicous.)

Small trees or shrubs, with the lesser branches often terminating in spines; leaves somewhat opposite, frequently alternate. Flowers axillary, lateral, and terminal; peduncle one or many-flowered, flowers obscurely coloured and inconspicuous.

SPECIES. 1. *R. alnifolius*. 2. *carolinianus*. 3. *lanceolatus*. Plentiful around New-Orleans. 4. *minutiflorus*. Flowers

in terminal panicles. This species by the habit can scarcely appertain to the genus.

Of *Rhamnus* there are 11 species chiefly in the south of Europe, 2 in Siberia, 5 in Africa and its islands, 10 in the warmer parts of America, 1 in New-Zealand, 1 in the Azores, 2 in China, one of which is common to India; of these the *R. theezans* passes as a substitute for tea among the indigent Chinese.

228 ZIZYPHUS. Tournf. (Supple-Jack.)

Calix 5-cleft. *Petals* 5, resembling scales inserted into the glandulous calycine disk. *Styles* 2. *Drupe* 2-celled, one or two seeded, one of the cells and seeds often abortive.

Small trees or shrubs with alternate leaves; flowers axillary and terminal. Nearly allied to *Rhamnus*.

SPECIES. 1. *Z. volubilis*. (*Enoplia volubilis*. Persoon.) Stem shrubby, twining, racemes many-flowered, axillary and terminal; flowers dioicous.

Of *Zizyphus*, there are 6 species in India, 1 in China, 3 in Africa, 1 in Europe, 1 in the Antilles, and another in Peru. The fruit of *Z. Lotus* is eaten by the Africans, and that of *Z. Jujuba* by the natives of India.

229. CEANOTHUS. L. (New-Jersey tea, Red-root.)

Calix turbinate, 5-cleft. *Petals* 5 squami-form, with long claws. *Stigmata* 3. *Capsule* 3-angled, 3-celled, 3-seeded, tripartite, opening on the inner side.

Suffruticose or shrubby; leaves alternate; flowers copious, axillary and terminal in pedicellate panicles corymbosely or dichotomously divided; calix coloured, persistent, segments arched inwards, glandulous disk 10-toothed. Flowers white. Roots large and very thick, reddish and astringent. Nearly allied to the genus *Pomaderris* of New-Holland.

SPECIES. 1. *C. americanus*. 2. *intermedius*, PH. 3. *sanguineus*, PH. Suffruticose; leaves oblong-obovate serrate, under side pubescent, panicle short and axillary; flowers crowded, subfastigate.—On the banks of the Missouri, abundant below the confluence of the river Platte. Near the Rocky Mountains.—*M. Lewis*. A much larger plant than *C. americanus*, which it considerably resembles; the leaves are equally large, but speaking from recollection

only, I think they are nearly sessile, and remarkably oblong; the branches reddish, surviving the winter, and forming a shrub about 3 feet high. 4. *microphyllus*. Stem rigid and much branched, leaves fasciculated, smooth and lucid, scarcely larger than those of *Thymus serpyllum*. Chiefly inhabiting the sandy and open pine forests of Georgia. 5. **Serpyllifolius*. Decumbent and suffruticose; branches filiform; leaves small, elliptic-ovate, serrulate, obtuse, petioles and nerves on the under side strigose; panicles pedicellate, axillary, few-flowered; flowers conglomerated. HAB. Around the town of St. Marys, in Florida.—Dr. Baldwyn. By much the smallest species of the genus. Leaves and stems not much exceeding those of Thyme, early leaves somewhat crowded, oval, or roundish, succeeding leaves distant, all obtuse and nearly smooth; flowers white, partly capitulate at the summit of a pedicell, 1 and a half to 2 inches long, only about from 12 to 15 together.

The genus *Ceanothus* appears peculiar to America; of which there are 5 other species besides the above; viz. 1 in New-Spain, 2 in Peru, 1 in the mountains of Jamaica, and another species of uncertain locality. The *C. asiaticus*, *C. circumscissa* of India and *C. africanus* do not appear to belong to this genus, and *C. capsularis* of the isle of Tahiti in the Pacific, seems to be a *Pomaderris*.

230. EUONYMUS. L. (Spindle-tree.)

Calix 5-parted, or 5-cleft, its base inside, covered with a flat peltate disk. *Petals* 5, spreading, inserted on the outside margin of the glandular disk. *Capsule* 5-angled, 5-celled, 5-valved, coloured, septiferous in the centre, cells 1 or 2-seeded. *Seeds* calyptrate (or arillate?)

Erect or rarely subsarmentose shrubs, with quadrangular branches; leaves opposite, minutely stipulate; peduncles axillary, solitary, opposite, 3-flowered, or trichotomous and many-flowered.—Flowers often tetrandrous and tetrapetalous, greenish or brown; capsule sometimes 3 or 4-celled, crimson; seeds covered with a scarlet pulpy arillus.

SPECIES. 1. *E. americanus*. β . *sarmentosus*. Subsempervirent; stem sarmentose, often radicans, acutely quadrangular; leaves subsessile, opaque, ovate-lanceolate acute, obtusely serrate, serratures for the most part undu-

lated; peduncles about 3-flowered; flowers 5-petalled; fruit scabrous.—Leaves somewhat shining, and remarkable for their opacity; fruit of the usual brilliant colours; theca bursting from the centre.—Generally in shady moist forests, amongst rocks. The singular habit of this plant almost indicates a specific distinction, for the present, however, I cannot consider it as any thing more than a permanent variety.

2.* *obovatus*. Stem prostrate radicant; surculi erect, obtusely quadrangular, marked with 4 distinct lines; bark and calix inflated, leaves broad obovate, obtuse, acute at the base, sessile, margin acutely serrulate, flat; peduncles 3-flowered; stamina 4 and 5.—A very distinct species, though proximately allied to *E. americanus*. OBS Stem about a foot high, nearly simple, or with a few short and opposite branches appearing truncated at their extremities, by the inflation of the bark; leaves nearly opaque, cuneate-obovate, often dilated so as to appear nearly as broad as long, margin finely and acutely serrulate, serratures and nerves on the upper side minutely hispid (seen through a lens), marginal nerves of the petiole decurrent on the stem, forming the sole ligatures of attachment betwixt the inflated bark and the wood; calix inflated, nearly entire, or crenate, membranaceous; petals 4 and 5, roundish, green, with a tinge of purple; anthers sessile. I have not seen the fruit.—HAB. In shady fir swamps betwixt Franklin and Waterford, Pennsylvania. Flowering in June.

3. *angustifolius*. 4. *atropurpureus*. Theca smooth, opening marginally.

Of this genus there are 2 other species in Japan, and 3 in Europe.

231. CELASTRUS. L. (Staff-tree.)

Calix 5-lobed. *Corolla* 5-petalled. *Stamina* situated around a 5-toothed glandulous disk. *Style* thick, perforate; *Stigmas* 3. *Capsule* (theca) 3-sided, 3-celled, 3-valved, valves septiferous in the centre; cells 1 or 2-seeded. *Seeds* semiarillate, arillus 4-cleft.

Small trees or shrubs, erect or scandent, unarmed, or spiny; leaves alternate, entire, minutely stipulate, stipules sometimes divided; peduncles solitary or aggregated 1-flowered, also racemose, paniculate or cymose, axillary or terminal. Some of the species are polygamous-dioicous. (Two or three genera are probably confounded in *Celastrus*).

SPECIES. 1. *C. bullatus*. No where to be met with in North America. 2. *scandens*. **Obs.** Dioicous; racemes terminal; pedicells circularly articulated. Male flowers in a compound raceme, the pedicells mostly 3-flowered; calix shortly campanulate; stamina alternating with the petals. (Flowers odorous.) Female raceme simple, pedicells bracteate, bractes setaceous, minute; flowers larger, turbinate-campanulate, with 5 very short infertile stamina seated around the glandulous disk; style about the length of the calix, thick, cylindric and perforate; stigmas 3, reniform; capsule roundish-obovate, slightly marked with 3, 4, or 5 furrows, with the same variable number of valves; valves semiseptiferous in the middle, 2-seeded, septum not continued to the centre; seeds arillate, attached to the base of the capsule; arillus pulpy, 3-sided, produced at the base, open at the top, entire, connivent over the seed, when mature scarlet, seeds often all abortive but one. Leaves alternate, stipules 3 to 5-cleft, minute, setaceous. This species is also indigenous to Japan, according to Thunberg.

Of this genus there are 6 species in Chili and Peru, 17 in Africa, chiefly at the Cape of Good Hope, 4 in Japan, 2 in Arabia Felix, 1 in the Canary islands, and another in the Marquis islands of the Pacific ocean.

+++++ *Flowers incomplete.*

232. HAMILTONIA. Willd. (Oil-nut.)

Dioicous.—**HERMAPH.** *Calix* turbinate-campanulate, 5-cleft. *Corolla* 0? *Germ* immersed in the 5-toothed glandulous disk. *Style* 1; *stigmata* 2 or 3, sublentiform. *Drupe*, pyriform, 1-seeded, inclosed in the adhering base of the calix. **MALE** flower nearly similar to the hermaphrodite.

A shrub with the habit of *Celastrus*, to which it is intimately allied. Leaves alternate entire, stipules none? raceme terminal, flowers apetalous?

SPECIES. 1. *H. oleifera*. **Rarc.** On the margins of the mountain rivulets; in the central and highest chains of mountains, from Pennsylvania to Georgia.—Root, surculose penetrating very deep; leaves oblong-obovate, acuminate, 2 to 3 inches long, 1 to 1 1-2 wide, petiolate, pubescent and strongly veined on the under side. The young leaves within the bud appear silky. Pedicells circularly articula-

ted at the base. Calyx of the male flower shortly campanulate; glandular disk penetrating and filling the tubular attenuated base of the calix. Hermaphrodite, calix turbinate-campanulate, 5-cleft, segments ovate, reflected, glandular disk more conspicuous; stamina opposite the divisions of the calix, and alternating with the dentures of the disk. Nut depressed globular, 1-celled, 1-seeded, inclosed in the carneous base of the calix, appearing inferior, from its immersion in the disk, adhering calix conspicuously veined; shell of the nut whitish, thin, a little verrucose, sharply acuminate by the persistent base of the style, as in the capsule of *Celastrus scandens*. Perisperm large, very oily, acrid to the taste (probably cathartic,) its substance somewhat lamellated; corculum minute, at the base. The germ has probably more than one seed. The whole plant is more or less oily, in consequence of which the deer and domestic cattle devour it with avidity.

Celastrus macrocarpus of Peru appears to be a second species of this genus.

263. *COMANDRA.† THESIUM. L.

Calix angular, tubular-campanulate, coalescing with an internal 5-toothed, glandulous disk. *Petals* 5, ovate, ingrafted upon the margin of the calix, persistent. *Anthers* attached to the petals by a tuft of filaments! *Germ* 3-seeded, immersed in the glandulous disk. *Capsule* valveless, 1-seeded, coated by the base of the calix.

Perennial, root ligneous, stem herbaceous; leaves simple, alternate, stipules none; radical gemmaceous scales numerous, persistent; flowers in a corymbulose terminal panicle.

SPECIES. 1. *C. umbellata*.

Thesium umbellatum. Linn. Willd. Sp. Plant.

Stem round and erect, sending out 2 or 3 infertile branches below the panicle. Leaves approximating, erect, oblong-ovate, obtuse, smooth, reflected on the margin, and reticulately veined. Panicle short, ramuli axillary, corymbulose, corymbs about 5-flowered, with 4 involucrate bractes, uppermost peduncles fewer flowered. Calix

† From *κόμη*, a head of hair, and *άνθρωπος*, a man, by analogy, the masculine organs of plants, or stamina;—in allusion to the singular structure of the anthers.

uniting with the glandulous and nectariferous germinal disk; disk 5-toothed, obtuse. Petals 5, calycine, often 4 and 6, with the same number of stamina, ovate, acute, persistent, growing to the margin of the calix, white, internally villous (seen through a lens), before expansion parallel. Stamina seated at the base of the petals, alternating with the dentures of the glandulous disk; filaments subulate, about half the length of the petals; anthers oval, 2-celled, connected at their summits to the petals near their base by a fascicle of yellow filaments—Style terete, simple; stigma round, entire; germ about 3-seeded, ovula pendulous, attached to the apex of a filiform contractile funiculus arising from the base of the capsule. Capsule nearly globular, and angular, 1-seeded, not opening, thin and brittle, not osseous, coated by the base of the calix. Seed round, about the size of a small pea, consisting almost entirely of a large carnose and oily perisperm, embryo inverted, small, flat, nearly in the axis of the perisperm; radicle superior, thick and obtuse; cotyledons linear and acute.

OBS. The connecting fibres of the petals, appear to be a separation of a portion of the central vessels, for at that point the petal is greenish and callous, and the central nerves there commencing trichotomously, disappear above the connectile fibres, and the rest of the petal is then white.

This plant has some relation to the preceding, and they both appertain to the Natural Order SANTALACEÆ of R. Brown, approaching at the same time very nearly to the RHAMNLI of Jussieu. The genus here proposed may probably include some of the species of *Thesium* indigenous to the Cape of Good Hope.

234. QUERIA. L. ANYCHIA. Michaux.

Calix connivent, 5-parted, segments oblong, apex subsaccate (or furnished with an arched callosity.) *Corolla* none. *Filaments* of the anthers distinct; intermediate, setæ none. *Stigma* subcapitate. *Capsule* utricular, not opening. *Seed* 1, subreniform.

Herbaceous and dichotomous; leaves opposite, stipulate; stipules scarious, flowers minute, bracteolate, dichotomal and terminal; stamina 3 to 5. A genus scarcely distinct from *Paronychia*, intermediate with it and *Herniaria*.

SPECIES. 1. *Q. canadensis*. Stem erect or spreading, dichotomous, much branched, retrorsely pubescent; leaves

nearly glabrous, cuneate-oblong, acute; flowers erect, shorter than the stipules.—Stamina 3, rarely 5; leaves (through a glass) subciliate.

2. **capiliacea*. Erect and glabrous, dichotomously and diffusely branched, branches capillary; leaves ovate, very smooth, attenuated towards the base, rather obtuse; flowers spreading, longer than the stipules.—Stamina 3, rarely 5. Both these species are annual.

Of this genus there are 2 other species enumerated by Persoon, namely the *Q. Hispanica* and *Q. ? trichotoma* of Japan.

235. **PARONYCHIA.** *Tournefort and Jussieu.*
ANYCHIA. *Michaux.*

Calix 5-parted, segments acuminate from below the internal apex, (or subsaccate) and coloured on the inner side. *Corolla* none. Five filaments alternating with the stamina. *Style* bifid; *stigmata* capitate. *Utriculus* 1-seeded, summit hemispherical, sometimes valvular? covered by the connivent calix.

Herbaceous, caespitose or procumbent plants; leaves opposite, and stipulate; flowers cymose or terminal, greenish or calycine, lined with a petaloid membrane separating from the calix at its summit.

SPECIES. 1. *P. Herniarioides*. 2. **dichotoma*. Cespitose and procumbent, glabrous. leaves acerose, linear, acute, on either side marked with two grooved lines; stipules bifid, bractes shorter than the flowers; cyme dichotomous; segments of the calix minutely mucronate.

Achyranthes dichotoma. LINN. *Illecebrum dichotomum*. WILLD.

Leaves about an inch long, half a line wide, somewhat thick and flat; stipules bifid, a little shorter than the leaves, white, chaffy, with subulate capillary points. Leaves on the infertile branches imbricately crowded, on the flower stems remote. Flower stellate; segments of the calix furnished internally with arched scales near the summit, points pungently acute. Sterile setæ, short; style bifid. Utriculus not spontaneously valvular, smooth. Seed reniform; perisperm farinaceous; cotyledones linear, incurved, green.—The habit of this plant is somewhat like *Sedum reflexum*, but not succulent.

HABITAT. On slate rocks, by the margin of the river Shenandoah, Virginia, in the vicinity of Harper's Ferry.

Flowering from August to November. A very elegant perennial, but not suffruticose, as described by Linnæus.

3. *argyrocoma*. Cespitose, procumbent and pubescent; leaves linear, pungently acute, vilidus, and nerveless; stipules entire; bractes equal with the flowers; cyme dichotomous, crowded, interior apex of the calix bearded, exterior setaceously acuminate.

Smaller than the preceding to which it is very nearly related; the cyme in this species resembles a capitulum, being almost obscured by the numerous and crowded bractes; the points of the calix are nearly its length. Sterile setæ short; style bifid; utriculus pubescent at the summit, and without valves.

On rocks, in the mountains of upper Carolina, and on the banks of French Broad river, in Tennessee, near the thermal springs.

4. **sessiflora*. Cespitose and diffusely branched; leaves glabrous, very short, linear, reflected and acute; stipules subulate, irregularly lacerate, nearly equal with the leaves; flowers terminal sessile, internal points of the calix arched, external capillary attenuated.

Densely cespitose and smooth, leaves without visible nerves. Flowers irregularly crowded at the summits of the branches, not cymose. Style bifid; utriculus not valvular; sterile setæ 5.

On the highest hills of the Missouri, near Fort Mandan. Flowering from June to September. Nearly allied to *Herniaria*.

To this genus is referrible *Ilecebrum Paronychia* of the south of Europe, said to have a capsular utriculus of 5 valves? several other species of that genus also probably belong to this.

236. GLAUX. L. (Black Salt-wort.)

Calix campanulate, 5-lobed, coloured, inferior. *Corolla* none. *Capsule* globular, surrounded by the calix, 1-celled, 5-valved, 5-seeded; receptacle rounded, marked with favulose punctures.

An herbaceous, creeping, maritime plant with opposite oblong leaves, and small axillary subsolitary sessile flowers.

SPECIES. 1. *G. maritima*. A genus consisting of a single species found on every sea-coast of the northern hemisphere within the temperate regions.

II. DIGYNIA.

† *Flowers monopetalous, inferior.*

237. ECHITES. *Jacquin. Linn.*

Contorted.—*Calix* 5-parted, small. *Corolla* salverform, border 5-cleft, orifice naked. *Anthers* rigid, acuminate, convergent into a cone, “cohering to the stigma by the middle.” R. BROWN. *Style* 1; *stigma* annulate, capitulum 2-lobed. *Follicles* 2, very long and straight. *Seed* comose.

Shrubs, mostly twining, some species exuding a lactescent sap; leaves opposite; peduncles axillary or terminal, one or many-flowered; flowers umbellate, corymbose or spiked; corolla as in *Nerium*, *Vinca*, *Amsonia*, *Periploca*, &c. contorted, or spirally involute before expansion.

SPECIES. 1. *E. difformis*. Flowers small and greenish-yellow. *Calix* angular at the base. *Corolla* lined with a silky villus around the orifice. *Anthers* simple, seated around the mouth of the tube, linear-sagittate, very acute and rigid. *Style* 1, as long as the stamens; *stigma* annulate, 2-lobed, viscid. Germ surrounded at the base by a glandular 5-toothed torus.

This genus of 29 species, according to Persoon, is peculiar to the tropical parts of America, with the exception of 2 species in India, and 2 of a doubtful genus at the Cape of Good Hope, being succulent and furnished with axillary thorns.

238. APOCYNUM. *L. (Indian-Hemp.)*

Calix very small, 5-cleft, persistent. *Corolla* campanulate, half 5-cleft, lobes revolute, furnished at the base with 5 dentoid glands alternating with the stamina. *Anthers* connivent, sagittate “cohering to the stigma by the middle.” R. BROWN. *Style* obsolete; *stigma* thick and acute. *Follicles* long and linear. *Seed* comose.

Erect and herbaceous plants, or shrubby and twining, with opposite leaves; flowers corymbose or paniculate, axillary or terminal. *Corolla* with 5 nectariferous depressions near its base.

SPECIES. 1. *A. androsæmifolium*. 2. *cannabinum*. 3. *hypericifolium*. These 3 species are very nearly allied to each other, and might almost be taken for so many varieties. They have all likewise the property of mechanically entangling flies by the proboscis which is retained in the acute fissure of the anthers. They afford by incision a lactescent fluid, which when sufficiently dried exhibits all the properties of Gum Elastic or Kaoutchouk, supposed at one time to have been the exclusive property of the *Urceola elastica*, but common, probably, to most of the lactescent APOCINEÆ, and perhaps many more of the EUPHORBACEÆ than the *Siphonia elastica*, of Brazil and Guiana.

Of this genus there are several other species in South America, India, and the Cape of Good Hope, and 1 species, *A. venetum*, said to be indigenous to the islands of the Adriatic.

239. PERIPLOCA. L.

Calix minute, 5-cleft, persistent. *Corolla* rotate, flat, 5-parted, orifice surrounded with an urceolate 5-cleft crown, terminating in 5 filiform appendices or awns. *Style* 1; stigma capitate with 5 angles. *Follicles* 2, ventricose. *Seed* comose.

Shrubs, many of them climbing; leaves opposite; flowers subcorymbose, axillary or terminal.

SPECIES. 1. *P. græca*. Naturalized or indigenous in the western part of the state of New York. Flowers brownish, sometimes 7-cleft, segments of the corolla each marked with a villous oblong central spot; stigma with 10 crenatures.

The rest of this genus belongs to India and Africa. The *P. græca* exists in Syria and Siberia, as well as in North America.

240. GONOLOBUS. Michaux.

Corolla rotate, 5-parted. *Lepanthium*† (or nectary) simple, cylindrical, subcarnose, 5-lobed,

† Literally, in the plural, *flower-scales*, (from λεπίς, a scale, and ανθος, a flower,) intended to designate generally, the interior corolla or petaloid nectarium of Linnæus. In this place it is the same as the *corona staminea*, "stamineous crown," of R. Brown; but used only by him to point out the very singular *Lepanthium* which exists in the order ASCLEPIADEÆ.

depressed, exactly equal with the antheridium (antheroid cells) discoid, pentangular, without alated lateral margins or terminal membranaceous cusps. *Pollinia* (masses of pollen) 5 pair, even, transverse. *Follicles* 2. *Seed* comose.

Herbaceous and twining plants, with opposite leaves; flowers axillary, umbellate. Nearly allied to *Cynanchum* in some respects; and particularly to the North American species, but very distinct in the parts of fructification, having a depressed or discoid antheridium, without either lateral or terminal produced margins, and receiving the pollinia transversely, but still attached as is usual in *Cynanchum* and *Asclepias*, by pairs to the upper angles of the stigma.

SPECIES. 1. *G. macrophyllum*. 2. *hirsutus*. Flowers brown, segments of the corolla linear-oblong, follicles muricate, with soft spines; the whole plant pubescent; sarrments and petioles hirsutely hairy; leaves cordate-oval, distinctly acuminate. 3. *carolinensis*. Stem twining and with the petioles hirsutely hairy, the whole plant pubescent; leaves ovate-cordate, acute, somewhat acuminate; segments of the corolla ovate-obtuse; flowers yellowish, umbellate.—The leaves are not hirsute but covered on both sides with a minute pubescence. Pollinia transverse. It is nearly allied to the preceding, but very distinct in the flower; with the fruit I am unacquainted.—In the vicinity of Savannah.—*Dr. Baldwin*.

4.* *vividiflorus*. Every where smooth; stem twining; leaves subreniform-cordate, acuminate upon longish petioles, base auriculate; segments of the corolla linear-oblong, oblique, obtuse, greenish, follicles ribbed. **HAB.** On the banks of the Mississippi, near St. Louis, &c. *v. s.* in Herb. Lambert. London.

Hitherto an American genus.

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241. CYNANCHUM. L. (Dog's-bane.)

Calix 5-toothed, very small; and persistent. *Corolla* rotate. *Lepanthium* simple, cylindric, "5 to 20-lobed," (R. BROWN,) surrounding the orifice of the tube. *Stamina* as in *Asclepias*. *Stigmata* 2. *Follicles* 2. *Seed* comose.

Habit similar to *Gonolobus*, but many of the species are shrubby.

SPECIES 1. *C. læve*? stem erect, subsarmentose, marked with an alternating pubescent line; leaves smooth, subcordate-ovate, acutely acuminate, sinus at the base, nearly closed; margin and nerves on the under side, minutely pubescent; petiole very short; peduncle long; umbell interrupted, compound, umbelluli few-flowered; segments of the corolla, oval-oblong, ob-use; follicles smooth?—*Lepanthium* cylindric, retusely 5-toothed, nearly entire. Possessing all the habit of *Asclepias Vincetoxicum*. Flowers small, greenish white.

Probably *Gonolobus lævis*. MICH. 1. p. 119.

2. *angustifolium*. Stem twining, smooth; leaves smooth, narrow, and linear, thickish; umbell upon a long peduncle; segments of the corolla lanceolate.—*Lepanthium* cylindric, obtusely 5-toothed. Follicles—? Flowers small and greenish.

Ceropegia palustris. PURSH. 1. p. 184. From Carolina to Florida twining round rushes and other marsh plants.

The genus *Cynanchum* appertains principally to the warmer regions of America, a smaller number to India and Africa, 2 to the south of Europe, exclusive of *Vincetoxicum* so closely allied to this genus; and 1 species even extends to Siberia. *Cynanchum* is not altogether destitute of medical economy; the root of *C. Ipecacuanha* of Ceylon and the isle of France is used as an emetic in doses of 24 grains, and it has recently been discovered in France that the Senna of the shops was in reality the leaves of a species of *Cynanchum* disguised by an useless admixture of those of the *Cassia Senna*.

242. * ENSLENIA. †

Calix small, 5-parted, persistent. *Corolla* 5-parted, segments connivent, erect. *Lepanthium* simple, 5-parted, petaloid, divided to its base, segments truncate, flat, each terminated by 2 central filaments. *Stamina* as in *Asclepias*. *Pollinium*, lobes subcylindric, laterally stipitate. *Style* 0. *Stigma* conic, subbilamellate. *Follicles* 2, small?

† In memory of the late Mr. Moyses Enslen, an assiduous and practical botanist, patronised in his researches in the United States by Prince Lichtenstein of Austria, and to whom Mr. Pursh was frequently indebted for many of the rarer plants of the Southern States.

A genus approaching *Cynanchum* and *Asclepias*.

Stem herbaceous, twining, leaves opposite; flowers axillary, corymbose.

E. albida.

DESCRIPTION. Root perennial. Stem herbaceous, twining, marked with an alternating pubescent line. Leaves opposite, smooth, cordate-ovate, acute, somewhat acuminate, sinuate at the base, slightly pubescent on the margin, and sometimes along the nerves, from 1 to 2 inches long, and 1 to 2 wide, petiole about an inch. Corymbs axillary, many flowered, upon long peduncles, several often from the same axill; pedicells and calix pubescent. Calix 5-parted, segments lanceolate-ovate. Corolla 5-parted, greenish or yellowish-white, divisions connivent, erect, linear oblong, somewhat obtuse. Lepanthium (nectary, L.) 5-parted, petaloid, segments divided down to the base, flat, oblong, and truncated, sometimes 4-toothed, the 2 central dentures or incisions terminating in filiform awns. Pollinia (masses of pollen) 5 pair, pendulous, and even as in *Asclepias*, suspended to the angles of the stigma, cylindric-oblong, much shorter than the antheridium, diaphanous, above united together by a small black cloven tubercle, alternating in the antheroid cells, each pair being common to 2 antheroid bodies. Antheridium (antheroid bodies) short and crustaceous, with salient margins, each lobe terminated by a broad, ovate, white, chaffy cusp. Style none. Stigma conic, subbilamellate, seated upon the disk of the antheridium. Follicles 2, short, ovate? not more than a few lines long? seed comose?

HABITAT. Near Shepherdstown, on the gravelly banks of the Potomac, Virginia. Abundant in certain localities, on the high sandy banks of the river Scioto, &c. also near Cincinnati, (Ohio) ascending to the height of 8 or 12 feet. Flowering in July and August. An occidental plant, or confined to the western side of the Alleghany mountains, always on alluvial soil. Flowers ochroleucous, with a melliferous scent. Stem like most of the *APOCINEÆ*, affording flax.

243. ASCLEPIAS. L. (Wild-Cotton, Swallowwort.)

Calix small, 5-parted, persistent. *Corolla* rotate, mostly reflected. *Lepanthium* (nectary, L.) simple, 5-parted, segments ovate, cucullate, each producing from its base an internal subulate averted awn. *Antheridium* 5-parted, crustace-

ous, sessile, angles opening by 5 longitudinal chinks. *Follicles* 2, ventricose, acuminate, smooth or muricate. *Seed* comose.

Shrubby or herbaceous, stems erect; leaves opposite, or alternate, rarely verticillate; peduncles axillary and terminal, solitary; flowers in umbells, numerous.—*Antheridium* (antheroid cells, anthers, of some) conic-cylindric, (resembling the 5 united anthers in Syngenesious florets,) sessile, or subsessile, crustaceous, separable only by five longitudinal chinks, into 5 lobes, connected to the stigma both above and below, lobes antheroid, 2-celled, cells open, margin reflected, salient, terminating above in membranaceous ovate cusps. *Pollinia* (concrete masses of pollen) 5 pair, even, suspended from the angles of the stigma, clavate, compressed, diaphanous, solid and concrete, of a yellow, waxy substance, united together by a small, black, cloven tubercle; alternating in the cells of the antheridium, each pair being common to 2 lobes. Style none. Stigma discoid, pentagonal. Follicles smooth, or muricated with soft and flexible spines (as in *A. syriaca*, &c.) Seeds pendulous by the coma, obtusely obovate and compressed, or subelliptic, surrounded by a double winged margin; perisperm thin and carnose; embryo flat; radicle inverted. Receptacle free, with lateral, imbricated, longitudinal lamella for the reception of the seminal coma.—The flowers of the larger species of this genus have the property of mechanically detaining small insects. The *Musca domestica* or common house-fly is in general the subject of this cruel accident, and may frequently be seen tortured by the flowers of *Asclepias syriaca*, and *A. incarnata*; they are uniformly held by the tarsi, which get hooked into the minute chink existing in the connecting tubercle or clasp of the pollinium.—All the species of this genus afford a silky flax, and generally a lactescent sap.

† *Leaves opposite.*

SPECIES. 1. *A. syriaca* Lepanthium bidentate. Follicles muricate. 2. *hytolaccoides*. Lepanthium truncate, internal margin bidentate; petals pale green, lepanthium whitish, umbels both lateral and terminal.—New York to Carolina, and on the banks of the Ohio. Near Philadelphia on the rocky banks of Wishahikon creek. 3. *debilis*. 4. *parviflora*. 5. *nivea*. 6. *incarnata*. 7. *amoena*. Leaf oblong-oval, with an acute point, under side minutely pubescent, petiole very short; umbells terminal, erect; flowers purple; segments of the lepanthium ovate-oblong, entire, twice the length of the antheridium, central process flattened

and gibbous, terminating in a subulate awn; margins of the antheridium triangularly produced.

8. *purpurascens*. 9. *viridiflora*. Described in the New York Medical Repository, Hexade II. p. 360. No. 18. by Mr. C. G. Rafinesque Schmaltz, since the year 1808, under the same name. 10. *variegata*. Stem simple, erect, leaves elliptic-ovate, petiolate, smooth, margin pubescent; pedicels pubescent; root horizontal.—Segments of the lepanthium roundish, longer than the antheridium, central processes flattened, falcate, point aristate, tube purplish. 11. *obtusifolia*. 12. *amplexicaulis*. Leaves glaucous, remarkably veined; flowers whitish. A low but elegant species.

13. *Periplocæfolia*. (*A. laurifolia*, MICH. *A. acuminata*, PURSH. *A. cordata*? WALT. fl. car. 105.) Leaves subsessile, somewhat distant, ovate-lanceolate, narrowing upwards, very acute, smooth on both sides, margin asperate; umbells mostly 2, naked, lateral; root an rounded tuber, (almost similar to that of the spiked species of *Jiatis*.)—Corolla greenish on the under side. Segments of the lepanthium oblong-linear, a little longer than its awn, which is simply subulate, and about twice the length of the antheridium. "Apocynum ('scandens' by mistake) *Floridanum*, *Periplocæ foliis*, longius ab invicem distantibus, floribus ochroleucis, in umbella positis." Pluk. amalth. fol. 18. t. 358. f. 2. HAB. From New Jersey to Florida, in the swamps of the sea coast.

14. *paupercula*. (*A. floridana*, Lamarck.) Segments of the lepanthium spreading, much longer than the antheridium, internally bidentate, awn simply subulate, tube as long as the antheridium. Leaves very long and remote. Pluk. amalth. 18. t. 359. f. 4? the leaves in this figure are, however, alternate. 15. *viridis*. Probably not an *Asclepias*? 16. *quadrifolia*. Lepanthium linear-oblong, nearly flat, internally bidentate, twice the length of the antheridium, awn very short. "Apocynum umbellatum album, latiore foliis tetraphyllon ex *Terra Mariana*." Pluk. Mant. p. 46.

17. *cinerea*. Stem simple, marked with an alternating pubescent line; leaves smooth, very narrow and linear, margin revolute, umbells lateral, erect, very few flowered; flowers whitish, segments of the lepanthium truncate, inner margin conspicuously bidentate, nearly equal with the antheridium, central awn erect, very short.

A. cinerea. Walter. Flor. Carol.

A very slender, herbaceous species, with the habit of *A. verticillata*. About a foot high. Leaves few, 3 to 4 inches long, scarcely a line wide. Umbells only 4 or 5-

flowered? Petals oblong-oval, white, externally cinereous-green, near the points. Lepanthium white, *without tube!* perfectly sessile. Pollinium short, lobes even, angularly inflexed, styles 2, long. HAB. From Carolina to Florida. Specimen collected by Dr. Baldwin, from whom I received it, under the name of *A. cinerea*.

†† *Leaves scattered, or verticillate.*

18. *verticillata*. Stem erect, often branching, marked with pubescent lines, leaves smooth, narrow linear, crowded, mostly verticillate; tube of the lepanthium conspicuous, segments very short, awns long and falcate. 19. *longifolia*. Flowers greenish.—In Carolina, Georgia, Illinois, and Louisiana. Nearly allied to *A. viridiflora* of Pursh, if not the same.† 20. **lanuginosa*. Plant very low, decumbent, and partly lanuginous; leaves ovate, scattered, umbell solitary, terminal. OBS. 4 to 6 inches high; root tuberous, flowers greenish. My specimen was very imperfect. HAB. About 30 miles below the confluence of White river with the Missouri, on dry and gravelly hills. It is the only species which I met with in the upper part of Louisiana. 21. *tuberosa*.

The United States already afford about half as many species of this genus as the rest of the world, thus far explored. The tropical parts of America, according to Persoon, produce only 5 species. At the Cape of Good Hope there are 9; 5 in India and Ceylon; 1 in Persia, besides *A. syriaca*, 1 in China, 2 in Arabia Felix, 1 in Dauria, and 1 in Siberia. The 2 European species appear either referrible to *Cynanchum* or to constitute a dis-

† This plant, according to R. Brown, is a species of his genus *Gomphocarpus*, if the mere absence of the coraculum or arista, usually arising out of the concave lobes of the lepanthium, can be considered of generic importance; the single denture or "auricle" as it was called by Linnæus in his description of *Asclepias fruticosa* (*Gomphocarpus fruticosus*, of R. Brown) terminating either side of the lobe, we have already shown to be common to several genuine species of *Asclepias*, (such as *A. syriaca*, *A. phytolaccoides*, &c. and remarkably in *A. cinerea*.) The armature of the follicle, its being smooth or muricated, is likewise an unimportant character, there being indubitable species of *Asclepias*, both with one and the other. There are also species of *Gonolobus* with costate, muricate, and smooth follicles.

It is nothing less than a duty to the public, which prompts me to these observations on the ingenious labours of a man so eminently indefatigable, so accurate, and so justly celebrated. It is also highly probable, that this very revision has already been made by Mr. R. Brown himself.

inct genus (viz. *Vincetoxicum*, of Persoon.) *Asclepias*, as it formerly stood, and as it still in part remains, under the sanction of popular compilers, constitutes rather an order, than a particular genus. Several of the genera, however, which were included in *Asclepias*, *Cynanchum*, and *Periploca*, have been very judiciously separated by Robert Brown, Esq. who properly considers *Asclepias* as the type of a Natural Order, ASCLEPIADEÆ.†

244. *ANANTHERIX.‡

Calix and *Corolla* 5-parted. *Lepanthium* simple, 5-parted. segments compressed, fistulous and impervious, incurved, unconnected with the antheridium. *Arista* or corniculum none. *Stamina* as in *Asclepias*. Lateral winged margins of the *antheridium* broad and membranaceous. Lobes of the *pollinium* even, minute, stipe terminal, very long. *Follicles* 2. *Seeds* comose.

Similar to *Asclepias* in habit. Stem erect, leaves opposite; flowers umbellate. Nearly allied to the genus *Calotropis* of R. Brown.

E. viridis. *Asclepias viridis?* Walter. Flor. Car. p. 107.

DESCRIPT. Root perennial. Stem simple, erect, (about 2 feet high.) Leaves oblong or oblong-obovate, mucronulate, sessile, rather thick and minutely pubescent on either side, (2 inches long, and about half an inch broad.) Umbells few-flowered, lateral, nearly sessile; pedicells pubescent. *Calix* 5-parted, persistent, divisions oblong-ovate. *Corolla* 5-parted, connivent? § *Lepanthium* sessile, 5-parted, some-

† I regret, that Mr. Brown's publications on this subject are not to be seen, that I know of, in the United States, so that I am obliged, rather than culpably omit any genera peculiar to North America, to propose the § following, without being able satisfactorily to ascertain how far they may accord with genera already published by Mr. R. Brown, except what appears in the late edition of the Hortus Kewensis, vol. ii.

‡ From α , without, and $\alpha\nu\theta\acute{\epsilon}\rho\iota\zeta$, an awn; the segments of the *lepanthium* being, amongst other peculiarities, destitute of awns.

§ Judging by the only specimen which I have of this plant, the corolla seems never to expand! or very imperfectly, hence Dr. Baldwin, from whom I obtained it, called it *Asclepias connivens*.

what longer than the antheridium and arising separately from its base; segments compressed, connivent, incurved, fistulous, but impervious, internally margined, margin double, membranaceous, coalescing at the summit, and there including a minute lamella. Antheridium 5-lobed, winged lateral margin of the lobes broad and membranaceous, membrane margined and continued to the summit, there forming a double sinuous plicature from the centre of which arises the usual cusps of the lobes; cusps concave, margins reflected. Lobes of the pollinium minute, alternating in the cells of the antheridium, stipes of the lobes straight, capillary and very long. Stigma discoid, concave, margin 5-toothed. Styles 2, minute. Follicles 2. Seeds comose?

Collected near St. Mary's in Florida, by Dr. Baldwin.

245. *STYLANDRA.†

Calix 5-parted, minute. *Corolla* without tube, 5-parted, segments long, erect, and connivent. *Lepanthium* simple, 5-parted, segments saccate, and compressed, with operculoid, rigidly recurved points; tube reversed, styloid, very long, supporting the parts of fructification. *Stamina* as in *Asclepias*. *Pollinia* pendulous, even. *Follicles* 2, long and slender. *Seeds* comose?

Stem erect, leaves both opposite and scattered; umbells axillary, very few flowered.

S. pumila.

Asclepias pedicellata. Walter, Flor. Carol. p. 106. *A. moschuta*? Bartram. Fls. odorous.

DESCRIPT. Root perennial. Stem simple, erect, minutely pubescent, slender, (about from 6 to 12 inches high.) Leaves opposite and alternate, sessile, linear, acute, minutely pubescent, and somewhat scabrous on the margin. Umbells solitary, axillary, 3 or 4-flowered, peduncle short; pedicells longer than the peduncle. *Calix* 5-parted, very minute, segments acute. *Corolla* 5-parted, laciniae erect, connivent, oblong-ovate, yellowish-green, points deeper coloured. *Lepanthium* 5-parted, segments about one third the length of the corolla, sessile, saccate, compressed or carinate, reciprocally confluent at the base; point rigidly inflected, resembling a deflected lid, with a subulate

† From *στύλος* a column, and *ανηρ*, a man, (by analogy, the masculine organs of plants,) the antheridium being supported upon a conspicuous style or column.

point, and emarginate behind; sacculum empty; tube reversed, (compared with *Asclepias*, &c) appearing like a slender pentagonal column, supporting the external parts of fructification, its summit 5-toothed. Antheridium very short, wings crustaceous; cusps of the lobes inflected. Pollinia even, 5 pair; lobes nearly sessile, short, compressed, and clavate.

HAB. From Carolina to Florida, in dry and sandy soil.

246. **AMSONIA.** *Walter.*

Calix 5-parted. *Corolla* funnelform, orifice closed. *Follicles* 2, erect. *Seed* terete, naked, and obliquely truncated. (*Stigma* annulate.)

Leaves alternate; flowers in fastigate or corymbose panicles, mostly blue.

SPECIES. 1. *A. latifolia.* 2. *salicifolia.* 3. *angustifolia.*
A North American genus.

247. **GELSEMIUM.** *Jussieu.* (Carolina Jessamine.)

Calix 5-leaved, very small. *Corolla* funnelform, border spreading, 5-lobed, nearly equal. *Capsule* compressed and flat, bipartite, bilocular. *Seeds* flat, attached to the margins of the valves.

A twining evergreen shrub, not lactescent, leaves opposite; flowers in small axillary and terminal fascicles, yellow; calix subtended by imbricated gemmaceous bractes.

SPECIES. 1. *G. nitidum.* Flowers fragrant. Anthers oblong-sagittate; style short, bifid; stignas linear-oblong, bilobed, pubescent. β . **inodorum.* Calix leaves obtuse; flowers inodorous. Near Savannah in Georgia.

A North American genus.

248. **GENTIANA.** *L.* (Gentian.)

Calix half 5-cleft, or half 5-parted. *Corolla* tubulous at the base, campanulate, border 4 or 5-cleft; divisions ciliate or entire, spreading, erect or connivent, sometimes furnished with intermediate plaits. *Stamina* 4 or 5, distinct or connate. *Capsule* 2-valved, 1-celled; receptacles 2, longitudinal.

Leaves opposite, entire, flowers axillary or terminal, solitary, fasciculate, or verticillate; (colour mostly blue, often intense.)—Seeds subelliptic compressed, surrounded with an alated margin.

SPECIES. 1. *G. crinita*. Seed subcylindric, brownish, hispid! Generally in open marshes. (Near the Falls of Schuylkill in the vicinity of Philadelphia) 2. *Pneumonanthe*. 3. *Saponaria*. 4. *ochroleuca*. Stem smooth, and terete; leaves smooth; flowers terminal, segments of the corolla acute; interior plait confluent, with a single tooth.

5. *Catesbei*. Stem terete, minutely pubescent and somewhat scabrous; leaves short, elliptic-ovate, acute, margin scabrous; flowers terminal, fasciculate; corolla 5-cleft, campanulate, somewhat ventricose, segments sub-acute, interior plaits lacerately toothed.—Nearly allied to *G. Saponaria*, and also to *G. linearis*. Flowers paleish blue, open; leaves closely sessile, rounded at the base. Root perennial. Flowering time, September to December. HAB. in open grassy swamps in North and South Carolina. 8 to 10 inches high. Leaves about an inch long, and three fourths of an inch wide.—*Gentiana Catesbei?* Walter.

6. *alba*. Muhl. Catal. Flowers white. 7. *linearis*. 8. *amarilloides*. From New York to Kentucky, and in Louisiana. Flowers pale obscure blue. Root annual.

9. *acuta?* Annual: stem quadrangular, branched; leaves subamplexicaule, 3-nerved, ovate, acute; flowers mostly solitary, axillary and terminal, upon longish peduncles; calix nearly divided to the base, 2 of the segments smaller; corolla campanulate, 4 and 5-cleft, segments semi-ovate, acute, orifice ciliate. OBS. Stem about a foot high; peduncles often an inch long; calix 4-cleft, unequal, 2 of the segments oblong-ovate, often nearly twice the size of the others; corolla cylindric, campanulate, rarely expanding, greenish-purple; beard of each segment about 5 filaments; anthers unconnected; intermediate plaits none. HAB. In depressed situations, on the plains of the Missouri, near Fort Mandan. Flowering time August and September. It appears to be somewhat allied to *G. campestris*, but slender, and much smaller flowered, it may be *G. acuta* of Michaux.

10. *angustifolia*. Stem mostly simple, sometimes 2 or 3-flowered; leaves linear, spreading, smooth; corolla 5-cleft; segments ovate acute, interior plaits lacerate; capsule clavate, upon a very long stipe.—OBS. A species considerably allied to *G. pneumonanthe*. Perennial; stem 6 to 12 inches, slender; flower blue, often 2 inches long; stipe of the capsule near an inch and a half.

The genus *Gentiana*, consisting of near 60 species, is confined principally to the alpine regions of northern Eu-

rope, and East Asia, (Siberia, &c.) here they continue to occur to the very limits of perpetual snow; several of the Siberian species will no doubt be discovered in Lower Canada and Labrador. 2 species were discovered by Forster in New Zealand, and a species of doubtful genus is said to exist in the Azores.—All the species of this genus are bitter and tonic; but the root of *G. lutea* is that which is most esteemed in medicine.

249. HYDROLEA. L.

Calix 5-parted. *Corolla* rotate, or campanulate. *Filaments* of the anthers, cordate at the base; anthers cordate. *Style* long and divergent; *Stigmata* capitate-peltate. *Capsule* 2-celled, 2-valved.

Herbaceous; flowers bracteate; terminal or axillary, solitary, corymbose or paniculate; some of the species produce axillary spines.

SPECIES. 1. *H. caroliniana*. Capsule not 4-valved.

A genus of six species, (sec. Persoon) indigenous to the tropical or warmer regions of America, with the exception of *H. Zeylanica* of India.

OBS. In *H. spinosa*, so nearly allied to *H. caroliniana*, according to Jussieu the flowers are sometimes 6-cleft, with 6 stamens, 3 styles, and a capsule of 3 cells.

250. DICHONDRA. Forster.

Calix 5-parted; segments spatulate. *Corolla* shortly campanulate, 5-parted. *Stigma* peltate-capitate. *Capsule* subcompressed, didymous, 2-celled, cells 1-seeded. *Seed* globose.

Small perennial creeping plants; nearly allied to *Evolvulus*. Leaves reniform, alternate; peduncles 1-flowered; flower small and cernuous.

SPECIES. 1. *D. carolinensis*. Leaves reniform and emarginate; under side covered with a thin silky villous; upper side also pubescent, but greener than the under; calix villous externally. OBS. Peduncle 2 or 3 inches long, and 1 or 2 from the same axill; calix reticulately veined. Leaves sometimes suborbicular and entire.—Probably *D. repens*.

This genus, apparently consisting of but a single species, exists from South Carolina to the West India Islands, and continuing to Peru extends as far as New Zealand in the southern hemisphere. (Ord. Nat. CONVOLVULACEI.)

251. *EVOLVULUS*. *L.*

Calix 5-parted. *Corolla* rotate-campanulate; lobes subemarginate. *Styles* 2, deeply bifid; segments capillary and divergent. *Stigma* simple. *Capsule* 2-celled, 4-valved, 2 to 4 seeded.

Stem creeping, procumbent, or erect. Leaves alternate entire; flowers pedunculate, small; peduncles solitary, bibracteate, capsule perfecting 1, 2, or 4 seeds.

SPECIES. 1. *E. nummularius*. On the banks of the Mississippi, near New Orleans. 2. *sericeus*? Stem diffuse and procumbent? Leaves remote, sessile, oblong-lanceolate, sublinear, acute at both extremities, under side, somewhat silky villous; peduncle 1-flowered, shorter than the leaf, bibracteate, bractes seated in the axill. **Obs.** Stem almost filiform, somewhat villous; leaves 5 to 10 lines long, 1 to 2 lines broad, peduncles 2 to 3 lines long; flower white, convolvulaceous, plaited, external margin of the plaits villous; segments of the calix ovate, acuminate; capsule 2-celled, 4-valved, 2-seeded. **HAB.** Around St. Mary's, in Florida, Dr. Baldwin *v. s.*

3. *argenteus*, **PH.** (*pilosus*.) Perennial; stems simple, erect, and low, many from the same root: the whole plant densely hairy and shining; leaves cuneate-oblong, acute, crowded; peduncles 1-flowered, subsessile; bibracteate, bractes sessile in the axill; segments of the calix linear.—**Obs.** Allied to *E. Commersoni*. Stems 4 to 6 inches high; leaves 6 to 8 lines long, 2 to 4 wide, extremely hairy as well as the stem; flowers solitary, appearing sessile, purple, edge of the plaits hairy, capsule 4-valved, often perfecting only a single seed.—**HAB.** On arid gravelly hills near the confluence of Rapid river and the Missouri; flowering in May. This genus, with the above exceptions, exists exclusively within the tropical regions of India, Australia, and America.

†† *Flowers pentapetalous, inferior.*

252. *HEUCHERA*. *L.* (Allum-root.)

Calix 5-cleft. *Petals* 5, small. *Capsule* birostrate, bilocular, many-seeded.

Leaves radical; flowers small, in a thyrsoid panicle.

SPECIES. 1. *H. americana*. 2. *villosa*. On the mountains of North Carolina, Virginia, and Tennessee. 3. *caulescens*, **PH.**

A North American genus, with the exception of *H. caulescens* discovered also in Kamschatka by the late professor Pallas.

UMBELLATÆ.

††† *Flowers pentapetalous, superior, 2-seeded.*

253. ERYNGIUM. L. (*Eryngo*. Sea-Holly.)

Flowers capitatae. Involucrum many-leaved. Proper calix 5-parted, superior, persistent. Corolla of 5 petals. Receptacle foliaceous, segments acute or cuspidate. Fruit bipartite.

Herbaceous; leaves entire, digitate or pinnatifid, often spiny, almost after the manner of *Carduus*. Inflorescence irregular, mostly dichotomal. Capitulum imbricated, producing bracteal or minute leaves.

SPECIES. 1. *E. virginianum*. 2. *virgatum*. Capitulum whitish. 3. *fætidum*. 4. *aquaticum*. Stem rather low; leaves sword-shaped, distantly margined with setose spines, setæ frequently by pairs; involucre shorter than the capitulum; segments entire or tricuspidate. Flowers greenish-white. Pluk. Phyt. t. 175, f. 4. 5. * *gracile*. Without spines; stem slender, dichotomous: leaves with very few serratures, radical oblong-ovate, upon long peduncles, cauline digitate or trifid, subsessile, segments linear-oblong; capitula solitary, lateral and terminal, upon long filiform peduncles; involucre none, or similar to the bractes; bractes cuspidate, entire.—OBS. Stem very slender, scarcely a foot high, grooved; radical leaves often with 4 serratures; stem leaves digitate or ternately divided, central segments often bidentate, lateral ones entire or unidentate, linear-oblong, and attenuated downwards; segments of the uppermost leaves entire; capitulum blue, roundish, and very small, (scarcely bigger than an ordinary grain of shot.) HAB. In West Florida. Dr. Baldwin.

Of this numerous genus there are 8 other species in Mexico and South America, but *Eryngium* exists chiefly in the south of Europe, Barbary, Syria, Persia, and the Levant. Many of the species are subarctic, others exist in inland depressions, and a considerable number grow on arid wastes.

254. PANAX. L. (*Gin-seng*.)

Flowers polygamous; umbell simple.—Calix 5-toothed. Corolla of 5 petals. Berry inferior,

subcordate, 2, sometimes 3-seeded. *Calix* in the male flower entire.

Herbaceous or arborescent. Stem of the herbaceous species simple, verticillately terminating in 3 leaves, with a solitary, central, pedunculate umbell; leaves digitate; umbell involucrate; flowers frequently producing 3 styles and 3 seeds.

SPECIES. 1. *P. trifolium*. Dioicous. Pluk. Amalth. t. 435. f. 7. the male plant; referred through mistake to *Dentaria* (*Nasturtium*.) 2. *quinquefolium*. Gin-seng. Indigenous also to Tartary.

Of this genus there are 5 other species; viz. 2 in the West Indies, which become considerable trees, with comose summits, an herbaceous species in New Holland, of doubtful genus, 1 also which is arborescent in New Zealand, and a shrubby species in India, said to be diuretic.

255. HYDROCOTYLE. L. (Marsh Pennywort.)

Umbell simple.—*Calix* none. *Petals* entire, spreading. *Styles* short; stigmas capitate. *Fruit* suborbicular or reniform, laterally† compressed. *Seed* tricostate, and flat, dorsal rib sometimes obsolete; commissure flat, linear, and immarginate. *Involucrum* various.

Umbells axillary, sessile or pedunculate, many or few flowered, frequently proliferous; flowers bracteate, bractes often resembling an involucre. Plant herbaceous, mostly creeping; leaves simple, peltate or reniform.

SPECIES. 1. *H. americana*. Fruit suborbicular. 2. *vulgaris*. 3. *umbellata*. Fruit reniform.

Of this genus there are 12 other species in South America, chiefly in Peru, besides *H. umbellata* also indigenous to Chili, 2 in Europe, 1 in India, 2 in the Isle of France,

† The direction in which the seeds of umbelliferous plants are compressed, is doubtless in most instances of more generic importance than the simple existence of pressure. I have therefore for the sake of distinction, divided the species of compression into *lateral* and *dorsal*. By *lateral* compression is meant, that the seed is elevated on the back and compressed on the sides. By *dorsal* compression, is intended that form of appression familiar in the seeds of the Parsnip (*Pastinaca sativa*,) the back of the seed being flat and the sides dilated, in fact, a form almost precisely opposite to the preceding.

1 in New Zealand, and 7 at the Cape of Good Hope; (according to Persoon.)

256. *GLYCERIA. †

Umbell simple.—*Calix* none. *Petals* entire, ovate, acute, incurved. *Styles* very short, subulate; stigmas obsolete. *Fruit* reniform, laterally compressed, flat and truncate. *Seed* quinquecostate, covered with an indurated bark: commissure linear, immarginate and flat. *Involucrum* 2-leaved.

Herbaceous and repent; leaves entire, cordate or reniform, sheathing at the base, often pubescent; peduncles axillary; umbell 3 to 6-flowered, frequently proliferous, trifid; flowers without bractes, subimbricated in a lateral row. Episperm thick and indurated, almost nuciform.

SPECIES. 1. *G. repanda*. Leaves rounded-cordate, angularly repand, and truncate at the base; petioles, peduncles, and younger leaves pilose; umbell pedunculate, mostly 3-flowered.

Hydrocotyle repanda. PERSOON.

Obs. Petiole often very long (4 to 6 inches,) on the flagellate stolons scarcely half an inch, pubescence at length deciduous. Flowers white. Stamina shorter than the petals, anthers brown. Grooves of the fruit marked with interrupted, secondary, (or internal) lines. **HAB.** On the dry margins of ponds and rivulets in South Carolina and Georgia.

To this genus appertains *Hydrocotyle triflora* of Peru, *H. asiatica* of India, and probably *H. Sibthorpicides*, and *H. Ficaroides* of the Isle of France.

257. *CRANTZIA. †

Umbell simple.—*Calix* none. *Petals* entire, roundish, and obtuse. *Styles* minute, stigmas obtuse. *Fruit* subglobose; commissure excavated, nearly orbicular. *Seeds* unequal in size,

† From γλυκερός, sweet; the whole plant possessing a saccharine taste.

‡ In memory of Professor Crantz the celebrated author of a monograph on the umbelliferous plants. The genus previously so named by Vahl having been referred to *Tricera*.

each with 3 margined dorsal ribs, and 4 obtuse-angled grooves.—*Involucrum* about 5-leaved.

A small succulent, repent plant; peduncles axillary, umbell many-flowered; leaves sessile, cuneate-linear, with 5 transverse nerves (or dissepiments.) Nearly allied to *Zorella*, but of a very different habit.

C. lineata. Hydrocotyle lineata. Mich. 1. p. 162. *H. sinensis?* L.

DESCRIPT. Stem creeping, terete, filiform. Leaves 2 or 3 lines wide, and about 2 inches long, succulent, smooth, erect, cuneate-linear, obtuse and sessile, each marked with 5, rarely 6, transverse lines, approximating upwards, longitudinal vessels obsolete. Umbells simple, solitary, axillary, 8 to 12 flowered, peduncles a little longer than the leaves. *Involucrum* 5, rarely 6-leaved. Flowers pedicellate, uniform; calix marginal or obsolete; petals roundish-oval, obtuse, rosaceous. Stamens much shorter than the petals; anthers roundish. Styles very short, recurved, each with an elevated roundish base, forming almost half the germ, which thus appears as if cut round, about the middle. Fruit nearly spherical; commissure (or interior surface of junction) suborbicular, and depressed, with a thick suberose, connivent margin. Seeds convex, unequal, one of them often abortive? internally concave, having 3 margined dorsal ribs or elevated lines, exclusive of the commissure; intervals smooth.

HAB. From New Jersey to Florida, in salt marshes? (Abundant near Egg-harbour, New Jersey, in a salt-marsh with *Limnetis juncea*, &c.) Flowering time, from May to September.

To this genus probably appertains *Hydrocotyle linifolia*, and *H. virgata*, which are certainly distinct from the present species, considered, however, the same with *H. sinensis* by the editor of Rees' Cyclopaedia: see *Hydrocotyle*.

258. SANICULA. L. (Sanicle.)

Umbell nearly simple, capitate.—*Calix* 5-parted. *Petals* and *stamina* inflected. *Fruit* muricated, with uncinat setæ. *Flowers* of the disk numerous, abortive.

Imperfectly umbelliferous: radii or branches 3 or 4 unequal, lateral ones ternately subdivided, subbracteate; partial umbells crowded, hemispherical, male flowers numerous, pedunculate, unarmed; hermaphrodite 1 to 4,

central, sessile; involucll multipartite. Styles filiform, simple. Leaves digitate. (Character taken from *S. marylandica*; in *S. Europæa*, the central flowers are masculine.)

SPECIES. 1. *S. marylandica*. 2. *canadensis*. Both species grow in the vicinity of Philadelphia.

Of this genus there are but 2 other species at present enumerated by Persoon; viz. *S. europæa*, and *S. crithmifolia*, of Russia.

259. DAUCUS. L. (Carrot.)

Fruit oblong, partly solid, ribs ciliated with hispid hairs or barbed bristles. *Involuclrum* pinnatifid.

Umbell many-rayed, while in flower flat, in fruit partly contracted into the form of a funnel. Petals cordately inflected; 5 primary ridges of the seed scarcely prominent, nearly smooth; 4 secondary muricate.

SPECIES. 1. *D. carota*. Commonly naturalized. 2. *pusillus*. Probably only a variety of *D. carota*.

The genus *Daucus*, now containing 15 or 16 species, exists exclusively in Barbary and the south of Europe, excepting *D. copticus* of Egypt.

260. AMMI. L. (Bishop's-weed.)

Flowers radiated, all hermaphrodite. *Petals* cordately inflected. "Fruit oblong, corticate, angular, ridges 5, obtuse, intervals convex." SPRENGEL.† *Involuclrum* pinnatifid.

Somewhat allied to *Daucus* in habit; umbell loose, subdivaricate.

SPECIES. 1. *A. capillaceum*. ☉ About 1 foot high. Leaves almost capillary divided, smooth, bipinnatifid, pinnae trifid or unequally bifid; peduncle of the umbell 4 to 8 inches long, angularly grooved. Umbell spreading, unequal, 4, 6, or 8-rayed. *Involuclrum* about 3-leaved, leaves simple or trifid. Umbellet about 4, 6, or 8-flowered, central peduncles as well as pedicells being the shortest. *Involucll* consisting mostly of one trifid leaf. Calix minute, 5-toothed. Petals oval, entire, with the points inflected, white. Style very minute, with the base elevated. Fruit partly globose and solid, somewhat ovate, or pointed above, smooth. Seed roundish-ovate, membranaceously

† Plantarum umbelliferarum denuo disponendarum Prodromus, auctore Curtio Sprengel, &c. 1815.

corticate, very convex, with a thick margin, and three primary, whitish, and somewhat acute ridges, intervals convex.—The 2 other primary ridges of the 5 are confluent in the suberose margin, but can still be distinguished from it.

In open swamps from New York to Georgia. Plentiful in New Jersey, near to Philadelphia. The habit of this plant is that of *Aethusa*.

This small genus of about 6 species, is with the present exception, confined to the south of Europe, Barbary and the Levant.

261. CONIUM. L. (Hemlock.)

Calix entire. *Petals* unequal, cordately-imbicte. *Fruit* ovate, gibbous. *Seeds* 5-ribbed, ribs at first crenate; intervals flat. *Involucell* on one side, mostly 3-leaved.

Involucrum 3 to 5-leaved, leaves complicately pseudo-pinnate.

SPECIES. 1. *C. maculatum*. Fruit ovate, smooth and gibbous; stem spotted. *♀*. **crispatum*. Leaves crisp, ultimate segments subsetaceous acuminate.—Rather rare; chiefly on inhabited sites, and therefore probably introduced, but altered by climate? A well known poisonous plant at present used in medicine.

Of this genus there are not probably more than 2 genuine species, and those indigenous to Europe.

262. SELINUM. L. (Marsh Parsley.)

“*Fruit* roundish, emarginate at the base, margin alated, dorsal ridges 3, obsolete, intervals somewhat convex. *Involucrum* universal and partial many-leaved.” SPRENGEL.

SPECIES. *S. canadense*. *Ferula canadensis?* L.

An European genus, excepting the above species, which requires further examination.

263. IMPERATORIA. L. (Masterwort.)

“*Fruit* roundish-oval, a little compressed, emarginate at the base, ridges (on each seed) 3 dorsal, obtuse, intervals flatly convex, margin alated. *Involucrum* universal none.” SPRENGEL.

Leaves ternate; (involucellum in *I. ostruthium* 1 or 2-leaved, minute.)

SPECIES. 1. *I. lucida*. SP. *Angelica lucida*. L. *Selinum canadense?* Mich.

The plant quite smooth, and scarcely inferior in size to *Heracleum Sphondylium*. Leaves primarily 3-parted, and decomposed, the segments confluent in 5's, of which the more complete are oblong-ovate, acute, mucronately and deeply serrate; sheaths remarkably large and ventricose, towards the summit of the stem nothing is produced but these large and membranaceous sheaths, and no other kind of involucrum; the flowering umbell consisting of many rays is so dense as to appear nearly hemispherical; partial involucrum minute and setaceous; flowers white and regular; with the seed I am unacquainted; advanced germ truncated, roundish, somewhat gibbous and compressed, slightly striated. Whether this be Sprengel's plant or not, I have not the means of ascertaining, being unacquainted with the mature fruit, in the absence of which the definition becomes an insolvable riddle.

A genus now, according to Sprengel, including 6 species, chiefly separated from *Angelica* and *Selinum*.

264. HERACLEUM. L. (Cow-Parasnip.)

Calix nearly entire. *Petals* emarginately inflected, often of 2 forms. *Fruit* elliptic, dorsally compressed, flat, apex emarginate, margin membranaceous. *Seed* with 3 striæ, "intervals maculate half way down,—commissure flat, bima-
culate." SPRENGEL.—*Involucrum* none.

Umbell and umbellet many-rayed; involucell 3 to 7-leaved, outer leaves longer; central flowers sometimes abortive, radial ones in *H. angustifolium* not differently formed.

SPECIES. 1. *H. lanatum*. A genuine species, and scarcely distinct from *H. Sphondylium*. 2. **Sphondylium*. On the banks of the river Missouri. Inner part of the young stems eaten by the savages of Columbia river.

Chiefly an European genus, of about 16 species.

265. PEUCEDANUM. L. (Sulphur-wort.)

Calix minute, 5-toothed. *Petals* oblong, incurved, equal. *Fruit* oval, dorsally and flatly

compressed, surrounded with an alated margin, striated, striæ 5 on each seed; intervals elevated, lined; commissure flat.

Involucrum few-leaved, very short, rarely 1 to 5-leaved; involucell many-leaved, shorter; flowers mostly yellow.

SPECIES. 1. *P. *ternatum*. Leaves all ternate, upon very long common petioles; partial leaves entire, long, linear, acute, and attenuated below; involucrum nearly wanting; involucell very short, 5 or 6-leaved; fruit oblong-elliptic.

DESCRIPT. Perennial. Every where smooth. Stem 3 feet high, striate and slender. Leaves very few, 5 or 6; peduncle of the lowest near 2 feet long! dividing above into 3 linear leaves, either petiolated or filiformly attenuated downwards, from 4 to 6 or 8 inches long, perfectly entire, and scarcely 3 lines wide. Umbells 1 or 2, terminal; involucrum none, or 1 or 2 minute leaves, radii elongated, 6 to 9. Segments of the involucell subulate, 2 or 3 lines long; pedicells filiform more than an inch. Flowers —? Calix marginal, entire, or none. Styles short, reflected; fungous base elevated. Mature seed oblong-elliptic, large as that of a parsnip, flatly compressed, but convexly incurved, surrounded with a thick, alated fungous white margin, continued internally entirely over the commissure. Seed thin, longitudinally scored with 5 equidistant paler lines, and 5 dark striated intervals.

HAB. On the bushy margins of swamps, in the pine-forests of North and South Carolina. I have not seen the flower.

Of this genus there are in Europe about 4 species, 2 at the Cape of Good Hope, 1 in Japan, 1 in the Canary islands, 1 in Crete, and a heteromorphous species in New Zealand.

266. FERULA. L.

Calix entire, or minute. *Petals* oblong, subequal. *Fruit* suboval, dorsally compressed, flat and marginated. *Seeds* marked with 3 dorsal lines; "intervals and commissure striate."

SP.—Universal involucrum caducous; involucell many-leaved.

Stems for the most part very tall; umbell and umbellet globose, many-rayed, many lateral umbells growing from one terminal peduncle; leaves complicately pseudo-pinnate.

SPECIES. 1. *F. villosa*. An active poison. 2. **faniculacea*. Stemless and pubescent; leaves radical, supradecomposed, subternately † pseudo-pinnate, primary divisions decussating at the base, segments rather short, narrow-linear and subacute, ultimate lacinate trifid; involucre none; involucell dimidiate, membranaceous, 5 to 7 lobed; flowers yellow.

DESCRIPT. Root perennial, fusiform. Leaves partly resembling those of the Carrot (*Daucus Carota*) but more numerous divided, and with shorter segments. Scape about 1 foot high, grooved and smooth, bearing a single umbell. External rays about 5, 10 to 15 lines long, with several internal ones which are abortive. Involucell on one side, consisting of a single membranaceous lobed leaf nearly equal with the flowering umbellet; peduncles short. Calix minute, 5-toothed. Petals yellow, equal, oval, involute. Styles long and persistent; stigmas capitate. Fruit compressed, suborbiculate-elliptic, surrounded with an alated margin, on either side slenderly striate; striae 5. 3 more conspicuous than the rest; commissure flat, naked, the marginal membrane of the seed, not extending over the centre. The seeds somewhat resemble those of *Pastinaca sativa* and are nearly as large.

Allied to *Pastinaca*. **HAB.** On the high plains of the Missouri, commencing about the confluence of the river Jauke. Flowering in April and May. This species possesses somewhat the scent of Fennel.

3. *nudicaule*. Nearly stemless, smooth and somewhat glaucous; leaves supradecomposed, subternately pseudo-pinnate, primary divisions decussating at the base, segments confluent, narrow-linear and acute; ultimate lacinae irregularly subtrifid; involucre none; involucell dimidiate, membranaceous, 7 to 9-parted; flowers white.

Smyrniun nudicaule. Pursh, Flor. Am. 1. p. 196. *v. s.* under this name in Herb. Lambert.

Obs. Nearly allied to the preceding, but producing a minute stem or elevated caudex; in this also the segments

† This word, which will be hereafter used, is analogous to pinnate of others; though, strictly speaking, there is not perhaps a single instance of this kind of leaf in the whole order of the **UMBELLATE**. A true pinnate leaf, has the partial leaves or leaflets articulated to the common midrib, from whence they are spontaneously soluble at the period of defoliation; such are the leaves of *Fraxinus*, *Robinia*, *Anorpha*, *Bignonia*, &c. On the other hand, the pseudo-pinnate leaves are always more or less confluent at their extremities.

of the involucll are more numerous, acuminated, and divided down to the base; the seeds are elliptic-ovate, surrounded with a narrower margin; the petals white, oblong and involute at the point — **HAB.** With the above; also on the plains of the Columbia river. *M. Lewis.* Flowering in April. Both these species exude a resinous aromatic gum on incision, and also spontaneously in minute quantities. I have been induced to refer these 2 plants to this genus rather than any other with which I am acquainted, though they differ considerably in habit, but agree with the *Ferula pumila* of Pallas, indigenous to Siberia.

267. PASTINACA. L. (Parsnip.)

Fruit oval, apex emarginate, flatly (and dorsally) compressed, marginated, ridges (on each seed) 5, obsolete, intervals striate, commissure also bistriate. *Involucrum* universal and partial, none. **SPRENGEL.**

Flowers yellow; leaves pinnate. *P. sativa* sometimes produces involucells.

SPECIES. 1. *P. sativa.* $\beta.$ *arvensis.* In Pennsylvania.

A genus of about 5 species, indigenous to Europe and the Levant.

268. THAPSIA. L.

“*Fruit* sublinear, ecostate; (seed) 4-winged, wings 2 dorsal and 2 marginal. *Involucrum* none.” **SPRENGEL.**

Petals entire incurved; flowers yellow or white; leaves twice or thrice pseudo-pinnate.

SPECIES. 1. *T. *glomerata.* Nearly stemless; leaves smooth and flat, cruciately subbipinnatifid, segments linear-oblong, obtuse, ultimate lobes confluent, subtrifid; umbells polygamous, shorter than the leaves; involucrum none; involucll dimidiate; flowers numerous, subsessile.

Silinum acule, Pursh, 2. p. 732, in Suppl. v. s. in Herb. Lambert, under this name.

DESCRIPT. Root tuberous, perennial. Plant smooth, very low, almost stemless and depressed, sending up several stalks from the same root; stem simple, or subdivided from the base, subdecumbent, only 4 to 6 inches high. Leaves partly opposite, subbiterately divided, lobes short and obtuse, decussating at the base; petiole as long as

the lamina, and nearly the length of the peduncle. Involucrum none. Radii 4 to 6, very short; (so as to render the umbell in appearance simple or conglomerate.) Involucell 5 to 7 parted, on one side, segments lanceolate. Central flowers of the umbellet pedunculate, small and masculine; fertile flowers white, equal, subsessile, scarcely longer than the involucell. Petals roundish oval, apex inflected. Calix minute, 5-toothed. Styles filiform, persistent. Fruit large, subelliptic and compressed, with 7 or 8 conspicuously alated ridges. Perfect seed sublinear, with 4 secondary wings, imperfect with 3. Alæ undulated, intervals flat, commissure naked, (the margin not extending to the centre, so as to cover the seed) marked with 3 nearly central longitudinal lines. Axis inseparable from the fruit!—*НAB.* On the open plains of the Missouri, commencing 40 miles below the confluence of White river. Flowering time May and June.

A genus of 6 or 7 species, indigenous to the south of Europe and Northern Africa.

269. *LIGUSTICUM*. L. (Lovage.)

Fruit oblong, corticate. *Seed* "with 5 acute ridges and 4 grooves."† *JUSSIEU*. *SPRENGEL*: "*Involucrum* universal and partial, many-leaved." *SP.*

Leaves decomposed, for the most part ternately divided. Calix often 5-toothed?

SPECIES. 1. *L. scoticum*. In Canada.

Almost exclusively an European genus.

270. *ANGELICA*. L.

"*Fruit* elliptic, compressed, somewhat solid, and corticate, ridges 3, dorsal acute, intervals grooved, margin alated. *Involucrum* universal none." *SPRENGEL*.

† Many authors describe the seed, as having 5 grooves, which is impossible in the nature of umbelliferous seeds, as they are all referrible to a structure of 5 *primary* ridges, viz. 1 dorsal, 2 lateral, and 2 marginal; when inlaid with *secondary* ridges the grooves are either obliterated, or produced comparatively by the depression or obliteration of the primary elevations; as these never exceed 4, so the intervening grooves, must ever be 3 or 4, or if the grooves were double, their number would be 6 or 8, but never 5.

Umbell large, many-rayed, spreading; umbellet dense, subhemispheric; involucl about 8-leaved. Leaves large, often biternately pseudo-pinnate. (Seed with longitudinal alated margins, extending internally over the whole surface of the commissure in *A. triquinata*.) Calix 5-toothed; petals inflected.

SPECIES. 1. *A. triquinata*. OES. Leaves sharply and incisely serrate, very smooth, lateral leaflets oblong-ovate. Involucrum none. Peduncle, pedicell, and immature seed, minutely pubescent. Involucl 7 or 8-leaved, leaves almost filiform and subulate, longer on one side. Umbellet unequal, dense; flowers white. Petals oval, obcordately-inflected, inflected point long and subulate. Styles long and deflected. Seeds roundish-elliptic, dorsally compressed; margin alated, ancipital; dorsal or approximating ridges 3, acutely margined, almost rectilinear.—HAB. From Canada to Carolina. Common around Philadelphia. Certainly a genuine species, and admirably according with the improved generic character of the ingenious Sprengel.

2. *atropurpurea*. 3. *lucida*.

Of this genus there are about 8 species enumerated, which, excepting the above, are all indigenous to Europe.

271. SIUM. L. (Water-Parsnep.)

Calix obsolete. *Petals* cordately inflected. *Fruit* subovate, laterally compressed, and striate.

Involucre and involucl many-leaved; leaves mostly pseudo-pinnate, and serrated on the margin. Styles rather long, persistent and deflected; stigmas capitate. Fruit small; oblong or oval, laterally or obversely compressed, giving a narrow oblong commissure. Seed ovate, gibbously convex, equally scored with 5 elevated ridges, and 4 intervening grooves. (Character from *Sium latifolium*, as it appears in America.) Nearly allied to *Carum*, which produces an involucrum of a single leaf.

SPECIES. 1. *S. latifolium*. (Calix obsolete, and not 5-toothed in the American plant.)

2. *lineare*. Stem deeply grooved; leaves pseudo-pinnate, 2 to 4 pair; uppermost ternate, terminal leaflet petiolate; leaflets long, sublanceolate-linear, margin subciliate-serrate, serratures nearly equal, small and sometimes rather distant, umbells terminal, (involucre and involucl many-leaved.)—OBS. Stem various in height, generally tall; in the smaller plants, the serratures

(which are always mucronate) are nearly equal and elegantly approximate. Leaflets from 2 to 7 or 8 inches long; not more than 2 to 4 lines wide, attenuated at both extremities. Involucre of few or many leaves (6 to 12) according to the magnitude of the plant, segments acuminate, entire or lacinate. Flowers white; petals cordately inflected. Calix obsolete. Styles long, persistent and deflected, having capitate stigmas (after the manner of the genus?) Fruit small, oval, laterally compressed, so as to produce a narrow commissure. Seed partly ovate, with 5 equal ridges and 4 intermediate grooves.

This plant is unquestionably the *S. longifolium* of Pursh, Flor. Am. 1. p. 194. and also *S. tenuifolium* of Muhlenberg's Catalogue, as I have examined a specimen which he had so named.

Of this genus there are 9 genuine species in Europe (1 in Greece with yellow flowers); 7 at the Cape of Good Hope; 2 in Japan, and 1 in China, 1 or 2 in North Africa. Few of them probably accord with the European and North American part of the genus.

272. SISON. *L.* (Hone-wort.)

“Fruit ovate, solid, (seed) dorsally tricositate, intervals convex, contracted at the sides (laterally compressed); commissure excavated. Involucrum few-leaved or none.” SPRENGEL.

Involucrum 3 or 4 leaved or wanting; umbellets slender, few flowered, involucell about 4-leaved. Leaves ternate or pseudo-pinnate, often with the ultimate segments trifid.

SPECIES. 1. *S. pusillum*. *Ligusticum pusillum*. Persoon's Synopsis, 1. p. 315. *Ethusa divaricata?* SP. Probably a *Bunium?* 2. *trifoliatum*. 3. *marginatum*. *Sium rigidius?*

273. *ERIGENIA.†

Calix none. *Corolla* uniform. *Petals* obovate, spreading, entire. *Styles* persistent, subulate, very long. *Fruit* oval, somewhat laterally com-

† From ἠριγένεια, a name of *Aurora*, the harbinger of day or of the spring, as derived from ἔαρ, or ηρ, the spring, and γίγνομαι, *I exist*, or *come forth*. This plant is so called in allusion to its early appearance in the spring; being the first conspicuous flowering plant in the United States, blooming often amidst the snow, about the 12th or 15th of March.

pressed. *Seed* gibbously convex, marked with 3 striæ; commissure narrow, immarginate, flat. *Involucrum* none.

Umbell imperfect; umbellulæ about 4, 3 to 5-flowered; involucll unequal, 3 to 5 or 6-parted; leaf solitary, radical, biternate, segments multifid; scapes furnishing a con-similar involuclrate leaf; flowers stellate; root a globular tuber.

F. bulbosa.

Sison bulbosum, Mich. 1. p. 169. *Hydrocotyle composita*. Pursh, Flor. Am. 1. p. 190. *H. ambigua*, of the same, 2. p. 732. *H. bipinnata*. Muhlenberg's Catalogue.

Obs. Caudex ascendant, about an inch high. Leaf solitary, emitting 2 and sometimes 3 scapes from its sheath; lamina biternately divided, partitions subternate; segments subrhomboidal, cleft, ultimate lobes trifid, obtuse, with minute points. Scapes round, 4 to 5 inches high, terminating in an irregular umbell of 3 or 4 rays, subtended at the base by a sessile ternate leaf subdivided similarly to that of the root. Leaves of the involucll entire, simple, linear-oblong. Flowers white, stellately expanding. Petals obovate-oblong, or attenuated downwards so as to appear unguiculate. Calix obsolete, marginal. Stamina, filaments erect, exerted longer than the petals, anthers oval, deep brown. Styles subulate, persistent, twice the length of the germ; stigmas obsolete. Germ turbinate, laterally compressed, truncated above. Seed gibbously convex, marked with 3 curved lines, (my specimens were not sufficiently advanced to determine the ultimate character of the seed) 2 lateral and 1 dorsal, the margin of the commissure being inconspicuous and forming nearly a right line.

HAB. In shady alluvial soils, subject to inundation. Near Lancaster, Pennsylvania; near Pittsburgh; on the Ohio, Missouri, Tennessee, &c.

Of this genus there are probably 2 species, but the second has not been indicated; Mr. Pursh's *Hydrocotyle ambigua* I have now before me, which is unquestionably the plant described by Michaux under *Sison*, and which he himself has also given as *H. composita*. A second species? of which I have merely an accurate drawing made by C. W. Short, M.D. from a living specimen found on the banks of Kentucky river the 15th of March, has to all appearance leaves which are simply ternate, with the divisions 3-parted, the lobes subrhomboidal with dentures which are a little cleft. And although the specimen ap-

pears to have been very complete, and collected also by a botanist, I dare not for the present announce it as a distinct species. This genus appears to be somewhat allied to *Sison*, but certainly distinct. To *Hydrocotyle* it can have no pretensions.

274. **CENANTHE. L.** (Water Dropwort, *Filipendula*.)

“*Fruit* ovate-oblong, corticate, solid, apex denticulate, crowned with the persistent style, ridges (or striæ) (on each seed) 3 or 5 obtuse. Universal involucre scarcely any.” SPRENGEL.

Umbell formed of few rays; umbellets subglobose, with the flowers often sessile. Involucell many-leaved. Poisonous plants, mostly aquatic, having roots with pendulous tubers, fistulous striated stems, and pseudo-pinnated leaves, commonly twice compounded near the root, often lacinated, segments mostly entire on the margin.

SPECIES. 1. *C. carolinensis*. + 2. *Phellandrium*. Lam. Decandolle. *Phellandrium aquaticum*. L. HAB. On the Rocky Mountains? PH. 3. *rigida*. Leaves all? pseudo-pinnate; leaflets sessile, oblong-lanceolate, entire or incisely toothed; involucre none; styles peltately dilated at the base, extremely short; fruit subelliptic. OBS. Stem erect, rigid, terete, even, striate, and fistulous. Leaflets 4 or 5 pair, all sessile, circumscribed by a whitish and somewhat scabrous margin. Involucell about 8-leaved, subulate. Calix 5-toothed, acute. Petals cordately inflected; many of the central sessile flowers sterile. Styles persistent, peltately dilated at the base, scarcely a line in length, divaricate, obtuse or rather truncate, and distinctly grooved on the upper side. Fruit elliptic-ovate, dorsally compressed, flat, (as in *Pastinaca sativa*.) Seeds rather large, with a suberose prominent subalated margin continued inwards so as to cover the seed, slenderly striated on the back; striæ 5.

Sium rigidius. Willd. sp. pl. 1. p. 1433 Pursh, Flor. Am. 1. p. 194. Probably *Sison marginatum*. Mich. Fl. Am. 1. p. 163.

3. **ambigua*. Stem even, with few leaves; leaves all pseudo-pinnate, leaflets three to five pair; narrow-linear, long and entire, all sessile and acute, under side glaucous; involucre 2 or 3-leaved; umbells terminal, nearly solitary. OBS. Root perennial, tuberous? Stem tall, smooth, striate, fistulous and cylindric. Leaves distant, with small sheaths, only about 4 or 5 on the whole

stem; leaflets 5 or 6 inches long, and about 2 lines wide, thickish, perfectly entire, or now and then, but rarely, bifid, circumscribed by a white and somewhat scabrous margin. Umbell rather small, with elongated rays. Umbellets roundish, with sessile abortive flowers, involucl many-leaved, filiform-subulate. Calix distinct, 5-toothed. Petals cordately-inflected. Styles very short, peltately dilated at the base. Fruit smooth, flat, and subelliptic.— Nearly allied to the preceding species, and probably to *Æ. peucedanifolia* of Europe. **HAB.** On the marshy banks of the Delaware, near Philadelphia. My friend Z. Collins, Esq. informs me, that this plant attains the height of 6 to 10 feet in the marshes of New Jersey, and that the lower leaves are extremely long and furnished with numerous leaflets, uniformly narrow like those of the Delaware plant.—These 2 species do not well accord with the genus, and appear allied somewhat to *Peucedanum*, by the flatness of the seeds. I am satisfied that the celebrated Sprengel could not possibly have referred our *Æ. rigidius* to his genus *Sium*; one of us must be in an error as to the identity of the plant.

Of this noxious genus there are about 12 species in Europe, 1 in Barbary, 1 in tropical America (*Huanaca acutilis*, Cav.) 6 at the Cape of Good Hope. According to Persoon the tuberous roots of *Æ. peucedanifolia* are eaten by children in some parts of France.

275. *ÆTHUSA*. L. (Fool's-parsley.)

“Fruit ovate, somewhat solid, corticate, ridges (on each seed) 5, acute and turgid, intervals acute-angular, commissure flat, striate. *Involucrum* 1-sided or wanting.” SPRENGEL.

Leaves ternately divided, slender and compoundly dissected.

SPECIES. 1. *Æ. divaricata*. SP. **Obs.** Annual; stem erect and slender; leaves biternate, segments narrow and linear; umbells terminal without either partial or general involuclum; umbellets 3 to 5-flowered, flowers white, fruit subglobose, somewhat hispid. *v. s.* in the herbarium of Z. Collins, Esq. but not sufficiently advanced to ascertain the ultimate character of the seed. Is it not rather a *Bunium*? (*Ammi divaricatum*. Persoon. *Daucus*. Walter.) In Carolina. 2. *leptophylla*? SP. Leaves biternately dissected, margin of the acute segments entire; umbell trifid, sessile, umbellets naked, few-flowered. *Pimpinella leptophylla*? Persoon, 1. p. 324. **HAB.** In the

vicinity of New Orleans, from whence it was accidentally imported to Philadelphia, in a box of earth, with other plants, by Mr. R. E. Griffiths who favoured me with living specimens.

DESCRIPT. Root slender, fusiform, annual. Stem nearly simple, or dividing into 2 or 3 branches towards the base or the middle, smooth, even and slender, about a foot high, and nearly floriferous from the base. Leaves rather distant, petiolate, having small membranaceous abrupt sheaths, larger leaves subternately divided, ultimate segments bifid and trifid, very smooth, linear and acute. Umbell entirely sessile, arising from the sheath of the leaf on the opposite side of the stem, bifid or trifid without any vestige of a proper general or partial involucrem. Umbellet 10, 12 to 15-flowered, more or less; pedicells short. Calix none. Petals subovate, acute, erect, equal and entire, with the points a little incurved, externally rosaceous, within whitish. Styles not visible, stigmas in all stages like so many subcapitate sessile points. Stamina shorter than the corolla, anthers purplish. Fruit roundish-ovate, corticate, and laterally subcompressed; commissure flat and striate, oblong-elliptic. Seed greenish-grey, scarcely larger than that of Mignonette, gibbously convex, scored with 5 converging, angular and turgid ridges; intervals acute-angular, and striate. Sensible properties and structure of the seed not very dissimilar to that of *Cicuta maculata*, the primary ridges are, however, less obtuse and interlaid with striæ not with tubercular granulations.

276. **CICUTA. L.** (Water-Hemlock, Water-Cowbane.)

Fruit corticate, roundish, and laterally compressed; commissure oblong-elliptic, flat. *Seed* gibbously convex, scored with 5 converging obtuse ridges, and 4 intermediate tuberculate grooves.

General involucrem wanting, or at most of 1 or 2 leaves; partial involucrem 5 or 6-leaved. Flowers regular. Calix obsolete, 5-toothed. Petals cordately-inflected. Styles persistent, spreading; stigmas subcapitate. Leaves biternate, serrated. Poisonous plants.

SPECIES. 1. *C. maculata*. **Obs.** Lower leaves ternate, with the partitions unequally 5-leaved; upper ones simply biternate, floral leaves ternate, leaflets lanceolate, almost

perpendicularly serrate, serratures mucronate, lateral leaflets oblique at the base. Umbells axillary and terminal. Involucrum of 1 or 2 minute leaves, but mostly wanting. Involucell 5 and sometimes 6-leaved, acuminate. Umbellets numerous, many-flowered. Calix acute. Seeds agreeably aromatic, with paler coloured ridges, and a suberose epispem, intervals tuberculate. **HAB.** Abundant around Philadelphia, in the marshes of the Delaware.

2. *bulbifera*. Leaves various; in bulbiferous stems biterminate and very thin, in bulbiferous and umbelliferous stems simply ternate, leaflets thicker, upon shorter peduncles, linear sublanceolate, lacerately serrate; umbell terminal, solitary, lateral branchlets bulbiferous. **Obs.** Stem low, smooth, simple or trichotomous. Leaves in infertile bulbiferous stems, more compound and slender, with very long petioles, ultimate divisions sublanceolate-linear, with very few serratures, in fertile stems the leaves have very short petioles, petioles of the leaflets more than an inch long. Primary umbell often opposite a leaf, the rest solitary, terminal; lateral branchlets short and bulbiferous, bulbs ovate axillary, covered by the dilated sheaths of the leaves, often approximating so as to appear oppositely imbricated, but where more distant, distinctly alternate. General involucrum of the umbell 1 or 2-leaved, partial about 5-leaved. **HAB.** On the banks of the Delaware near Philadelphia; but rare. A genuine species, the fruit scarcely distinguishable from that of *C. maculata*.

Of this genus there are but 3 species, the 3d. *C. virosa*, is indigenous to Europe.

277. **MYRRHIS.** *Morison.* (Chervil.)

“Fruit sublinear, solid and angular, ridges a little acute, apex attenuated or crowned with the style. Universal involucrum none.”

SPRENGEL.

SPECIES. 1. *M. canadensis.* (*Sison canadense.* L.)

Leaves ternate, leaflets ovate-acute, incisely and doubly serrate, peduncles by pairs; umbells small and unequal.

2. *bifida.* Muhl. **SPR.**

A genus of 16 species, according to Sprengel, chiefly indigenous to Europe.

278. * **URASPERMUM.** † **MYRRHIS.** *Michaux.*

Fruit sublinear, solid, acutely angular, caudate, and without striæ; angles subsulcate, his-

† So called from the seed being caudate.

pid; commissure sulcate; receptacular axis semibifid; style subulate, persistent, terminating the fruit. Universal involucre none.

Umbell compound, with 5 or more rays. General involucre wanting. Partial involucre 5-leaved, entire; umbellets many-flowered; masculine florets often double the number of those which are fertile. Calix obsolete. Petals oblong, emarginately inflected. Leaves biterminate, somewhat pseudo-tripinnate, margin incisely-toothed; young plants canescently pilose, at length nearly smooth. Sweet and aromatic, odor anisate; seed tasteless.

SPECIES. 1. *U. Claytoni*. *Scandix Claytoni*, Mich. OBS. Root perennial. Stems about a foot high, striated, always more or less pubescent, but at first of a hoary whiteness. Leaves only about 2 on each stem; ternate, with the subdivisions from 3 to 5-leaved; terminal leaflets rhomboidal, acute, lateral ones more irregular and oblong, sometimes subpinnatifidly lobed, but generally incisely toothed, dentures mostly obtuse with a small point. Umbells axillary and terminal, rays about 5. Involucre wanting, or of 1 or 2 small leaves. Umbellets small, exterior hermaphrodite flowers about 5, males about 10, all pedunculate, peduncles of the male-flowers capillary; involucell 5-leaved, linear-lanceolate, acuminate, soon after flowering deflected. Styles filiform, as long as the germ, erect and divaricate, with inconspicuous stigmas. Germ distinctly villous towards the base. No vestige of a calix. Fruit linear-lanceolate, black and shining, subulate, but without rostrum. Seed caudate, (an inch in length, including the cauda, which is about 3 lines long) acutely quadrangular, without either ribs or striæ; intervals flat and even, cuticle minutely punctate, cauda, and more sparingly the angles of the seed aculeately hispid.—HAB. Near Philadelphia, on the shady banks of the Schuylkill. The whole plant, excepting the seed which is perfectly tasteless, possesses nearly the same sweet and aromatic odor as *Myrrhis odorata*, to which it bears some resemblance.—If *Sison canadense* is to be considered a genuine *Myrrhis*, and *Scandix procumbens* and *S. cerefolium* as examples of *Cherophyllum*, I could not for a moment hesitate to separate from both these genera, the *Myrrhis Claytoni* of Michaux, not however without a suspicion of its affinity to *M. odorata*.

279. CHÆROPHYLLUM. L.

“*Fruit* oblong-linear, terete, ecostate, glabrous, commissure sulcate.” SPRENGEL.

Universal involucre none. Leaves pseudo-tripinnate, or bipinnate, ultimate segments divaricate, variously and incisely lobed or toothed.

SPECIES. 1. *C. procumbens*. OBS. Young stems, and particularly the sheaths of the leaves hairy. Umbells opposite the leaves, naked, 3-rayed. Umbellets about 5-flowered; involucell short, about 5-leaved, ovate, erect. Flowers all fertile; petals oblong-oval, entire, scarcely inflected. Styles very minute. Seeds linear-oblong, 3 or 4 lines long, brownish, even, very smooth and distinctly lined; striæ 5, intervals angularly elevated. HAB. Near Philadelphia, on the banks of the Schuylkill. Leaves somewhat resembling *Daucus Carota*.

A genus now including scarcely more than 5 or 6 species, indigenous to Europe, America, and Barbary.

280. SESELI. L. (Meadow-Saxifrage.)

“*Fruit* ovate-lanceolate, solid, (seed) 5-ribbed, ridges somewhat obtuse, intervals partly grooved. Universal involucre none; partial many-leaved.” SPRENGEL.

Partial involucre 3 to 5-leaved, small; umbells subglobose, often rather rigid. Leaves simply or doubly pseudo-pinnate, segments linear.

SPECIES. 1. *S. triternatum*. PH. + 2. *divaricatum*. PH. Stem short, procumbent, branched; leaves subopposite, shining, short and bipinnatifid, segments toothed, terminal ones obtusely tridentate, petiole decurrent in the alated midrib; umbells upon long peduncles, hemispherical, dichotomal and terminal; involucre none, involucell about 5-leaved, lanceolate, unilateral; flowers yellow.—OBS. Root perennial. Proper stem procumbent, divided from the base, scarcely 4 inches long, angularly grooved. Leaves all, except the radical ones, opposite, 3 or 4 inches long, partly with an ovate outline, flat and shining, secondary divisions about 3 pair, pinnatifid, segments 2 to 4 lines long, obtuse, and toothed, each terminating in 3 nearly equal dentures; teeth with minute points; petiole confluent in the alated midrib. Peduncles naked, rigid, 4 or 5 inches long, nearly of equal thickness with the stem. Umbell naked, roundish, 18 to 20-rayed; rays thick

and unequal, 5 to 8 lines long. Umbellets crowded, more or less, 20-flowered, of which the half are abortive; involucl 5-leaved, lanceolate-acuminate, membranaceous, unilateral, a little shorter than the flowering umbell. Calix 5-toothed, acute, distinct. Petals oval acuminate, involute, yellow. Styles filiform, divaricate. Fruit oblong-ovate, angularly striate; about the size of Caraway seeds. HAB. On the arid and denudated plains of the Missouri, commencing about 30 miles below the confluence of White river. Flowering in May.—*S. lucidum*. T. N. in Fraser's Catalogue, 1813. It appears to be allied to *Smyrniun*, but of a very different habit, and the fruit accords with this genus.

281. SMYRNIUM. L. (Alexanders.)

Fruit roundish and solid, somewhat laterally compressed, angularly ribbed. *Seed* (blackish), gibbously convex, marked with 3 angular elevations.

Flowers yellow, in the centre of the umbell abortive. Calix obsolete; petals incurved, acuminate. Involucre always and involucl mostly wanting. Stem leaves simple pseudo-ternate or biternate.

SPECIES. 1. *S. integerrimum*. **Obs.** Leaflets oval and entire, with a point. Radii of the umbell divaricate, filiform. Involucl 3-leaved or 3-toothed, very small and often deciduous. Calix minutely 5-toothed; petals oblong, acuminate, involute. Styles divaricate, longer than the germ, stigmas subcapitate. Fruit large, about the size of a lentil, suborbicular, laterally compressed, blackish; seed gibbous, angular elevations inconspicuous.

HAB. Chiefly on the principal range of the Alleghany mountains; plentiful in the mountains of Pennsylvania. Flowering in May and June.

2. *S. trifoliatum* Leaves crenate, radical subcordate, uppermost 3-parted; flowers yellow. **Obs.** Involucl 3-leaved, unilateral. Calix 5-toothed. Petals oval, acuminate, involute. Fruit small, blackish, somewhat laterally compressed; seeds gibbous marked with 3 immarginate angular elevations, exclusive of the inner margins; intervals substriate, commissure flat.—*Thapsia trifoliata*, LINN. *Cnidium trifoliatum*, CUSSON. *Smyrniun cordatum*, WALTER. All these synonyms as well as that of Michaux, excepting Walter's, as far as they regard the fruit, evidently apply to some other species, probably to *S. atropurpureum*, or *S. aureum*

A genus indigenous to Europe, Northern Africa and North America.

282. * **THASPIUM.** †

Fruit subelliptic. *Seed* convex with 5 alated ridges, *alæ* subequal; intervals grooved. *Involucre* none. *Involucell* about 3-leaved, unilateral?

Flowers mostly yellow, many of them infertile. Styles divaricate. Calix 5-toothed; petals involute, acuminate. Leaves pseudo-ternate or biternate, radical ones sometimes entire, margin serrated or toothed, rarely entire. Each of the umbells usually coming out opposite a leaf, in some species terminal.

§ 1. *Umbells opposite the leaves; stems nearly simple.*

SPECIES. 1. *T. aureum*. Leaflets ovate-lanceolate, acute, serrate, lateral divisions of the upper leaves subsessile; involucell 3-leaved, unilateral; calix 5-toothed, all the ridges of the seed winged. *Smyrniium aureum*. PH. 2. *atropurpureum*. Leaves serrate, radical often subcordate, uppermost ternate, middle leaflet conspicuously petiolate, leaflets ovate-acute; flowers dark purple. Obs. Radical leaves mostly entire, upon long peduncles; involucell 3-leaved, unilateral, often wanting. Calix 5-toothed, obvious. Petals oblong acuminate, involute, at first greenish. Styles filiform, divaricate, long as the fruit. Fruit small elliptic, with 10 whitish alated ridges.—Leaves often elegantly maculated with angular paler coloured blotches. *Smyrniium atropurpureum*. PH. НАВ. Not uncommon in the vicinity of Philadelphia.

§ 11. *Umbells terminal; stem dichotomous.*

3. *T. barbinode*. *Ligusticum barbinode*, Mich. Fl. Amer. p. 167. Lower leaves subtriterminate, upper biternate; leaflets canate-ovate, acute or acuminate, unequally and incisely serrate, entire towards the base; umbells dichotomous and terminal; involucell subulate, unilateral, 3-leaved; fruit elliptic, 7 of the ridges alternately broader.—Obs. Root perennial. Stem 3 feet high, dichotomous, angular, and grooved, smooth, excepting a minute pubescence at the nodes, common in this and other genera. Leaves smooth, floral ones subopposite, all upon longish petioles, a little scabrous and whitish on the margin, serratures deep,

† From the isle of *Thaspiæ*, which gave name to the *Thapsia* of the ancients, in allusion to its affinity with that genus. It is the *Cnidium* of Casson, a name now more properly employed for another genus.

large, unequal, and acute, commencing usually a little below the middle of the leaflet (leaflets 10 to 15 lines long). Peduncles of the umbells rather short. Involucrum none. Umbellets about 20-flowered, more than half of them abortive. Calix distinct, 5-toothed. Petals deep yellow, acuminate, obliquely involute. Styles persistent, filiform, erect, about twice the length of the petals, with distinct but small stigmas. Fruit nearly as large as that of the parsnip, elliptic in the outline. Seeds elliptic, convex, one of them with 2 broader alated lateral ridges, and the other with one dorsal alated ridge, margins alated, connivent, intervening elevations much lower. Seeds aromatic, and highly camphorated. HAB. On the shady banks of the Schuylkill near Philadelphia. 4. *acuminatum*. Rees' Cyclopaedia, under *Smyrnium*.—In Pennsylvania? 5. *actaeifolium* (*Ligusticum actaeifolium*, Mich. Flor. Am. 1. p. 166.) "involuceil setaceous; fruit oblong-oval, with 10 partly alated ribs; leaflets oval, equidly toothed." Many of the flowers sterile. Involucrum none. †.

††† Flowers incomplete.

933. ATRIPLEX. L. (Orache.)

Flowers polygamous.—Calix 5-parted. Corolla none. Style bifid. Feminine flower; calix 2-parted, compressed. Seed vertical.

Flowers geminate, paniculate; bisexual; masculine and feminine flowers intermixed, or on separate plants; leaves alternate, rarely subopposite. Mostly annual, rarely shrubby.

SPECIES. 1. A. *canescens*. (*Calligonum canescens*, Pursh, Flor. Am. Sept. 2. p. 370.) Dioicous; pulverulently furfuraceous and canescent; stem shrubby, diffuse; leaves linear-oblong, entire, obtuse, attenuated towards the base, younger leaves acute.—Obs. Stem much branched, and diffuse, about 3 or 4 feet high, with round grey branches. Leaves alternate, 15 to 20 lines long, about 3 wide, sometimes cuneate-oblong, obtuse and now and then emarginate, very entire, covered with the white branny scales common to this and the preceding genus. Flowers dioicous, with 4, 5, and 6 stamens, conglomerated towards the ends of the branches; male clusters (at least the lower ones) pedunculate. Calix of the female flowers 2-parted, becoming indurated, acute, with 4 unequal cristated or dentated angles. Style 1, deeply bifid, exerted.

Nearly allied to *A. portulacoides*. HAB. On the denuded saline hills of the Missouri; commencing about 15 miles below the confluence of White river, and continuing to the mountains. Flowering in May.

2. *hortensis*. 3. *putula*. Both of these introduced, now naturalized. 4. *laciniata*.

5. * *argentea*. Stem herbaceous, erect; leaves deltoid, subcordate, somewhat obtuse, entire, on both sides cæscescently furfuraceous and shining; fruit subpedunculate, oval, compressed, and obtuse, margin acutely toothed. OBS. About a foot high and considerably branched. Leaves a little attenuated on the petiole, uppermost subsessile. Fruit axillary, nearly naked on the back. Allied to *A. sibirica*? HAB. On sterile and saline places near the Missouri. ☉

6. * *arenaria*. Stem herbaceous, spreading; leaves very entire, oblong-ovate, subsessile, on the under side argenteous, upper ones acute or acuminate; flowers axillary, glomerate; fruiting calix muricate, dentate, retuse.—OBS. Stem reddish, angular, about a foot high, much branched and spreading, annual. Lowermost leaves often cuneate-oval and very obtuse; uppermost ovate-lanceolate, acutely acuminate, whitish and furfuraceous on both sides, but more particularly on the under; about 10 or 12 lines long, and 5 wide. Male flowers mostly running out into a short glomerate spike at the ends of the branches; female flowers crowded, axillary. Fruiting calix cuneate, or retuse, with a 3 or 4-toothed double margin, disk, or back of the fruit, on either side furnished with 2 short dentated crests or angles not more than half its length. HAB. On the sandy sea-coast of New Jersey. Flowering in August. This plant has long been known to my friend Z. Collins, Esq. as a distinct species.

Chiefly an European genus, the above excepted, with 1 species at the Cape of Good Hope, 1 in Barbary, 1 in Siberia, 2 in Tartary, from whence *A. hortensis* is said to have originated, and 1 in Bengal.

284. CHENOPODIUM. L. (Goosefoot.)

Calix 5-parted, with 5 angles. *Corolla* none. *Style* bifid, (rarely trifid.) *Seed* 1, lenticular, horizontal, covered by the closing calix.

Leaves alternate, often angular in the outline. Flowers glomerate, paniculate.

SPECIES. 1. *C. Bonus Henricus*. I have, as yet, neither seen this plant indigenous nor naturalized, in the United States. 2. *murale*. 3. *album*. 4. *hybridum*. Common around Philadelphia. 5. *Botrys*. Indigenous on the banks of the Missouri and Mississippi. Common in Pennsylvania in gardens and wastes. 6. *ambrosioides*. Much more common around Philadelphia than the following. 7. *anthelminticum*. 8. **subspicatum*. Stem herbaceous, subquadrangular; lower leaves hastate-ovate, bidentate, acute, upper leaves sublanceolate; glomeruli approximate, subspicate, naked. **Obs.** Leaves and stem whitish and somewhat furfuraceous; racemes glomerate, simple, terminal; leaves with a single indention on either side, near the base, which is cuneate. **HAB.** In saline soils around the Mandan village, Missouri.

Chiefly an European genus, occupying wastes and gardens. Of the above species enumerated, as now common in the United States, Nos. 5, 6, 7, and 8, only, are indigenous.

285. SALSOLA. L. (Salt-wort.)

Calix 5-parted, with a capsular base. *Corolla* none. *Style* bifid. *Seed* 1, horizontal, cochleate, covered by the connivent calix. (Fruiting calix in many species surrounded by a membranaceous dorsal margin.)

Stem shrubby or herbaceous; leaves alternate, very rarely opposite, terete or flat, often succulent, sometimes spinescent; flowers terminal or axillary, frequently tribracteate.

SPECIES. 1. *S. Kali*. Herbaceous, decumbent; leaves subulate, canaliculate, spinose; calix marginated, axillary. *β. caroliniana*, leaves dilated, shorter, terete, nerveless, spinose; stem smooth or pubescent; calix with a broader margin. **Obs.** Stem diffusely decumbent; flowers tribracteate, solitary, axillary; calix unequal, in fruit cartilaginous, orbicularly depressed and connivent, with subulate points, segments unequal, 2 much smaller, surrounded with a membranaceous alated dorsal margin, reddish and elegantly veined. Seed cochleate, or resembling a small univalve shell, covered with a membranaceous episperm; perisperm none. **HAB.** On the strand of Egg-Harbour, New Jersey. Certainly, according to the suggestions of Mr. Pursh, a mere variety of *S. Kali*.

2. *salsa*. **Obs.** About a foot high, stem at first nearly simple and erect, with longish succulent linear unarm-

ed and somewhat glaucous leaves; flowering branches at length commencing from the base to the summit, simple and alternate, appearing distichal; floral leaves about one third the length of the others and dilated at the base; axills 3-flowered, lateral flowers tribracteate; bractes very minute, paleaceous. Segments of the calix very unequal, succulent, diaphanous, and dorsally gibbous; inner margin connivent over the seed. Stamina 3, rarely, if ever, 5. Style 1, scarcely visible, minutely bifid. Seed brown and shining, perfectly even; roundish-reniform. NOTE. Sometimes when the simple stem is much elongated, the flowering plant becomes decumbent as described by Michaux. The seed much more resembles that of *Chenopodium* than *Salsola*. HAB. In the salt-marshes of New Jersey and New York, never on the sandy strand with *S. Kali*. This plant is probably the *Chenopodium maritimum* of Pursh. After a scrupulous comparison also of this plant, now before me, with the *Salsola depressa* of Pursh, I find them to be the same species; so that the range of this plant is from the Atlantic sea-coast, probably, to the sources of the Missouri, in arid and saline tracts.

With the exception of a few species in Siberia, and Barbary, 2 at the Cape of Good Hope, and 2 in India, this extensive genus of near 40 species is confined to the sea-coasts of the south of Europe. Several of the species are burnt to obtain Soda.

286. KOCHIA. Roth.

Calix monophyllous, campanulate, 5-cleft: in fruit producing a dorsal margin in the form of 5 petals; orifice closed with 5 triangular dentures. *Corolla* none. *Style* short; stigmas 2 or 3, long. *Capsule* 1-celled, 1 or 2-seeded; *Seed* incurved.

Habit similar to *Chenopodium*.

SPECIES. 1. *K. dentata*. 2. **dioica*. Annual: stem low, branches axillary; leaves sessile, very entire, ovate-lanceolate, acute, somewhat succulent and glaucous; flowers (male) terminal, conglomerate; calix subglobose-campanulate, dorsal dentures small and obtuse, interal ones membranaceous, acute.—OBS. Stem 6 to 12 inches high, smooth and angular; branches simple, axillary. Lower leaves oblong-lanceolate, upper ones ovate-lanceolate, acute, younger leaves and flowers at first scattered with

white and furfuraceous scales. Male flowers naked, terminal. Calix inflated, whitish, and membranaceous, somewhat globose-campanulate, *entire* to the orifice; external dentures greenish, small and obtuse; internal longer and acute, at first incumbent upon the stamens, afterwards nearly erect, deltoid and acute. Stamina 5, exerted, partly combined at the base, filaments capillary; anthers at first fulvous, at length, after dehiscence, bifid at either extremity. **HAB.** In sterile and saline places, near the Missouri; abundant near Fort Mandan, &c. Flowering in May. I have never seen any but male plants, and am unacquainted with the seed. It resembles a small *Atriplex* or *Chenopodium*, in its leaves, and terminal conglomerated flowers.

To this genus have been referred by its founder some of the species of *Salsola*.

287. ULMUS. L. (Elm.)

Calix campanulate, 4 or 5-cleft. *Corolla* none. *Samara* † compressed, encompassed by a membranaceous alated border. (*Stamina* sometimes 4 and also 8.)

Trees or rarely shrubs; leaves retrorsely asperate, often oblique at the base; flowers fasciculate, conglomerate, appearing before the leaves.

SPECIES. 1. *U. americana*. 2. *nemoralis*. 3. *fulva*. (Slippery Elm.) 4. *alata*. Leaves much smaller than those of any other American species. **HAB.** In Tennessee on the banks of the French Broad river, and in Carolina and Virginia.

Of this genus there are 3 species in Europe, 1 in Siberia, 1 in China, and a species of doubtful genus in India.

288. PLANERA. Gmelin.

Polygamous.—*Calix* membranaceous, sub-campanulate, 4 or 5-cleft. *Corolla* none. *Stigmas* 2, oblong, glandulous, divergently recurved. *Capsule* (nut?) subglobose, membranaceous, 1-celled, not opening, smooth or squamulose (not winged) 1-seeded.

Masculine flowers intermixed with the others; stamina 4 to 6. Leaves and flowers resembling those of *Ulmus*, to which genus it is very nearly allied. **MICHAUX.**

† The Elm affords a genuine example of this species of fruit.

SPECIES. 1. *P. aquatica*. Principally confined to the western side of the Alleghany mountains.

Of this genus there is another species on the borders of the Caspian sea.

289. CELTIS. L. (Nettle-tree, Hackberry.)

Polygamous.—*Calix* 5-parted. *Corolla* none. *Styles* thickish, divaricate. *Drupe* 1-seeded. *Masculine* flowers (inferior) calix 6-parted, with 6 stamina.

Trees or rarely shrubs; leaves mostly oblique; flowers subsolitary or racemose. Filaments of the bark elastic?

SPECIES. 1. *C. occidentalis*. Calix of the male flower 5-parted; stamina 5. The bark of this species is often remarkably rimose. *β. integrifolia*. Leaves entire; bark of the tree not rimose.—On the banks of the Mississippi, near to St. Louis. 2. *crassifolia*. Is not this a mere variety of *C. occidentalis*, in which the young plants have always leaves that are scabrous on either side. 3. *tenuifolia*. *C. pumila*, Pursh 1. p. 200? A low bush, in the mountains of Virginia, flowering at the height of 2 feet. Leaves nearly as broad as long, now and then without serratures, often cordate-ovate, very little acuminate and almost perfectly smooth on both sides. Berries solitary, brown and glaucous.

Of this small genus there is 1 species indigenous to Barbary and the south of Europe, 1 to the Levant, 1 to the East Indies, 1 to China, and 2 to the West Indies.

ORDER III.—TRIGYNIA.

290. VIBURNUM. L.

Calix small, 5-parted, superior. *Corolla* small, campanulate, 5-cleft. *Berry* or *drupe* 1-seeded.

Shrubs with opposite leaves, naked at the base; flowers terminal cymose.

SPECIES. 1. *V. prunifolium*. 2. *pyrifolium*. 3. *Lentago*. 4. *nudum*. 5. *obovatum*. 6. *cassinoides*. 7. *lævigatum*. 8. *nitidum*. 9. *dentatum*. 10. *pubescens*. 11. *Lantanoides*. 12. *acerifolium*. 13. *molle*. 14. *Oxyccoccus*. 15. *edule*.

Of this genus there are in Europe 4 species, 1 in the Canary islands, 2 in tropical America, 1 in Siberia, 1 in Imeretia and 8 in Japan.

291. SAMBUCUS. L. (Elder.)

Calix small, 5-cleft. *Corolla* somewhat urceolate, 5-lobed. *Berry* roundish, 3-seeded.

Shrubs or small trees; leaves opposite, simply or doubly pseudopinnate, in a few species bistipulate, in others biglandular at the base, glands stipitate; flowers cymose.

SPECIES. 1. *S. canadensis*. Leaves on either side not unfrequently more or less minutely and hirsutely pubescent. Fruit not eaten, nor agreeable. The first leaves of young plants, after the cotyledones, are simple and cordate. 2. *pubescens*.

Of this genus, besides the above, there are 3 species in Europe, and 1 in Japan where the *S. nigra* is also indigenous, of this species there occurs a variety with remarkably lacinated leaves.

292. RHUS. L. (Sumach.)

Calix 5-parted. *Petals* 5. *Berry* small, with 1 nuciform seed.

Small trees or shrubs; leaves pinnate or ternate, in 2 species of doubtful genus, entire; flowers paniculate or in terminal compounded and dense racemes; often *polygamous*. Several of the North American species are poisonous to the touch.

SPECIES. 1. *R. typhinum*. 2. *glabrum*. 3. *viridiflorum*. 4. *pumilum*. Extremely venomous. 5. *Vernix*. also indigenous to Japan. 6. *Copallinum*. 7. *Toxicodendron*. 8. *radicans*. Certainly distinct from No. 7. Both these species are venomous. 9. *aromaticum*. Dioicous; leaves ternate; this is the only species to be met with in Upper Louisiana, the berries of which, as in some of the other species, afford an agreeable and wholesome acid.

Of this genus there are 3 species in tropical America, 2 in the southern extremity of Europe, and 1, *R. Cotinus*, extending into Austria, Helvetia, and Siberia; 2 species in Java, one of them common also to China, another common to China and Japan, 1 in the island of New Caledonia; 2 in Northern Africa, and no less than 20 at the Cape of Good Hope.

293. STAPHYLEA. L.

Calix 5-parted, coloured. *Petals* 5, inserted upon the margin of a pentangular glandulous disk. *Capsules* 2 or 3; inflated, growing together. *Nuts* about 2, globose with a cicatrice.

Small trees, with opposite stipulated leaves; which are ternate or unequally pinnated, each leaflet furnished with a stipule; flowers racemose, terminal.

SPECIES. 1. *S. trifolia*. Obs. Filaments of the stamina pubescent. Germ 3-celled, cells many-seeded, but by abortion perfecting only 2 or 3 seeds.

Of this genus there is 1 species in the West Indies, 1 in the Andes of Peru, and 1 in Europe.

294. TURNERA. L.

Calix 5-cleft, funnellform, usually bibracteate at the base. *Petals* 5, unguiculate, inserted upon the calix. *Stigmata* many-cleft. *Capsule* 1-celled, 3-valved.

Suffruticose or herbaceous; leaves alternate, petiole in some species biglandulous; flowers axillary or seated upon the petiole, solitary; in 2 species the flowers are racemose.

SPECIES. 1. *T. cistoides*. Near Savannah in Georgia? Pursh.

This genus, except the above species, is exclusively confined to tropical America.

295. SAROTHTA. Lamarck.

Calix 5-parted, connivent. *Petals* 5, linear-oblong. *Capsule* oblong, acute, coloured, 1-celled, 3-valved, margin of the valves seminiferous.

A small plant with the inflorescence of an *Hypericum*, much branched, branches erect and subtrichotomous; leaves scarcely visible, linear; flowers solitary, axillary and terminal, sessile.—Peculiar to North America.

SPECIES. 1. *S. Hypericoides*. (*Hypericum Sarothra*. Mich. and Pursh, 2. p. 378.) The stamina vary from 5 to 6. As this plant is closely allied to *Hypericum*, and scarcely in any respect like a *Gentian*, I see no reason why it

should be called *S. gentianoides*, a comparison which must tend to mislead, as its affinity, if any, to that genus, is entirely fanciful.

ORDER IV.—TETRAGYNIA.

296. PARNASSIA. *L.* (Grass of Parnassus.)

Calix 5-parted, persistent. *Petals* 5. *Lepanthia* (nectarys) 5, inserted upon the claws of the petals, ciliate, filaments with globose tips. *Capsule* 2-celled, 4-valved. *Receptacle* in the middle of each valve. *Seeds* membranaceously margined.

Leaves radical, cordate, nerved; scape unifoliate about the middle, 1-flowered; flowers white, with pellucid veins.

SPECIES. 1. *P. palustris*. 2. *caroliniana*. 3. *asarifolia*.

A North American genus with the exception of *P. palustris*, which is also common to Europe.

ORDER V.—PENTAGYNIA.

297. ARALIA. *L.*

Umbelliferous.—*Calix* 5-toothed, superior. *Petals* 5. *Berry* 5-celled, 5-seeded.—*Umbells* involucellate.

Arborescent, shrubby, or herbaceous; leaves entire, lobed, digitate, or repeatedly pseudo-compounded.

SPECIES. 1. *A. nudicaulis*. 2. *racemosa*. (called Spike-nard.) 3. *hispida*. 4. *spinosa*. (Angelica-tree.)

The remaining species of this genus are indigenous to the tropical parts of America; there are also 3 species in Japan and 1 in China.

298. STATICE. *L.*

Calix 1-leaved, entire, plaited, scariose. *Petals* 5. *Seed* 1, superior.

Subgenera.—**ARMERIA.** Scape simple, flowers capitate, common calix many-leaved.

SPECIES. 1. *S. Armeria*. (Thrift, Sea Gilliflower.)

LIMONIUM. Flowers scattered, upon a paniculated or spiked scape, or leafy stem.

SPECIES. 2. *caroliniana*. (American Sea Lavender.) Apparently a mere variety of *S. Limonium*. The leaf is obovate-lanceolate, mucronate below the apex, entire and veinless; the scape alternately and numerously branched, ramuli corymbose, teeth of the calix acute, flowers of an elegant blue, each subtended by 2 very unequal bractes.

This numerous genus of near 50 species is principally indigenous to the sea-coasts of the south of Europe, extending into Barbary, Egypt, Siberia and Lesser Asia, there are also 5 species at the Cape of Good Hope, in the southern hemisphere.

299. LINUM. *L.* (Flax.)

Calix 5-parted, persistent. *Petals* 5, unguiculate. *Capsule* superior, 10-valved, 10-celled. *Seed* solitary. (Filaments of the stamina united at the base.)

Herbaceous and suffruticose; leaves mostly alternate; flowers solitary, axillary, or rarely coming out opposite the leaves, at the summit corymbose, racemose or dispersed.

SPECIES. 1. *L. usitatissimum*. Scarcely naturalized. 2. *perenne*. (*L. Lewisii*, Pursh.) On cultivating both in the same garden, I have not been able to detect any specific difference betwixt the European and American plant. That of the Missouri was, however, smaller, and the seeds of a paler colour. **HAB.** Commencing about Fort Mandan, and becoming more abundant towards the mountains; growing on the declivities of water courses. 3. *virginicum*. Throughout the Atlantic states, and in Upper Louisiana. 4. *rigidum*. **Obs.** Stem rigid, angular, grooved; leaves subsetaceous, short, and erect; margin of the calix leaves glandulously ciliate; petals cuneate-oblong; seed pale brown.—**HAB.** Around Fort Mandan. About 6 inches high, flowers pale yellow. 5. *striatum*. Carolina.

The remainder of this extensive genus, with the exception of 3 species in tropical America, 1 in New Zealand, and 5 at the Cape of Good Hope, is indigenous to Europe, principally to the south, extending also into Barbary and the Levant.

300. SIBBALDIA. L.

Calix 10-cleft, alternate segments narrower. *Petals* 5. *Styles* proceeding laterally from the germ, (as in *Rosa*, *Potentilla*, &c.) *Seeds* about 5.

Herbaceous alpine plants, with ternately divided leaves, leaflets simple or subdivided; flowers axillary and terminally aggregated, styles sometimes 10.

SPECIES. 1. *S. erecta*. β . *parviflora*. Obs. Biennial; pilose. Stem erect, 4 to 6 inches high, numerous branching towards the summit. Leaves collected in a rosette, on the stem alternate and sessile, radical somewhat twice trifid, segments subdivided, cauline leaves subbipinnatifid, lacinia linear, obtuse; flowers sessile in terminal fascicles. Petals white, subovate, obtuse, scarcely longer than the calix. **HAB.** On the highest gravelly hills, 10 to 15 miles from the Mandan villages.—2. *procumbens*.

S. procumbens is also a native of the European Alps, and *S. erecta* is equally indigenous to Siberia. In Pallas's herbarium, now in the possession of A. B. Lambert, Esq. there are 2 very distinct varieties of this plant, 1 with petals which are considerably longer than the calix; neither of these are, however, so small flowered as the Missouri plant. Of this genus there is likewise another species indigenous to the Altaic Alps of Siberia, and a fourth discovered by Tournefort in Cappadocia.



ORDER VI.—POLYGYNIA.

301. ZANTHORHIZA. L. (Yellow-root.)

Calix none. *Petals* 5. *Lepanthia* 5, pedicellate. *Capsules* 5 to 8, 1-seeded, semibivalve.

Suffruticose, root yellow; leaves simply or doubly pseudopinnate, partly sheathing at the base; flowers terminal, in divided racemes, bracteolate. (Styles about 6 or 8. Germs 2 or 3-seeded. Capsules by abortion 1-seeded; hence it is distinctly related to the second section of the *RANUNCULACEÆ* of Jussieu.)

SPECIES. 1. *Z. apiifolia*. Abundant on the banks of the river Ohio, as well as in the southern Atlantic states, where it chiefly affects the mountains.—The only species.

CLASS VI.—HEXANDRIA.

ORDER I.—MONOGYNIA.

† *Flowers caliculate.*

802. TILLANDSIA. L. (Long-moss.)

Calix trifid, subconvolute, persistent. *Corolla* trifid, campanulate, (or tubulous). *Capsule* 1 to 3-celled. *Seed* comose.

Leaves mostly radical, scapes simply spiked or paniculate. Mostly parasitic plants presenting the habit of *Agave*, of *Aloe*, or of *Bromelia*. (A small section of the genus, including *T. Usneoides* of the United States, presents a filiform and diffusely dichotomous stem with alternate and filiform leprose leaves, accompanied by peduncles which are 1 or 2-flowered, and a capsule of 1 cell. Scarcely congeners with those splendid species of the tropics, which depending for parasitic nourishment on the boughs and trunks of trees, have their leaves convolutely imbricated so as to retain as in a vase supplies of water which endure for several days together; these produce scapes of flowers of the most diversified and vivid colours, communicating an incidental splendour to the sombre forests in which they are indigenous.)

§ 2. STREPSIA.† *Calix* double, exterior (bractes?) 2-leaved, interior 3-cleft. *Capsule* 1-celled, 3-valved, about 9-seeded—Stems filiform and dichotomous; flowers solitary, or by pairs.

SPECIES. 1. *T. recurvata*. †. 2. *Usneoides*. OBS. Root evanescent. Stem filiform, elastic, diffusely dichotomous, pendulous (from the branches of trees) intorted, hoary and furfuraceously squamose. Leaves filiform, subsemicylindric, curved, covered with a pubescence similar to that of the stem. Flowers inconspicuous. Capsule linear, 3 sided. Seeds comose, pendulous—The presence of this plant generally indicates an atmosphere of extraordinary and unhealthy moisture. Mr. Pursh states its northern limits to be the borders of the Dismal Swamp in Virginia. Crossing North Carolina and proceeding towards Charleston, I have observed its western limits, in this direction,

† From *σπέφω*, *I turn*, or *twist*, in allusion to its contorted appearance.

to be at Camden in South Carolina, from which point cotton is more profitably cultivated and sickness more general.—Its central, black, elastic and curled fibres, which remain after maceration, are not much unlike horse hair, and are used for similar purposes, such as stuffing mattresses, &c.

The venerable W. Bartram informs me of the existence of a Bromeliæform species of *Tillandsia*, near the mouth of the Altamaha. This is probably *T. polystachia* of Muhlenberg's Catalogue.

This interesting and singular genus, consisting of 26 species, is, with the above exceptions, exclusively indigenous to tropical America, forming with many other parasitic plants one of the most singular features of its vegetation.

303. TRADESCANTIA. L. (Spider-wort.)

Calix 3-leaved *Petals* 3. *Filaments* villous.
Capsule 3-celled, few-seeded.

Habit similar to *Commelina*, differing, however, in the disposition of the flowers which are produced in unequal terminal umbells, subtended by a long, 2 or 3-leaved involucre, and in the filaments which are bearded.

SPECIES. 1. *T. virginica*. Throughout the Atlantic states, and westward into Upper Louisiana. 2. *rosea*.

This genus is almost exclusively indigenous to India and tropical America, there being, besides the above, but a single species hitherto discovered in the rest of the world, viz. at the Cape of Good Hope (Africa.)

304. DIPHYLLEIA. Michaux.

Calix 3-leaved. deciduous. *Petals* 6, opposite the calix. *Anthers* growing to the filaments, cells opening from the base to the summit by so many vertical elastic valves. *Berry* 1-celled. *Seeds* 2 or 3, roundish.

Stem 2-leaved; leaves excentrically peltate, palmately lobed and semibifid; flowers in a terminal, solitary, umbellate cyme. (Petals obsolete 3-nerved. Valves of the anthers conspicuous, spreading horizontally, persistent; germ ovate, excentric, 2 to 4-seeded; style none; stigma sessile, transverse, sinuately curved, lipformed, lacunose. This plant, though proximately allied to *Caulophyllum* and distinctly appertaining to the Natural Order BERBERIDES,

is at the same time, by its affinity, as well as common resemblance to *Podophyllum* allied in some measure to the PAPAVERACEÆ to which this last genus ought to be referred.

SPECIES. 1. *D. cymosa*. An American genus of a single species, indigenous to the high mountains of North Carolina.

305. CAULOPHYLLUM. Michaux.

Calix 3 to 6-leaved, leaves small, unequal, and caducous. *Petals* 6, unguiculate, opposite the calix. *Lepanthia* 6, seated upon the claws of the petals, carneous, subreniform, margin glutinous. *Anthers* growing to the filaments, cells opening by so many vertical elastic valves. *Drupe* stipitate, by abortion 1-seeded.

Scarcely distinct from *Leontice*. Stem 2-leaved, leaves twice or thrice pseudo-ternate, ultimate segments 3-lobed; flowers in a small racemose panicle. (*Calix* bracteiform, 3 to 6-leaved, small and unequal, 2 or 3 of the leaves often wanting. *Petals* ovate-lanceolate, unguiculate, margin reflected, 3 to 5-nerved. *Lepanthia* about one third the length of the petals, unguiculate, narrow reniform, with a carneous and glutinous margin. *Anthers* as in all the BERBERIDES, having the cells closed by vertical membranaceous valves, which opening elastically from the base, spring upwards in an erect or horizontal position remaining attached to the summits of the anthers. *Style* excentric, short; stigma like a crooked transverse pubescent line. *Germ* ovate, ventricose, 2-seeded, seeds seated upon the base of the ovarium; mature fruit drupaceous cartilaginous, 1-seeded; drupe stipitate.)

SPECIES. 1. *C. Thalictroides*. In shady woods throughout the Atlantic and western states. Near Philadelphia, but rare.

A genus of a single species.

306. BERBERIS. L. (Barberry.)

Calix 6-leaved. *Petals* 6, each bearing 2 glands upon the claw. *Style* none. *Stigma* umbilicate. *Berry* 1-celled, 2 to 4-seeded. (*Filaments* of the stamina sensitive; springing forward with elasticity on being touched near the base.)

Shrubs with alternate leaves, often collected in fascicles, surrounded at the base by imbricated gemmaceous scales, and subtended by a simple or trifid spine; flowers issuing from the middle of the fascicles, racemose, subcorymbose or solitary. (The sensitive property existing in the filaments of this genus appears to be mechanically accounted for by Persoon, who remarks, that the filaments at first adhere to the glands, and afterwards rise up with elasticity; in the following genus, however, where no glands exist, the character of sensibility alone must be admitted.)

SPECIES. 1. *B. canadensis*. Older branches covered with small verrucose punctures; spines trifid; leaves rather small, oblong-obovate, distantly serrate; racemes simple, recurved, subcorymbose; leaves of the calix very unequal, 3 interior, oboval, twice the length of the exterior; berry subglobose.—**Obs.** A smaller and later flowering species than *B. vulgaris*, from which it is sufficiently distinct. Stems and roots yellow; spines trifid, divaricate. Racemes partly corymbose, horizontal or recurved, not pendulous, lower pedicells often near an inch long. Flowers mostly bibracteate, and of an agreeable odor; leaves of the calix paler than the corolla, yellow, conspicuously unequal, exterior oval, about half the length of the interior, interior cuneate-oboval, longer than the corolla. Petals cuneate-oval, bifidly emarginate, deep yellow, biglandular near the base. Filaments of the stamina irritable. Germ 2 to 4-seeded. Berry subglobose, seldom oblong, miniate, 2 rarely 3-seeded.—**HAB.** On the Alleghany mountains, from Canada to Georgia; also in Tennessee, where it appears almost sempervirent.

Of this genus, which like *Ribes* may be considered subalpine, there is 1 species in Europe, extending to the Levant, and as far as Lebanon in Syria, a second indigenous to the isle of Crete, and *R. sibirica* to the Altaic Alps; but the mountains of South America already afford no less than 12 species of this interesting genus, several of them peculiar to the frigid climate of the Straits of Magellan, and the rocks of Terra del Fuego.

307. * MAHONIA.†

Calix 6-leaved, unequal. *Petals* 6. *Nectariferous glands* none. *Filaments* irritable, each

† In memory of the late Mr. Bernard McMahon, whose ardent attachment to Botany, and successful introduction of useful and ornamental horticulture into the United States, lays claim to public esteem.

filiformly bidentate; *anthers* (as in *Berberis*) growing to the filaments; cells opening by so many vertical elastic valves. *Berry* many-seeded.

Suffruticose plants with pinnated leaves and terminal aggregated racemes; berries purple.

SPECIES. 1. *M. Aquifolium*. Leaves unequally pinnate, about 3 pair, leaflets oblong-oval, acute, repandly and mucronately toothed, veined, obliquely truncate at the base; petals bifid at the points. *Berberis Aquifolium*, Pursh, Flor. Am. 1. p. 219. t. 4.

Obs. Surculose; stem suffruticose, 6 to 12 inches high; leaves and flowers terminal. Leaves sempervirent, shining, dark green. Racemes aggregated, terminal, erect, many-flowered; pedicells bracteate at the base, sometimes with an additional bracte near the extremity. Calix 9-leaved, leaves in 3 series, exterior bracteiform and small, the 3 interior longer than the corolla, nearly three times the length of the other calix leaves, cuneate-oval, obtuse and nerved. Petals connivent over the stamina, oblong-lanceolate, bifid at the point, destitute of the glands of *Berberis*, but nectariferous at the base. Stamina, filaments linear, flat, about the length of the anthers, with a short filiform process on either side of each, arising from the base of the anther; valves of the anthers erect, conspicuous; cells margined on one side. Style none. Stigma entire, orbicular, flat, and umbilicate. Germ ovate, gibbous or excentric, immature seeds 9, or more, oblong-cylindric, attached to the base of the berry. Flowers sweet-scented, coming out in May, (in Mr. McMahon's greenhouse.) Cultivated for several years by Mr. McMahon from seeds collected in the Rocky Mountains by the late governor Lewis.

2. *nervosa*. Leaflets 6 pair, ovate-oblong, repandly serrate, somewhat 5-nerved, petals entire.—*Berberis nervosa*. Pursh, 1. p. 219. t. 5.

A third species of this genus is indicated by Mr Pursh as indigenous to the kingdom of Napaul in India; probably in a mountainous country.

308. PRINOS. L. (Winter-berry.)

Calix small, 6-cleft. *Corolla* monopetalous, subrotate, 6-parted. *Berry* 6-seeded; seeds nuciform.

Small trees or shrubs with alternate deciduous or semipervirent leaves; peduncles lateral or axillary, usually many-flowered; flowers small, sometimes 5, 7 or 8-cleft, with a similar number of stamina and seeds.

SPECIES. 1. *P. verticillatus*. Dioicous. 2. *ambiguus*. Michaux. Leaves deciduous, oval, entire, with a mucronulate point, petiolate, smooth on both sides; feminine flowers solitary, upon long peduncles. **Obs.** A small tree with a smooth whitish bark; leaves betwixt oval and elliptic, always entire on the margin, about one inch and a half long, and one inch wide, petioles near half an inch; peduncles of the fruit often 2 inches in length. This is not *P. ambiguus* of Mr. Pursh, which seems to be little more than a variety of No. 1.

3. *levigatus*. РН. 4. *lanceolatus*. РН. 5. *glaber*. (Ink-berries.) 6. *coriaceus*. РН. 7. **atomarius*. Leaves semipervirent, cuneate-oval, acute, coriaceous, apex subserate, under side atomiferous; younger branches subviscose; pedicells lateral, 1-flowered; berries tuberous.—**Obs.** Nearly allied to *P. glaber*, but evidently distinct; perhaps more nearly related to *P. coriaceus* of Pursh, but by no means reconcilable with his description. It is a shrub much higher and larger as well as broader leaved than *P. glaber*; the leaves 1 and a half to 2 inches long, and from 10 to 12 lines wide, serratures mucronate, not exceeding 2 pair, situated towards the point, often wanting; under side scattered with minute blackish atoms; younger branches or shoots brown and viscid, in *P. glaber* minutely pubescent. Berry 6-seeded, large. **HAВ.** In Georgia (around Savannah), South and North Carolina; rather rare.

An American genus, of which 4 other species are indigenous to the West Indies.

†† *Flowers spathaceous.*

309. **PANCRATIUM. L.**

Corolla superior, funnellform, with a long tube. *Lepanthium* (nectary) 12-cleft, bearing the stamina.

Spatha 1-leaved, opening laterally, 1 or many-flowered.

SPECIES. 1. *P. mexicanum*. 2. *rotatum*. 3. *maritimum*.

The greater part of this splendid genus is indigenous to tropical America, there are at the same time 2 species in India and 3 in Europe.

310. CRINUM. *L.*

Corolla superior, funnellform, half 6-cleft; tube filiform, border spreading and recurved; segments subulate, channelled. *Filaments* inserted upon the orifice of the tube, separate.

Spatha 2-parted, many-flowered, in some species bulbs are produced amongst the capsules.

SPECIES. 1. *C. americanum*. Plentiful in the marshes around New Orleans, Louisiana.

A tropical genus of great splendour, of which there are 2 species in India, 1 in Africa, and 3 in America; the native place of *C. bracteatum* is unknown.

311. AMARYLLIS. *L.*

Corolla superior, hexapetaloid, irregular. *Filaments* of the stamina originating from the orifice of the tube, declinate, (or straight,) unequal in proportion or direction.

Spatha 1 or many-flowered, opening laterally.

SPECIES. 1. *A. Atamasco*. In Virginia and Carolina.

A very splendid and numerous genus, chiefly tropical, and principally indigenous to America and the southern extremity of Africa; a few species exist in India and China, 1 in Europe, 1 in Siberia, and 1 on the borders of the Caspian sea.

312. ALLIUM. *L.* (Garlick, Leek, Onion, &c.)

Corolla 6-parted, spreading. *Spatha* many-flowered. *Umbell* crowded. *Capsule* superior, 3-celled, 3-valved, many-seeded.

Flowers capitate or umbellate; leaves flat or fistulous; umbell in some species bulbiferous; in some the filaments are tricuspidate, with the central cusp bearing the anther.

SPECIES. 1. *A. vineale*. Naturalized. Now a prevalent and injurious weed. 2. *fragrans*. 3. *striatum*. 4. *angulosum*. Two varieties, one with white and another with purple flowers. On the banks of the Missouri, abundant. 5. *cernuum*. 6. *stellatum*. Sims, Bot. Mag. **Obs.** Scape 10 to 15 inches high. Leaf linear, channelled, under side carinate, about a line and a half broad, and 10 lines long. Scape subtriquetrous, umbelliferous, umbell fastigiate,

many-flowered, before flowering reflected, afterwards erect. Spatha acute. Three exterior petals shorter, ovate, subcarinate, rather obtuse, interior petals oblongated. Stamina subulate, simple. Capsule turbinate, triquetrous, angles bidentate above, cells 2-seeded. 7. *triflorum*. PH. Described by Mr. Rafinesque under the same name in the New York Medical Repository, 2. p. 362. No. 39. in 1808. 8. *canadense*. 9. *tricocon*. In this species the flowers only appear after the decay of the leaves.

This vast genus of more than 60 species is almost exclusively European, extending, however, into Siberia and northern Africa, many of the species are alpine, or sub-alpine. Several have ranked amongst condiments or articles of diet from the remotest antiquity.

313. BRODIÆA. Smith.

Corolla inferior, campanulate, 6-parted. *Filaments* of the stamina inserted around the orifice. *Germ* pedicellate. *Capsule* 3-celled; cells many-seeded.

Habit somewhat similar to *Allium*; umbell many-flowered.

SPECIES. 1. *B. grandiflora*. On the plains of the Columbia and Missouri. M. Lewis. The only species of the genus.

314. HYPOXIS. L.

Spatha 2-valved. *Corolla* superior, 6-parted, persistent. *Capsule* elongated, narrower at the base, 3-celled, many-seeded. *Seeds* roundish, naked.

Root fibrous; leaves gramineous; scapes 1 or few-flowered.

SPECIES. 1. *H. erecta*. 2. *graminea*. 3. *juncea*.

The rest of this genus of 14 species, with the exception of *H. decumbens* of Jamaica, is exclusively indigenous to the Cape of Good Hope.

315. PONTEDERIA. L.

Corolla inferior, 6-cleft, bilabiate; under side of the tube perforated with 3 longitudinal foramina, lower part persistent, calicine. *Stamens*

unequally inserted, 3 of them upon the summit of the tube. *Utriculus* muricate, 1-seeded.

Aquatic plants; leaves partly radical, of a form betwixt cordate and sagittate; scapes unifoliate; flowers aggregated in spikes, or fastigiated in unequal umbells, colour blue, upper lip marked with a discoloured spot.

SPECIES. 1. *P. cordata*. HAB. Chiefly within the limits of tide-water, throughout the Atlantic coast. OBS. Leaves sheathing, sheath entire; petiole about one third the length of the leaf. Spike at first protected by an ovate spathe, pubescent. Flowers aggregated by 3's and 4's, sessile, bilabiate, upper lip flat, 3-toothed, blue with a greenish variolate spot in the centre; lower lip 3-parted; tube curved, about equal in length with the limb, marked with 6 longitudinal striæ, and on the under side singularly perforated with 3 gashes or longitudinal foramina. Stamina 6, 3 near the base and 3 towards the summit of the tube; the 3 exerted stamina of the lower lip variable in length. Style filiform, blue, marcescent with the corolla and usually about its length, shortest when the stamina are most exerted; stigma entire, minute. Germ rather gibbous, ovate, 1-seeded. Fruit a 1-seeded, greenish, muricated utriculus formed by the persistent calicine base of the corolla by crisated edges of the fruit 6. Perisperm ovoid, conic, very white, sweet and farinaceous, (probably nutritious.) Corculum in the axis of the perisperm, cylindrical, inverted, (or with the radical upwards); gemmala † oval, conspicuous.

2. *angustifolia*. Pursh. Flor. Am. 1. p. 224. Leaves acute, elongated-triangular, base truncate-subcordate, segments of the lower lip of the corolla linear-lanceolate.—In subalpine lakes on the Alleghany mountains. New York, &c. *P. mucronata*? Rafinesque New York, Med. Repos. 2. p. 352.

3. * *lancoolata*. Leaf narrow, oblong-lanceolate, obtuse, base entire, petiole very short; spike short. HAB. Near Savannah in Georgia—Dr. W. Baldwyn. Also in South Carolina. Scape less than a foot long; spathe very obtuse. Leaf nearly a span long, about an inch wide, very opaque, in *P. cordata* the leaf is diaphanous when held to the light. Corolla blue, segments of the lower lip linear, longer than

† *Little bud*, this word is used here to distinguish betwixt true and apparent cotyledones, in the present plant there is no proper cotyledones, merely a minute bud similar to the perfect plant.

the tube, upper lip marked with a broad greenish spot, unexpanded flowers and filaments of the stamina thickly covered with round, blackish, glandular? atoms; tube perforated with 3 gashes. Three lower stamina sometimes longer than the corolla.

Of this singular genus of aquatics there are 3 species in India and 2 in tropical America. The *P. limosa* belongs to the genus *Heteranthera*, having a capsule of 3 cells, a character very erroneously retained to *Pontederia* in which there is no capsule at all.

††† *Flowers naked.*

316. **CONOSTYLIS.** *R. Brown, Flor. Nov. Holland. 1. p. 300.*

Corolla semisuperior, 6-cleft, persistent, woolly. *Anthers* erect. *Style* conic, tripartite. *Stigma* simple. *Capsule* opening at the summit, 3-celled, 3-valved, many-seeded.

Leaves gramineous or caricine; scapes corymbiferous; flowers tomentose.

SPECIES. 1. *C. americana*. PH. Capsule triquetrous, half-inferior, valves 3-lobed in the middle; seeds small, whitish, oblong-subcylindric, long. 3-dinally striated, attenuated towards the base, seated near the bottom of the capsule. Pubescence simple, not ramulose.

Probably not exactly a congener with the New Holland species of this genus. It has been called *Lophiola aurea* by the editors of the Botanical Magazine.

317. **ALETRIS.** *L. (Star-wort.)*

Corolla tubulous, ovate, summit 6-cleft, rugose, persistent. *Stamina* inserted upon the margin of the orifice. *Style* triquetrous, tripartite. *Capsule* semisuperior, 3-celled, many-seeded.

Root præmorse, tuberous, bitter; leaves radical, disposed in a stellate rosette; scapes simple; flowers spiked. (Capsule opening horizontally all round?† seeds minute, subcylindric.)

† I am not satisfactorily acquainted with the mode by which the capsule opens; it certainly does not open above, the summit being firmly closed and indurated.

SPECIES. 1. *A. farinosa*. 2. *aurea*. Mr. Le Conte distinguishes several species of this genus confounded with *A. farinosa*.

An American genus, excluding the gigantic *A? fragrans* of Africa, which must indeed have been very negligently referred to *Aletris*, according to the description of it by Jussieu.

318. YUCCA. L. (Adam's Needle.)

Corolla inferior, campanulate, segments not nectariferous. *Filaments* of the stamina sub-clavate. *Style* none. *Capsule* oblong, with 3 obtuse angles, 3-celled, opening at the summit. *Seeds* flat.

Proper stem none; caudex inconspicuous or assurgent and shrubby; leaves comose, (or crowded and terminal) ensiform, spiny at the point, sometimes with a sphacelate filamentiferous margin; flowers in a terminal irregular panicle, each protected by 2 spathes; corolla white, roundish campanulate.

SPECIES. 1. *Y. filamentosa*. 2. *angustifolia*. Stemless; leaves glaucous, long, linear and mucronate, margin filamentose; capsules large and dry, oblong-obovate.—HAB. On the banks of the Missouri, from the confluence of the river Platte to the mountains. Flowers large and white; leaves scarcely half an inch wide.

3. *recurvifolia*. In sandy fields, North Carolina. 4. *gloriosa*. Capsule internally filled with a sweetish pulp of a purple colour. This plant is called *petre*, by the Mexican Spaniards, and used for cordage, ropes, &c. as well as for packing-cloth, and is extremely durable. 5. *aloifolia*. There is also a 6th species of this genus discovered by the late Mr. John Lyons, improperly called *Y. angustifolia* by the gardeners around London; it is nearly allied to *Y. filamentosa*, but much narrower leaved; with its specific characters I am unacquainted.

An American genus, affecting the sandy sea-coasts.

319. AGAVE. L.

Corolla superior, erect, tubulous or funnel-form. *Staminiferous* filaments longer than the corolla, erect. *Capsule* (inferior) triangular, many-seeded.

Caudex sometimes ligneous and ascending; leaves radical, or comose, rigid, and channelled, with the point and often the margin spiny, younger leaves obvolute, or rolled around each other spirally; panicle ascending from the caudex, very large and pyramidal. A genus scarcely differing generically from *Alse* except in the situation of the capsule, which is inferior.

SPECIES. 1. *A. virginica*. From Virginia to Florida, also in Upper Louisiana.

An American genus, chiefly tropical. *A. americana* is probably the largest of all herbaceous plants, its panicles of flowers are of the magnitude of small trees. In Peru and Mexico it has long been cultivated by the indigenes and colonists for various and important economical purposes. It affords an abundant vinous liquor and by distillation alcohol, of the fibres of its enormous leaves are made thread and paper, &c.

320. HEMEROCALLIS. L. (Day Lily.)

Corolla campanulate; tube cylindric. *Stamina* declinate. *Stigma* rather small, simple, and partly villous.

Roots fasciculated; scape corymbose.

SPECIES. 1. *H. fulva*. Leaves broad linear, carinate, petals flat and acute, nerves of the petals undivided. **WILLD.** Sp. 2. p. 197. Naturalized in moist meadows around Philadelphia, and also in secluded situations on the banks of the Schuylkill. I have introduced it into the American Flora to mark its future progress, which is already such, as easily to impose upon a stranger for an indigenous plant.

The *H. flava* and *H. graminea*, are said to be natives of Siberia, and *H. fulva* of the Levant; there are also 3 other species of this genus indigenous to Japan.

321. PHALANGIUM. Tournefort.

Corolla of 6 petals, spreading. *Filaments* naked or smooth. *Capsule* ovate. *Seeds* angular.

Roots often fibrose or fasciculate. Leaves flat. Flowers mostly white or purplish.

SPECIES. 1. *P. esculentum*. T. N. in *Fras. Catal.* 1813. *Scilla esculenta*. Bot. Mag. 1596. *P. Quamash*, Pursh, *Flor. Am.* 1. p. 226. In the spring of the year 1810, I discovered this plant near the confluence of Huron river and Lake Erie, I have since found it abundantly in alluvial

situations a few miles from St. Louis, Louisiana, and more recently very plentiful on the lowest banks of the Ohio. The late governor Lewis brought specimens of this plant from the vallies of the Rocky Mountains, and informs us that the roots form a favourite article of diet amongst the aborigines of the mountains. The distribution of this plant from east to west is over an extent of more than 2000 miles, but from north to south not more than 300, if so much.—This species appears to be somewhat allied to *P. glaucum* of Peru.

2. *croceum*. ONS. Leaves arid, gramineous; raceme few-flowered (10 to 12 or more), lower flowers half an inch apart; bractes very obtuse and membranaceous, about a line long, obvallate; pedicells erect, filiform, nearly an inch; flower about the size and colour of *Narthecium americanum*, or saffron yellow, the centre of the petals, particularly on the exterior, being deeper coloured or brownish; petals, (or rather segments persistent,) ovate-oblong, rather narrow, spreading; filaments of the stamina subulate, smooth, somewhat shorter than the petals; anthers pale, oblong; style subulate, distinctly trifid at the summit; stigmata subulate, connivent. As the inflorescence differs so materially from Michaux's plant, which he describes as producing "a pyramidal spike," it may justly be doubted whether these remarks apply to it, or to a distinct species; at all events I am fully satisfied that it is a *Phalangium*.

This extensive genus is principally confined to the Cape of Good Hope; there are, however, a few species in the south of Europe, and 4 in Peru.

322. NARTHECIUM. L.

Corolla inferior, petals 6, spreading, persistent. *Filaments* filiform, hirsute. *Capsule* prismatic, 3-celled, many-seeded. *Seeds* filiformly subulated at each extremity. *Calix* none.

Root fibrous; leaves small, ensiform; scape nearly naked, flowers spiked, yellow.

SPECIES. 1. *N. americanum*. Capsule subulate, twice the length of the persistent corolla; seeds slender, subterete, as long as the capsule, caudately subulated at each extremity.

Of this genus there is but another species, indigenous to the turf morasses of the north of Europe.

323. ORNITHOGALUM. L. (Star of Bethlehem.)

Corolla of 6 petals. erect, persistent, above the middle, spreading. *Filaments* dilated at the base or subulate. *Capsule* superior, roundish, 3-celled. *Seeds* roundish, naked.

Roots bulbous; scapes few-flowered, subumbellate, corymbose, or racemose.

SPECIES. 1. *O. umbellatum*. Introduced; becoming a troublesome and inextinguishable weed in moist meadows, forming exclusive plats. In the vicinity of Philadelphia.

This extensive and polymorphous genus of near 50 species is chiefly indigenous to the south Europe, to Barbary, Siberia, and the Cape of Good Hope. The bulbs of some of the species, though not probably very palatable, have been used for food in times of scarcity, and during the existence of barbarous society. The roots of *Ornithogalum pilosum*? are still eaten by the Greeks of the Crimea, according to Pallas.

324. LILIUM. L. (Lily.)

Corolla 6-petalled, campanulate; petals mostly reflected, marked with a longitudinal nectariferous line. *Stamina* shorter than the style. *Stigma* undivided. *Capsule* superior, valves connected by cancellate hairs. *Seeds* flat.

Roots bulbous, bulbs squamose; scales soboliferous; stems simple, leafy, leaves alternate or verticillate; flowers subumbellate or pyramidally racemose, mostly cernuous.

SPECIES. 1. *L. Catesbaei*. 2. *pubescens*. Ph. Apparently a *Fritillaria*. 3. *pennsylvanicum*. Probably a hybrid of the gardens, as I have understood it to bear imperfect flowers. 4. **andinum*. T. N. in *Fras Catal.* 1813. Leaves scattered, somewhat linear-oblong, acute, floral leaves verticillate; flowers 1 to 5 terminal, erect, peduncles smooth; corolla campanulate, petals lanceolate, unguiculate, alternately narrower, spotted.—OBS. *L. umbellatum*, Pursh, *Fl. Am.* 1. p. 229. it has not the smallest affinity with *L. concolor* of Salisbury, *Parad. Lond.* 47. The flower is of the size and form of *L. philadelphicum* to which it bears a near affinity, being of a deep scarlet, spotted with brown towards the claws which are long and narrow, the

3 inner ones, as is usual, channelled, with an involute margin; germ and stigma very dark brown, longer than the stamina. Flowers commonly in 5's. Flowering in June. HAB. In moist situations, on the margins of small streams and vallies, abundant, from Fort Mandan to the mountains. 5. *philadelphicum*. 6. *canadense*. 7. *carolinianum*. Very nearly allied to *L. superbum*. I have only seen it in the mountains of North Carolina, and with the stem 1-flowered; by cultivation, I am well assured, that it produces many flowers on the stem in proliferous stages, and is then apparently *L. superbum*. 8. *superbum*.

Of this beautiful genus there are 3 species in the south of Europe, one of which extends to Siberia, 2 in the Levant, 1 in Kamschatka, 6 in Japan and 2 in China, of which the *L. tigrinum* is the most splendid of the genus, and has been, with others, cultivated by the Chinese from time immemorial. It is now also introduced into the garden of Mr. Landreth, near Philadelphia.

325. FRITILLARIA. *L.* (Checquered Lily.)

Corolla 6-petalled, campanulate with a nectariferous cavity above the claws. *Stamina* the length of the corolla. *Capsule* superior. *Seeds* flat.

Roots bulbous, bulbs solid, generally two, one upon the other; flowers terminal, solitary, naked, or alternated in a loose raceme, white or purplish, and sometimes checquered.

SPECIES. 1. *F. lanceolata*. Pursh. 2. **alba*. Glaucescent; leaves somewhat remote, all alternate, oblong-linear, oblique and sessile, nearly flat and obtuse, under side substriated; flowers axillary and terminal, 1 to 3, rather large and white. HAB. In vallies and declivities, from Fort Mandan to the mountains; flowering in April. OBS. Root small, bulb subsquamose as in *Lilium*! Stems solitary, about a foot high; leaves near 2 inches long, about 2 lines wide. Flowers sometimes in a raceme of 5. Capsule subturbinate, with 3 acute angles, tridentate below. Seeds large, triangular, flat, and pale coloured.

Two of the species of this small genus including *F. imperialis*, are indigenous to Persia, 1 to the Pyrenees and Russia, 1 to the Levant, the *F. latifolia* to Caucasus, *F. Melagrís* to the south of Europe, and *F. verticillata* to Siberia.

§26. **ERYTHRONIUM. L.** (Dog's-tooth Violet.)

Corolla subcampanulate, petals 6, reflected, the 3 interior usually furnished with a callous denture on each side near the base, and a nectariferous pore. *Capsule* superior, roundish, or elliptic, substipitate. *Seeds* ovate?

Root bulbous; leaves a single pair, sheathing, maculate; scape 1-flowered, flower cernuous, yellow, rarely white, or violaceous.

SPECIES. 1. *E. americanum*. Ker, in Bot. Mag. 1113. Hortus Kewensis, 1. p. 248. *E. lanceolatum*. Pursh, 1. p. 230. Leaves thickly covered with superficial punctures; petals oblong-lanceolate, points obtuse, interior ones bidentate near the base; style clavate, stigma entire, internally pubescent. **HAB.** Throughout the Atlantic states, on the lowest alluvial banks of streams. **Obs.** Root a small tunicated, brown, ovate bulb. Leaves elliptic-lanceolate, with somewhat acuminate callous points, marbled with green and brown (after the manner of the genus). Petals spotted near the base, reflected, inner ones ovate-lanceolate with a longitudinal groove on the inner side communicating at the base with a minute nectariferous cist, on either side of these petals there is an auriculated crisp tooth embracing the filaments, (nothing like a gland or callosity at the base!) Style attenuated downwards, clavate, 3-sided, tubular or perforated; stigma entire, margin crenulate. Germ elliptic. Capsule substipitate. 2. *grandiflorum*, Pursh. A species not satisfactorily defined.

3. * *albidum*. Leaf impunctate; petals linear-lanceolate, points obtuse, inner ones without dentures, subunguiculate; style filiformly attenuated downwards; stigma trifid, lobes reflected, internally papillose. **HAB.** Throughout the western states and territories into Upper Louisiana, and on the banks of the Missouri, where no other species appears to exist. Dr. Wray of Augusta informed me of the existence of a white *Erythronium* in the vicinity of that place, which is also probably the present species; the colour is constantly white, sometimes with an external shade of blue; the leaf rather short; petals often near an inch and a half long, scarcely 2 lines wide, with the germ elliptic. There appears to be another yellow flowered species confounded with *E. americanum*, and nearly allied to the pre-

sent, having lanceolate-oblong petals, all without dentures? but I have not now specimens whereby to define it.

Of this genus there is but a single species out of America indigenous to Siberia and the south of Europe.

327. UVULARIA. L.

Corolla inferior, 6-petalled, erect; claws of the petals each furnished with a nectariferous cavity. *Filaments* very short, growing to the anthers. *Stigmata* reflected. *Capsule* 3-angled, 3-celled, 3-valved; valves septiferous in the middle. *Seeds* many, subglobose, arillate at the hilum.

Roots ramose and carneous; leaves sessile or amplexicaule; peduncles 1-flowered, axillary.

SPECIES. 1. *U. perfoliata*. 2. *flava*. 3. *grandiflora*. 4. *sessilifolia*. 5. *puberula*.

A North American genus with the exception of 2 species in Japan.

328. STREPTOPUS. Michaux.

Corolla inferior, 6-petalled, subcampanulate. *Stigma* very short. *Berry* subglobose, smooth, 3-celled. *Seeds* few, hilum naked.

Roots perennial, fibrous; leaves sessile or amplexicaule; flowers axillary and terminal, pedicels 1 or 2-flowered.

SPECIES. 1. *S. distortus*. 2. *roseus*. OBS. Stem dichotomous; flowers axillary and terminal, solitary or by pairs, upon the same pedicell and horizontally divaricate. 4. *lanuginosus*. Flowers by pairs terminal, upon a very short pedicell.

An American genus, with the exception of *S. distortus*, which is also indigenous to the mountains of Europe.

329. CONVALLARIA. L. (Lily of the Valley.)

Corolla inferior, 6 cleft, campanulate. *Stamina* shorter than the corolla, inserted upon its base. *Berry* globose, 3-celled; cells 1 to 2-seeded.

Bifoliate; scape racemose; flowers nodding.

SPECIES. 1. *C. majalis*. Common also to Europe; flowers fragrant.

There are but 2 other species of this genus as it is now constituted, indigenous to Japan.

330. **SMILACINA.** *Defontaines.*

Corolla inferior, 6-parted, spreading. *Filaments* divergent, attached to the base of the lacinia. *Berry* globose, 3-celled.

Flowers terminal, subumbellate, racemose or paniculate. Stems bifoliate or foliose. (Filaments and anthers distinct.)

SPECIES. 1. *S. umbellata.* Flowers white, spotted with brown. 2. *borealis.* Leaves radical. Roots fibrous, stoloniferous. Flowers greenish, nodding. Berries of both these species azure blue, and opaque. The whole plant, as well as the preceding, sweetish and gramineous to the taste. 3. *canadensis.* Flowers tetrandrous. Stem 2, rarely 3-leaved. Berries red; punctate, pellucid.—Almost uniformly occurring under the shade of the *Abies canadensis* or Spruce. A mere variety of *S. bifolia*? 4. *trifolia.* v. v. Near Green-bay, Lake Michigan. 5. *stellata.* v. v. Abundant on the banks of Lake Erie (Ohio,) and on the Missouri to the Mandans. 6. *ciliata.* †. 7. *racemosa.* Berries scarlet, pellucid.

A North American genus, with the exception of *S. bifolia*, also indigenous to the shady forests of Europe.

331. **POLYGONATUM.** *Defontaines* (Solomon's-Seal.)

Corolla inferior, 6-cleft, cylindrical. *Filaments* inserted on the upper part of the tube. *Berry* 3-celled; cells 2-seeded.

Stems simple, angular, or terete. Flowers axillary, secund; peduncles 2 or more flowered, nodding.

SPECIES. 1. *P. angustifolium.* 2. *canaliculatum.* 3. *pubescens.* A doubtful species. 4. *hirtum.* Stem angular, hispid. 5. *multiflorum.* Peduncles many-flowered, stem round. (Cells of the germ mostly 4-seeded.) 6. *latifolium.* Stem angular; peduncles 1 or many-flowered. The largest species called "Wild Asparagus," and eaten with safety.

Of this genus there are 4 species in Europe, and 2 of them common to the United States, viz. Nos. 5 and 6.

332. ASPARAGUS. L.

Corolla inferior, 6-parted, erect; the 3 interior segments reflected towards the points. *Style* very short. *Stigmata* 3. *Berry* 3-celled, many-seeded.

Leaves fasciculated, usually subulate or setaceous. Stems branched, herbaceous or frutescent; flowers mostly solitary and axillary; spatha 2-valved. In some species the branchlets and fascicles of leaves are each subtended by a spine.

SPECIES. 1. *A. officinalis*. Scarcely yet naturalized in the United States.

The principal part of this genus is indigenous to the Cape of Good Hope, there are also a few species in India and in the south of Europe.

††† *Flowers incomplete.*

333. ORONTIUM. L. (Golden Club.)

Spadix cylindric, covered with florets. *Corolla* about 6-petalled, naked. *Style* and stigma scarcely any. *Utriculus* 1-seeded.

Spatha radical; spadix pedicellate; flowers hermaphrodite; the lowest with 6 stamina, the upper with 4. Leaves entire, the lamina vertically coalescing with the petiole.

SPECIES. 1. *O. aquaticum*. From Canada to Carolina, almost exclusively within the limits of tide-water? in river marshes. **Obs.** Pedicell of the spadix nearly semicylindric, upper part white, flowering portion bright yellow, cylindric-conic; lower flowers with 6 or 5, hooded, and dilated flower scales, and as many stamina disposed under them; upper flower scales generally 4, with 4 stamens. Filaments about the length of the anthers, flat, disposed around the base of the angular germ. Anthers 2-celled, adnate to the filaments, at first large, bursting by almost terminal scars or oblique cicatrices, at length appearing like short poliniferous cups, which are persistent and marcescent. Style none, stigma obsolete, in the form of a small and, at length, somewhat prominent, umbilical puncture or variolus. Utriculus naked, green, roundish, 1-seeded, the size of a large pea. Gemmula viviparous, or commencing to vegetate as soon as mature, (cotyledones none,) primary vaginate leaves 2 or 3, linear, and subulate; the 4th leaf usually exhibiting a small lamina. Pri-

mary radical conspicuous, conic. Somorhize † roundish, large, dark green, umbilically depressed at the summit, having a small concealed internal cavity, and a lateral shallow groove for the reception of the gemmula which is appressed to it and curved over the greater part of the somorhize.

Of this genus there is a second species in Japan.

334. ACORUS. L. (Calamus, Sweet-Flag.)

Spadix cylindric, covered with florets. *Corolla* 6-petalled, naked. *Style* none; stigma a mere prominent point. *Capsule* 3-celled, 3-seeded?

Spadix coming out laterally upon the middle of the leaf, which is produced beyond it in the form of a sword blade. Leaves ensiform. Root aromatic.

SPECIES. 1. *A. Calamus*. Common and indigenous. Stamina varying from 6, to 5 and 4, on the same spadix. Flowers tessellately aggregated, greenish.

Common to Europe and North America, there is also a second species in China.

335. JUNCUS. L. (Rush.)

Calix inferior, 6-parted, equal, persistent. *Corolla* none. *Stigmata* 3. *Capsule* 1-celled, 3-valved. *Seeds* numerous.

Stem simple, gramineous, without nodes, and leafless, or nodose with the leaves sheathing the nodes, flowers terminal or lateral, corymbose or paniculate, branchlets sheathed at the base.

SPECIES. 1. *J. acutus*. 2. *conglomeratus*. 3. *effusus*. 4. *filiformis*. 5. *bicornis*. 6. *setaceus*. 7. *marginatus*. 8. *nodosus*. 9. *polycephalus*. 10. *sylvaticus*. 11. *verticillatus*. 12. *acuminatus*. 13. *aristatus*. 14. *bulbosus*. 15. *tennis*. 16. *bufonius*. 17. *campestris*. 18. *melanocarpus*. 19. *repens*.

Chiefly an European and North American genus, with the exception, however, of a few species in Barbary, South America, and the Cape of Good Hope.

† In this case a large round, ingermine body laterally connected by a vascular system to the gemmule and forming the principal part of the seed.

336. PEPLIS. *L.* (Water Purslane.)

Calix campanulate; border 12-cleft, segments alternately reflected. *Petals* 6, (or none,) inserted upon the calix. *Capsule* superior, 2-celled, many-seeded, covered by the calix; dissemination seminiferous.

A creeping plant, with opposite leaves, peculiar to marshes and the margins of ponds; flowers small, axillary, solitary and opposite; petals fugacious, often wanting; capsule membranaceous. *P. indica* appears to be a species of *Amannia*; and *P. portula* of Europe the only genuine species of this genus ought also to be compared with *Amannia*, from which it is scarcely distinct.

SPECIES. 1. *P. americana*. Pursh, 1. p. 238. Probably the plant which I have published in the Journal of the Academy of Natural Sciences of Philadelphia. Vol. I. No. 6. p. 117. t. 6. f. 1. under the name of *Crypta minima*, but this being a matter of uncertainty, I have inserted the genus for future examination. I must, however, here remark, in addition to that publication, the affinity which evidently exists between *Crypta* and the genus *Elatine*. The seeds of *E. Alsinastrum*, as well as the disposition of the capsule, are obviously similar, and the former equally discrepant, apparently with the character of the CARYOPHYLLÆ; the essential differences of these 2 genera consist in the number and disposition of the parts of fructification, and the absence or presence of styles; in *Crypta* the petals and stamina are equal in number; in *Elatine* the stamina are double the number of the petals, but the stamina themselves appear similar, in this genus there are also 3 or 4 cloven styles sufficiently visible, in *Crypta* 2 or 3 minute and microscopic points in place of styles and stigmas. To these distinctions we may add the deficiency of number in *Crypta* which would not, however, otherwise have proved any thing essential. The difference of habit between these 2 genera is also considerable.

337. FLÖERKEA. *Willdenow.*

Calix 3-leaved. *Corolla* of 3 petals, shorter than the calix. *Style* bifid. *Pericarp* none. *Seeds* 2 or 3, membranaceously coated, superior.

A somewhat succulent plant, growing in alluvial marshes, but not aquatic. Annual, and decumbent; leaves alternate, trifid and pinnatifid, marcescent; peduncles solitary,

axillary, deflected and incrassated during the maturing of the fruit.—Calix persistent, conspicuous, petals and stamina minute; fruit di or tricoccus, naked. Corculum erect, flat; cotyledones convex, peltate; radical inferior. Perisperm none.

SPECIES. 1. *F. palustris*. (*F. proserpinacoides*, Willd.)
Obs. Stem terete. Leaves somewhat succulent, alternate, pseudopinnate; segments mostly 5, narrow, oblong-lanceolate, simple, ultimate divisions confluent at the base, lateral ones 2 or 3-lobed, somewhat obtuse, di or trichotomously and numerously nerved, (when held to the light;) petiole long, semicylindric, channelled. Peduncles axillary, at first short, but gradually elongated nearly to 2 inches. Calix 3-parted, segments ovate, acute, thickish and green. Petals 3, white, alternating with the calix, and much smaller, oblong, somewhat obtuse, and persistent, pubescent at the base (seen through a lens), inserted upon the calix. Stamina 6, minute, irregularly disposed, arising from the base of the calix; filaments capillary, alternately articulated upon 3 glands near their base; anthers roundish. Style 1, inserted between the fruit, and unconnected with it in every direction, apex bifid, stigmas 2, small, roundish. Fruit within the persistent calix, consisting of 2, and rarely 3, roundish, naked, but membranaceously coated seeds; integument papillosely rugose.

NOTE. The seed appears readily divisible into 2 elliptic, convex, fleshy lobes, a little acrid to the taste; but the singular disposition of the embryo, immersed, and included, near the base of the lobes, in a small cavity, so as to render the cotyledones very excentrically peltate, are circumstances which lead me to doubt the validity of these apparent seed-lobes, and I must recommend it to further examination.

HAB. In Pennsylvania, (on the banks of the Schuylkill near Philadelphia; rare.)

It is not easy to decide upon the natural affinities of this singular genus, for the present, it can only be placed to some order without any distinct relation; as such, it may be referred to the end of the PORTULACÆ. With *Nectris* it appears to have no affinity whatever.

ORDER II.—DIGYNIA.

538. NECTRIS. Willd.

Calix 6-parted, inferior, the 3 interior segments petaloid, smaller and obtuse. *Corolla*

none. *Capsule* (utriculus?) subcarnose, 1-celled, 1 to 2-seeded, crowned by the persistent style.

An aquatic plant; leaves without sheathing petioles; those of the stem demersed, opposite, digitate, complicately and trichotomously divided, segments linear; floral leaves floating, alternate, orbicular, peltate, entire; flowers solitary, axillary.

SPECIES. 1. *N. aquatica*. The only species of the genus, indigenous to the warmer parts of the U. S. and tropical America. The *N. pinnata* of Mr. Pursh is probably a variety, but certainly a very different plant from *Floerkea*.

ORDER III.—TRIGYNIA.

339. **SABAL.** *Adanson*. (Small Fan-palm.)

Flowers hermaphrodite.—*Spathes* partial. *Filaments* of the stamina unconnected, thickish at the base. *Drupe* spherical, dry and cartilaginous, 1-seeded. *Seed* indurated. *Embryon* lateral.

Stemless, or with a caudex sometimes a little elongated; frond palmate, fanshaped, stipe unarmed; flowers paniculated (or the spadix† branched.)

SPECIES. 1. *S. Adansonii*. In troublesome abundance around New Orleans; but less frequent than other species in Georgia and Carolina.—The fruit is about the size and form of black pepper, and almost of a horny consistence. The strips of the leaves are handwove or platted into various utensils by the indigenes. There can be no reason to suppose that the fronds of this species can be less serviceable for plating into hats than those of *Chamærops palmetto*, a very durable manufacture, and justly esteemed in London.

2. *Histrix*. Pursh, Flor. Am. 1. p. 240. under *Chamærops*. The fronds undistinguishable from those of the preceding species by any other character than the appearance of long *axillary* spines; the inflorescence has not yet been compared; its rare occurrence amidst so much of *S. Adan-*

† There is, however, nothing similar to the *spadix* of the **AROIDÆ** either in this or the following genus; a sophistical circumstance with which many of my readers will doubtless be unacquainted.

soni, leads to a suspicion of its validity as a distinct species. v. v. In the vicinity of Savannah pointed out to me by the kindness of Dr. Baldwin.—The only species of the genus.

340. **CHAMÆEROPS. L.** (Fan-palm, Palmetto.)

Polygamous.—*Spathe* compressed. *Spadix* branched. *Culix* 3-parted. *Corolla* of 3 petals. *Filaments* of the stamina partly united. *Drupe* 3-celled, by abortion 1-seeded. Masculine flowers on a distinct plant.

Caudex arborescent or inconspicuous; fronds palmate, flabelliform; stipes spiny or naked. (Germ 3-celled, cells 1-seeded, 2 of the seeds abortive. MICH.) Drupe solitary in the American species; probably not congeners with *C. humilis*.

SPECIES. 1. *C. Palmetto*. Cabbage-palm. 2. *serrulata*. The central part of the caudex is more edible than that of the preceding.—Dr Baldwin. Margin of the stipe serrated with short spines; drupe solitary oblong, nearly twice the size of that of *Sabal Adansoni*, which it resembles in every other respect.

Of this genus there is 1 species common to Spain and Barbary, and another to Japan.

341. **NOLINEA. Michaux.**

Corolla 6-parted, spreading; segments subequal. *Style* very short; stigmas recurved. *Capsule* 3-sided, membranaceous, 3-celled, opening by the bipartite dissepiment; cells 1-seeded. *Seeds* incurved, convex, 1 or 2 of them abortive.

Root bulbous; leaves surrounding the base of the scape, coriaceous and gramineous; flowers paniculate, small.

SPECIES. 1. *N. georgiana*. Allied to *Helonias*. The only species of the genus. Abundant towards Augusta in Georgia. v. v.

342. **CALOCHORTUS. Pursh.**

Corolla 6-parted, spreading, the 3 interior segments larger with the upper side woolly, and marked near the base with a roundish smooth

spot. *Filaments* very short, inserted upon the base of the petals. *Anthers* sagittate, erect. *Stigma* reflected. *Capsule* 3-celled.

Bulb subglobose, solid. Leaf subsolitary, radical, gramineous; scape about 3-flowered; flowers white, the inner petals with a purple spot. Apparently allied to *Hypoxis*.

SPECIES. 1. *C. elegans*. Pursh, Flor. Am. 1. p. 240. Within the Northern Andes or Rocky Mountains. The only species.

543. MELANTHIUM. L.

Polygamous.—*Culix* none. *Corolla* rotate, 6-parted: segments unguiculate, biglandulous at the base, claws staminiferous. *Capsule* exserted, subovate, apex partly trifid, 3-celled. *Seeds* many, membranaceously alated.

Root (in the American species) truncate and horizontal or rarely bulbous; leaves gramineous, flaccid; scape often tall, and pyramidally paniculate; petals conspicuously unguiculate, calicine, progressively changing colour, bimaculate.

SPECIES. 1. *M. virginicum*. 2. *monoicum*. 3. *hybridum*. Nearly allied to *Veratrum*. Leaves elliptic-oblong, somewhat plaited. Upper part of the panicle feminine in an elongated raceme; petals unguiculated, but without the characteristic glandular spots, interior ones roundish ovate, acute in the male, obtuse, and a little undulated in the female, both nearly smooth. Styles uncinatè, a little shorter than the germ. Capsule large, appearing like 3 united by the inner margins, cells 3, 5, and probably sometimes 6 seeded, seeds imbricated, flat, subelliptic, with a double alated margin, about the size of the seeds of some species of *Pinus*. *v. v.* In the mountains of North Carolina. 4. **glaucum*. Root a tunicated bulb; leaves glaucous, gramineous, marginated; raceme mostly simple, few-flowered; flowers hermaphrodite, petals roundish, unguiculate, bimaculate; seeds subulately alated. **HAB.** On the gravelly banks of the St. Laurencè in calcareous soil; around the Cataract of Niagara, on the borders of Lakes Erie, Huron and Michigan and up the Missouri to Fort Mandan. It appears to be considerably allied to *Anthericum* in habit; scarcely a foot high; leaves almost similar to *M. virginicum*; flowers whitish, raceme sometimes a little divided at the base. Flowering in July and August.

The principal part of this genus is indigenous to the Cape of Good Hope, there is 1 species also in Siberia and 1 in India. *M. pumilum* of Tierra del Fuego, *M. gramineum* and *M. punctatum* of Barbary, cannot certainly belong to this genus.

§44. ZIGADENUS. *Michaux.*

Corolla 6-parted, spreading; segments subequal, above the base narrower and biglandulous. *Stamina* inserted in contact with the germ. *Styles* 3, partly united at the base. *Capsule* included in the persistent corolla, sub-ovate, acute, 3-celled, cells many seeded. *Seeds* linear-oblong, apterous.

Nearly allied to *Melunthium* with which it also partly agrees in habit, but the flowers are all hermaphrodite, and the panicle alternately branched.

SPECIES. 1. *Z. glaberrimus.* 2. *elegans.* Pursh, Flor. Am 1 p. 241. The only species of the genus.

§45. VERATRUM. *L.* (Green and White Hellebore.)

Polygamous.—*Corolla* 6-parted, spreading, segments sessile and without glands. *Stamina* inserted upon the receptacle. *Capsules* 3 united, many seeded.

Root fibrous or branching; leaves ovate or elliptic, plaited, and numerously nerved, rarely (as in *V. angustifolium*) gramineous; flowers pyramidally paniculate, greenish.

SPECIES. 1. *V. viride.* In the vicinity of Philadelphia, on the banks of the Schuylkill, but not common; growing nearly 6 feet high. Peduncles and branches of the panicle pubescent, upper part of the branchlets filiform with masculine flowers, the lower part fructiferous. 2. *parviflorum.* 3. *angustifolium?* Pursh, 1. p. 242. Raceme compound, lateral branchlets filiform masculine, upper part simple, hermaphrodite; petals sessile, linear-lanceolate, acuminate; leaves flattish gramineous, rather obtuse. *v. v.* Not uncommon in the grassy prairies of Ohio, Tennessee and Louisiana. 2 to 3 feet high, root bulbous? leaves linear, semiamplexicaule, rather arid, striated, 6 to 10 inches long; raceme long, with a few short filiform male branchlets on the lower part; male flowers nearly sessile, hermaphrodite pedicellate, bractes subulate, nearly the length

of the pedicells; petals greenish white; subulately acuminate. Stamina very short in the male, in the hermaphrodite as long as the germ; styles distinct, 3, reflected. 4. *luteum*. *Helonias lutea*. Bot. Mag. 1062. but much more a *Veratrum* than an *Helonias*, as might be supposed by its being dioicous; and if the paucity of seeds is to be considered of importance in *Helonias*, this species with a capsule of many seeds may very well be restored to the genus with which Linnæus more properly associated it. The root is so far from being bulbous, that almost every one in the United States knows it by the improper name of "Devil's-bit," originally applied to a species of *Scabiosa*; the root is truly præmorse and very bitter, as is usual with this genus.

Of this genus there are two other species, indigenous to Europe and Siberia.

346. HELONIAS. L.

Corolla 6-parted, spreading; segments sessile and without glands. *Styles* 3, distinct. *Capsule* 3-celled, 3-horned, cells few-seeded, (seeds 1 or 2.)

Nearly allied to the preceding genus, but having the flowers all hermaphrodite; roots mostly fasciculated, sometimes solitary; leaves narrow, often gramineous and arid, surrounding the base of the stem; raceme simple.

SPECIES. 1. *H. latifolia*, no where so common as the following. 2. *erythrosperma*. Bractes short and obtuse; capsule short and turgid, lobes divaricate; leaves caricine. 3. *angustifolia*. Leaves caricine, very long; scape obtusely angular, naked; bractes lanceolate, acute; germ acutely conic; styles contiguous. 4. *dubia*. 5. *pumila*. These two last species doubtful, as *Helonias*.

A North American genus.

347. XEROPHYLLUM. Mich.

Corolla subrotate. *Filaments* of the stamina contiguous at the base. *Stigmas* 3, revolute, partly united below. *Capsule* subglobose, opening at the summit by 3 chinks, 3-celled, cells 2-seeded.

Root partly bulbous, leaves arid and tenaceous, very narrow and numerous, surrounding the base of the scape; raceme simple.

SPECIES. 1. *X. asphodeloides*. **HAB.** In New Jersey, and also very abundant on the summit of the Catawba ridge, North Carolina. The dilation of the filaments towards the base, the disposition of the styles, or rather stigmas, and the opening of the capsule by 3 external sutures in the centre of each cell, in place of the internal margins of the cells or capsules, are characters of much more importance than those which separate *Helonias* and *Veratrum*. 2. *tenax*. Pursh, 1. p. 243 — In the Northern Andes or Rocky Mountains. 3. *gramineum*, (*Helonias graminea*, Bot. Mag. 1599.)

A North American genus, somewhat allied to *Asphodelus*?

348. TOFIELDIA. Hudson.

Calix trifid. *Petals* 6. *Capsules* 3, superior, united at the base, many-seeded. *Seeds* naked, (angularly grooved?) *Styles* vertical, very short.

Roots aggregate, partly horizontal; leaves iridescent; spike short and dense; pedicells solitary, minutely bracteate at the base.

SPECIES. 1. *T. * glabra*, leaves equitant, iridescent; scape terete, smooth; spike short, dense, and oblong, bracts acute, very small; peduncles solitary, angular, about the length of the flowers; petals oblong-ovate, subacute; styles none; capsules distinct, membranaceous, equal in length with the corolla.—**HAB.** In swamps near Wilmington, N. Carolina. **Obs.** Much more robust than *T. palustris*, and the scape not so far exceeding the leaves. Roots fasciculated horizontal; leaves linear, ensiform; scape 8 or 10 inches high, solid, rather thick than slender, nearly naked, or with a single leaf; spike 10 to 15 lines long; flowers crowded, numerous, (30 or more); bracts extremely minute; rachis excavated opposite the pedicells. Calicle 3-toothed. Petals greenish white, like those of *Helonias* in their form and disposition. Filaments of the stamina equal with the petals and germ, subulate, flat, and considerably dilated; anthers oblong, cleft at the base. Styles none; stigmas flat and circular, sessile. Capsules 3, distinct to the base, whitish, membranaceous, somewhat gibbously cymbiform, internal margins closed and bordered, points entire; 6 to 8 seeded. Seeds linear-oblong, a little curved, small and brownish-yellow, marked with 5 or 6 longitudinal and angular ridges.

§ 11. * *TRIANTHA*. † *Capsule* coriaceous, subglobose, trilocular, valves 3, bifid at the apex. *Styles* contiguous,

† From the flowers being aggregated upon the spike by 3.

persistent, spreading. *Anthers* compressed. *Seeds* very numerous, terete, caudate. (Nearly allied to *Nartheecium*.)

Roots horizontal, aggregate; leaves ensiform gramineous, arid; scapes naked, often pubescent and scabrous. spike lobed, flowers mostly aggregated by 3s.

2. *pusilla*. 3. *pubescens*. v. v. in Sussex county, Delaware. Obs. Petals greenish-white, linear-obovate, obtuse; scape scabrous and pulverulently pubescent; flowers aggregated in 3s, subtended by as many minute bractes; anthers roundish-cordate, flat, grayish-purple; capsule brown and indurated, margin of the valves inflected, seminiferous above, summits bifid. Seed caudate. 4. *glutinosa*. v. v. Abundant around Detroit, Michigan territory. Nearly allied to the preceding; but the petals are oblong-oval.

Of the genus *Tofieldia*, besides the above, there is 1 species in Europe and another in the Andes of Peru.—The section here denominated *Triantha* is unquestionably a genus distinct from the European *Tofieldia*, as well as from the plant of Carolina, *T. glabra*; it approaches to *Nartheecium* by the seed. but the flowers are caliculate, and the filaments of the stamina smooth.

349. SCHEUCHZERIA. L.

Calix 6-parted. *Corolla* none. *Anthers* linear. *Stigmas* sessile, lateral. *Capsules* inflated, distinct, mostly 2-seeded. *Seeds* smooth, cylindrical-ovate, with a longitudinal carinate suture, (black.)

A plant indigenous to sphagnose morasses, with somewhat horizontal roots, or a lateral mode of growth; leaves distichally sheathing, those of the infertile shoots very long and attenuated, convex and carinate; on fertile stems, short; sheaths distinct; flowering stem flexuose, frondose, numerously jointed; peduncles distant, solitary, sheathed; flowers greenish and inconspicuous.

SPECIES. 1. *S. palustris*. v. v. In sphagnose cranberry swamps, New Jersey, near Philadelphia, plentiful, but I have not seen it in any other part of America. Obs. Leaves of the infertile shoots near 18 inches long, very narrow and linear. Roots loaded with persistent vestigia; raceme 5 to 7-flowered, lowest peduncles longest and subtended by sheathing leaves, which diminish upwards into short bractes. Capsules 3, oval, inflated, with compressed margins. Seeds almost uniformly 2 in each capsule, as large as those of Garden Balsam (*Impatiens chinensis*) black and

shining; integument coriaceous; episperm white and membranaceous. Nucleus greenish, consisting of an ovate cylindrical and homogenous somarhize, marked at its inferior extremity (or contiguous to the umbilicus) with an almost imperceptibly minute gemmule, in the form of a diaphanous point.

The only species of the genus, common to morasses in the north of Europe. From the singularly isolated occurrence of this plant in the milder states of America, I am inclined to believe it on the decrease in such situations. In the turf morasses, or moors as they are called, in the northern parts of Yorkshire, (Craven) in England, I have commonly seen the singular vestiges of this plant inlayed through spongy or more recent turf, obtained where none of the plant exists at the present day.

350. TRIGLOCHIN. *L.* (Arrow-grass.)

Calix double, each 3-leaved, the interior more petaloid. *Corolla* none. *Stamina* 3 or 6. *Styles* none; stigmas 3 or 6, pubescent. *Capsules* 3 or 6, united above to a receptacular axis, separating at the base, each one-seeded, not spontaneously opening.

Marsh plants with fibrous roots and grassy sheathing leaves; scape naked, flowers spiked, numerous, inconspicuous; anthers sessile, disposed in 2 series of 3 each (at least in *T. maritimum*); stigmas 3 to 6.

SPECIES. 1. *T. * elatum*. Persistent styles and capsules 6; fruit angular; capsules linear, dorsally depressed, with acute margins; scape much longer than the leaves. **Н. В.** In fresh, and probably also in salt-water marshes, in the state of New York. Certainly a very distinct species from *T. maritimum*, the fruit bearing no sort of resemblance. **Obs.** Scape about 2 feet high; leaves very narrow; stamina 6, in 2 series, each subtended by a calix of 3 leaves, maturing at different times. Spike nearly a foot long; fruit subcylindric, attenuated towards the persistent styles, 6-angled; capsules obtuse at the base, acutely compressed on the margins, and dorsally channelled, united above to a common persistent axis (similar to that which exists in umbelliferous plants), constantly 1-seeded, not spontaneously opening, though furnished with a distinct internal carinated suture. 2. *maritimum*. 3. *palustre*. Flowers triandrous, capsules linear. 4. *triandrum*. Fruit roundish.— In South Carolina.

Nos. 2 and 3 are indigenous to Europe as well as America; there is also 1 species at the Cape of Good Hope, and 2 of doubtful genus in Peru.

351. *GYROMIA.† MEDEOLA. L. (Indian Cucumber.)

Corolla 6-parted, revolute. *Calyx* none. *Filaments* and anthers distinct. *Styles* none; stigmas 3, filiform and divaricate, united at the base. *Berry* 3-celled, cells 5 or 6-seeded. *Seeds* compressed, 3-sided.

Root an oblong fleshy tuber; stem simple, erect; leaves verticillated; flowers terminal aggregate.

SPECIES. 1. *G. virginica*. Called "Indian Cucumber" from a far fetched idea of resemblance either in the form or flavour of the root. Germ and berry always many-seeded, the latter dark purple when ripe; stigmas long, filiform, horizontally divaricated, almost imperceptibly glandular, and grooved on the upper side. Stem with a single sheath near the base, deciduously lanuginous. Leaves verticillated in the middle of the stem, 6 to 9, elliptic-lanceolate, acuminate; at the summit of the stem in 3s, very rarely and then unequally in 4s, oval-lanceolate. Flowers aggregated from 3 to 6.

β. **picta*. Floral leaves in 5s or 6s, oval acute, crimson-red near the base; flowers numerous, 9 to 12; berries tuberos, many-seeded, (12 to 15.)—*HAB.* On the shady banks of Laurel creek, near Morgantown, North Carolina. I have given it merely as a variety, not being in possession of satisfactory specimens, seeing it merely in fruit.

A North American genus, confining *Medeola* to the 2 African species which are said to have a berry of 3 seeds. The present genus, with a berry of 3 cells and many seeds, approaches consequently to *Trillium* and *Paris*.

† From *γυρος*, a circle, in reference to its verticillated leaves; a habit which lead the celebrated A. L. Jussieu justly to doubt of its genuine affinity with the 2 African species of *Medeola* upon which the genus has been evidently founded, having a berry containing 3 cordate seeds. Changes of names, though doubtless unwelcome, must in these cases continue to be adopted, so long as we shall be inclined to prefer truth to error. Michaux has long ago asserted that the *Medeola asparagoides* did not belong to the same genus as *M. virginica*, without, however, pointing out a distinction.

352. TRILLUM. L. (American Herb Paris.)

Calix 3-leaved, spreading. *Corolla* of 3 petals. *Filaments* and terminal anthers adnate, opening on the inner side. *Styles* none. *Stigmas* 3, distinct, or approximate. *Berry* 3-celled, cells many-seeded.

Roots præmorsely tuberous, horizontal; scape low, 3-leaved, leaves verticillate, subtending a solitary peduncle, (or sessile flower in *T. sessile*;) petals white, or dark purple. Germ in one species styliferous; style 1.

Found generally in umbrageous forests attached to recent vegetable soil.

SPECIES. 1. *T. sessile*. Flower sessile. Almost the only species in lower Louisiana. 2. *petiolatum*. PH. Near the sources of the Columbia. 3. *erythrocarpum*. (*T. pictum*, PH. 1. p. 244.) Petals undulated and recurved, having a crimson spot at the base of each. HAB. Subalpine, pretty constantly associated with evergreens, such as *Kalmia latifolia*, *Rhododendron maximum*, or *Abies canadensis*, and growing in their shade. 4. *ovatum*. Northern Andes. 5. *pusillum*. Petals nearly equal with the calix, leaves obtuse. 6. *cernuum*. Peduncle recurved, petals lanceolate, acuminate, leaves dilated. 7. *erectum*. Peduncle inclined; flower nudent; petals ovate acuminate, white or deep purple; leaves dilated. 8. *obovatum*. PH. Peduncle erect, petals obovate, scarcely longer or broader than the calix; leaves sessile, rhombic-ovate acuminate. 9. *pendulum*. Peduncle inclined, flower pendulous, petals flat, ovate, shortly acuminate, nearly equal with the calix, which is ovate-acuminate; leaves roundish-rhomboidal, acuminate, subsessile. 10. *grandiflorum*. Petals large and very obtuse, much exceeding the calix, generally white, but varying with rosaceous flowers, and with the germ green or dark purple. Both this and the preceding are closely allied to *T. erectum*. 11. * *stylosum*. Plant small and slender; peduncle much shorter than the flower, recurved; petals undulated, spreading, larger than the calix, oblong, obtuse; germ styliferous, style 1, as long as the stigmas; leaves subpetiolate, elliptic-lanceolate, acute at both extremities. *T. cernuum*, Mich. Flor. Am. 1. p. 216. HAB. In the mountains of upper Carolina and Georgia. OBS. Scape attenuated upwards, becoming almost filiform, 8 or 10 inches high. Leaves about an inch wide, and 2 inches long. Peduncle rigidly recurved under the leaves, little more than half the length of the calix. Segments of the calix linear-oblong, somewhat obtuse and distinctly margined. Petals merely

spreading, pale rose colour, undulated, obtuse, a little longer and nearly twice the breadth of the calix. Germ with a distinct solitary style, as in no other species of the genus, and 3 smoothish stigmas somewhat shorter than the style.

A North American genus, with the exception of *T. obtusatum*, which grows also in Kamtschatka according to Pallas.

353. RUMEX. L. (Dock.)

Calix 6-parted, persistent, the 3 interior divisions petaloid, connivent. *Seed* 1, 3-sided, superior, naked. *Stigmata* multifid.

Flowers paniculate, terminal or axillary, mostly fasciculated; in many species the petaloid segments are externally glanduliferous. Some of the species are monoicous or dioicous.

SPECIES. 1. *R. sanguineus*. 2. *crispus*. 3. *verticillatus*. 4. *britannicus*. 5. *persicarioides*. 6. *crispatulus*. 7. *obtusifolius*. 8. *aquaticus*. 9. *digynus*, (Sorrel). 10. *Acetosella* (Sheep's sorrel). Introduced; abundantly naturalized. 11. *venosus*. Pa. Flowers Hermaphrodite, valves very large, reniform-cordate, entire and without glands, red; leaves suboval-lanceolate, small. **HAB.** Near the confluence of the river Platte, on the sandy banks of the Missouri. Flowering in April. Stem scarcely a foot high. Flowers pendulous and fasciculated, valves about 5 lines wide. It differs sufficiently from *R. vesicarius* by having the petaloid valves only large; it is also perennial.

This extensive genus of more than 40 species is almost equally divided betwixt Europe and the temperate parts of Africa (Barbary, Egypt and the Cape of Good Hope.)

ORDER IV.—TETRAGYNIA.

354. SAURURUS. L. (Lizard's-tail.)

Flowers in an ament, or crowded spike, scales 1-flowered. *Corolla* none. *Filaments* and anthers adnate. *Capsules* 4, each 1 or rarely 2-seeded, not opening.

Stem leafy, many-spiked, leaves alternate cordate.

SPECIES. 1. *S. cernuus*. A North American genus of a single species.

ORDER V.—HEXAGYNIA.

355. WENDLANDIA. Willdenow.

Calix 6-leaved. *Corolla* of 6 succulent? petals. *Styles* reclined. *Germs* 6. *Berries* each 1-seeded. *Seed* a compressed nut.

A climbing dioicous shrub; leaves alternate; racemes superaxillary. Scarcely distinct from *Menispermum*, with which it ought again to be compared.

SPECIES. 1. *W. caroliniana*. (*Menispermum carolinianum* of Walter and Michaux, Fl. Am. 2. p. 242.)

ORDER VI.—POLYGYNIA.

356. ALISMA. L. (Water-plantain.)

Calix 3-leaved. *Petals* 3. *Capsules* many, 1-seeded, not opening.

Aquatic plants with cordate, sagittate, ovate, or lanceolate leaves; panicle simple or compound, branches and branchlets ternately verticillated. (In *A. natans*, the leaves are elliptic, the peduncles 1-flowered opposite the leaves, and the fruit striated.) Nearly allied to, and scarcely distinct from *Sagittaria*.

SPECIES. 1. *A. Plantago*. 2. *natans*, PH. Both species also indigenous to Europe. There are of this genus also 3 other species in Europe, 2 in tropical America, and 1 in Guinea. Mr. Pursh's *A. trivialis* and *A. parviflora* appear to be only varieties of *A. Plantago*. For *A. subulata* see *Sagittaria*.

CLASS VII.—HEPTANDRIA.

ORDER I.—MONOGYNIA.

357. **TRIENTALIS.** *L. Tournf.* (Chickweed Wintergreen.)

Calix 7-leaved. *Corolla* 7-parted, equal, flat. *Berry* 1-celled, juiceless. *Seeds* many. (*Stamina* 5, 6, 7 and 8.)

Flower varying in the number of its parts. Stem simple, low; leaves collected at the summit of the stem; peduncles terminal, aggregated, 1-flowered.

SPECIES. 1. *T. europæa*, *β. americana*. Leaves lanceolate, acuminate. **OBS.** The leaves of the American plant, on comparison, are longer, the flowers more frequently 3-parted with 8 stamens than less, it consequently approaches to the genus *Chlora*.

A genus of a single species, indigenous to Europe and North America.

358. **ÆSCULUS.** *L.* (Horse-chesnut. Buck-eye.)

Calix 1-leaved, ventricose. *Corolla* of 4 or 5 unequal pubescent petals inserted upon the calix. *Capsule* 3-celled. *Seeds* large, resembling chesnuts.

Trees or rarely shrubs with digitate leaves; flowers racemose and terminal, articulated upon the rachis.

SPECIES. 1. *Æ. Pavia*. Indigenous also to Brazil. 2. *discolor*, **PERU.** 3. *flava*. 4. *glabra*. 5. *pallida*. 6. *macrostachya*. The smallest and most ornamental of the American species.

A North American genus with the exception of *Æ. Hippocastanum* of northern Asia.

CLASS VIII.—OCTANDRIA.

ORDER I.—MONOGYNIA.

† *Germ inferior.*

359. RHEXIA. L.

Calix urceolate, 4 to 5-cleft. *Petals* 4, oblique, inserted upon the calix. *Anthers* declinate. *Capsule* setigerous, 4-celled, included in the ventricose calix. *Receptacles* subulate. *Seeds* numerous. (Stamina sometimes 10.)

Annual or perennial, rarely suffruticose; stems mostly quadrangular; leaves very entire, longitudinally nerved, opposite; flowers by 3s, dichotomal and terminal, often trichotomously compounded and subcorymbose or glomerate, rarely, if ever, axillary, by deflection sometimes solitary and terminal; petals primarily convolute in a cone, caducous, violaceous or purple, rarely yellow.—Anthers very long and curved, at first deflected and equally arranged round the tube of the calix, 1-celled, adnate to the filaments, emitting the pollen by a single clandestine pore, situated at the junction with the filament, the pore guarded by a single seta. Seeds subreniform and angular.

SPECIES. 1. *R. mariana*. Stem subterete, hirsute. ☉.
2. *virginica*. Stem with alated angles, nearly smooth. 3.
ciliosa. Stem subquadrangular, smooth; leaves small, subpetiolate, oval-acute, beneath smooth, a little hairy above, margin conspicuously ciliated; flowers conglomerated by 3s, sessile, involucrate, anthers short; calix acute, fruiting base subglobose, smooth. Pursh, Fl. Am. 1. t. 10. A very imperfect specimen. Pluk. Amalth. p. 138. t. 425. f. 4.

4. * *serrulata*. Stem quadrangular, smooth; leaves small, subpetiolate, roundish-oval, acute, smooth on both sides, margin serrulate, base subciliate; flowers pedunculate, very large, growing by 3s; calix glandularly hirsute, border very short and obtuse. **HAB.** In the open swamps of Georgia and Florida, communicated to me by Dr. Baldwin, who considered it as a dwarf variety of the preceding, to

which it is nearly allied, but cannot possibly be the same species, being by the calix much more nearly related to *R. glabella*, but the leaves, habit, and angular stem, separate it from that species; in *R. ciliosa* the border of the calix is remarkably large, the segments expanding nearly to the length of the ventricose base, and not coalescing into a tube as is usual in this genus. OBS. About 6 to 10 inches high; leaves nearly as broad as long, about 5 lines; regularly and mucronulately serrulate, the radical leaves nearly round, and with the margins more entire; flower purple, as large as that of *R. glabella*, solitary and terminal, or simply in 3s; never subcorymbose.

5. *glabella*. The largest and most ornamental of the species indigenous to the United States. Stem nearly cylindrical, and very smooth, as well as the whole plant, with the exception of the calix; leaves lanceolate, sessile, and entire; calix glandularly hirsute, border minute, flowers subcorymbose. Root tuberous, perpendicular, and very large, with a spongy bark, stems 2 to 3 feet high, and considerably branched. 6. *stricta*, PH. Apparently a variety of *R. glabella*.

7. *lutea*. Every where glandularly pilose, but particularly the stem, which is obtusely quadrangular; lower leaves oblong-obtuse, the upper much smaller and acute; calix funnel-form, with a conspicuous and acute border; petals yellow, rather small, as well as the stamina, which are erect. OBS. Root perennial, fibrous. Stem about 12 inches, quadrangular, branchlets approximating towards the summit of the stem, 1 and rarely 3-flowered, petals oval and obtuse; flowers about the size of *Cenothera sinuata*.

8. *linearifolia*. Stem cylindrical pubescent, leaves alternate, linear-oblong, obtuse, sessile, every where pubescent; flowers solitary.—Lamarck, *Encycl.* 6. p. 2. In Carolina. *Bosc.* Flowers yellow. A variety of the preceding?

9. * *angustifolia*. Stem subterete, hirsute, leaves linear-lanceolate, somewhat oblong, hirsute, axills foliose; flowers cymose, cyme bifid; calix cylindrical, short, and very smooth. Stamina declinate. *R. lanceolata*, Walter. *R. mariana*, γ . *exalbida*, Mich. *Flor. Am.* 1. p. 221. HAB. Around Savannah, in Georgia, also in Carolina. OBS. Stem one and a half to two feet high, leaves numerous and narrow, scarcely 3-nerved, subpetiolate; flowers constantly disposed in a naked, bifid cyme, never in a trichotomous panicle as in *R. mariana*; calix very smooth; in *R. marianu* twice as long and hairy; flowers smaller, nearly white.

This genus of about 30 species, excepting the above, is exclusively indigenous to the tropical parts of America.

330. **ŒNOTHERA. L.** (Tree-primrose.)

Calix tubulous: 4-cleft, segments deflected, deciduous. *Petals* 4 inserted upon the calix. *Stigma* 4-cleft. *Capsule* 4-celled, 4-valved. inferior. *Seeds* naked, affixed to a central 4-sided receptacle.

Herbaceous, biennial, annual and perennial; leaves alternate; flowers solitary, axillary, at length elongated into a spike, generally yellow, rarely white or violaceous, expanding about sun-set. (Leaves in most of the species, when sufficiently diaphanous, linearly punctate.)

§ 1. *Fruit elongated, sessile.*

SPECIES. 1. *Œ. biennis.* (Tree-Primrose.) *v. v.* On the banks of the Missouri up to Fort Mandan; the flowers are, however, smaller than usual, and the leaves somewhat glaucous. 2. *muricata.* 3. *parviflora.* 4. *grandiflora.* 5. *sinuata*, β . *minima*, PH. A mere variety of this species, and not uncommon in New-Jersey.

6. * *humifusa.* Stem prostrate, branching, villous; leaves linear-lanceolate, subdentate or entire, silky villous as well as the calix; flowers axillary; tube of the calix a little longer than the germ; petals obcordate about the length of the anthers; capsule prismatic. H.A.B. Near Cumberland island, Florida, on the sea-coast.—Dr. Baldwyn. Resembles *Œ. sinuata* somewhat in general habit; but is soft and silky, not hairy as that species; the flowers also seem to have been white; the leaves are an inch long and scarcely two lines wide, irregularly and remotely toothed, lower leaves apparently always entire; flowers small

7. * *albicaulis.* Perennial; stem simple, erect, white and polished, upper part branching; leaves linear-sublanceolate, rarely subserrulate, under side a little villous; flowers axillary, middle-sized, white; capsule prismatic; petals entire.—*Œ. albicaulis.* Fras. Catal. 1813. Pursh's synonym wrong, 2. p. 734. See the Herbarium of A. B. Lambert, esq. H.A.B. From the river Platte to the Northern Andes. Flowering in July and August. Stem about 3 feet high, calix somewhat villous; capsule about an inch long.

8. * *pinnatifida.* Minutely pubescent; stem low and decumbent; radical leaves nearly entire, stem leaves pinnatifid, segments linear and acute; flowers few, axillary, large and white; petals obcordate and dilated, much longer than the stamina; style filiform, very slender, stigmas filiform and divaricate as long as the anthers; cap-

sule prismatic, grooved.—*C. albicaulis*, Pursh, Flor. Am. 2. p. 734. Allied to *C. tetraptera*, but very different in the capsule and style. HAB. On the banks of the Missouri near White river, in denudated argillaceous tracts. Annual, and flowering in May and June. Flowers large and white, becoming reddish on withering. In arid situations not more than 4 or 6 inches high, in other places 1 or 2 feet, but always decumbent; tube of the calix longer than the germ; capsule an inch long, not more than a line and a half wide, quadrangular, and slightly margined.

9. * *caespitosa*. Cespitose and stemless; leaves lanceolate, sinuately or repandly toothed, smooth, petals very large, dilatedly subbilobed; tube of the calix very long; capsule subconic-oblong, sessile, margin of the valves cristately muricate. HAB. On denudated and arid argillaceous hills on the banks of the Missouri, from White river to the Mandans, and in all probability to the commencement of the mountains. OBS. Segments of the calix carinate, appearing prismatic before flowering; seeds cylindric-ovate; plant 3 or 4 inches high, tube of the calix two and a half inches, flower often 3 inches in diameter. This species is considerably allied to *C. acaulis*, which produces pinatifid leaves and alated capsules, in this the leaves are entire, and the capsules considerable like those of *C. biennis*, cylindric-conic, and tuberculately crested along the margins of the valves; the flowers are white, of uncommon magnitude, and become tinged with red in withering: where its duration is long continued it produces numerous cespitose tufts, but from appearances of this kind its existence is seldom continued through more than 5 or 7 years.

10. * *serrulata*. Stem low, slender and suffruticose, minutely pubescent, as well as the under side of the leaves and capsules; leaves oblong-linear, irregularly serrulate; flowers distant, axillary; calix sessile, angular, funnel-form; capsule prismatic, slender; petals roundish, entire; stamina and style very short; stigma almost undivided, 4-toothed. HAB. From the river Platte to the mountains, on dry hills; flowering in June. Somewhat allied to *C. dentata*, but appears very different on inspecting the figure of that species in the Flora Peruviana. OBS. Stem simple, slender, 8 to 12 inches high, foliose; leaves a little more than an inch long, 2 to 3 lines wide, attenuated downwards, distinctly serrulate, not toothed; flowers a little larger than those of *C. sinuata*, bright yellow; calix quadrangular, sessile, funnel-form, segments ovate, and carinate, stamina and style scarcely exerted beyond the calix; germ hoary and pubescent; capsule quadrangular, closely ses-

sile, more than an inch long, about half a line wide; seeds naked. This species, in every respect but the seed, makes a near approach to *Epilobium*.

§ 11. *Capsules ventricose, angular, mostly pedicellate.*

11. *glauca*. Leaves broad-oval, very smooth and glaucous.

12. *fruticosa*. Partly villous; leaves linear-lanceolate, subdenticulate, acute; petals obcordate, as broad as long; calix acuminate; capsule quadrangular, pubescent, oblong-clavate, pedicellate; raceme naked below. *Bot. Magaz* 332. Stem simple, leaves when held betwixt the light, punctate (through a common lens,) punctures very numerous and linear, similar to those of *Lysimachia quadrifolia*, but colourless and diaphanous.

β. * *ambigua* more or less pilose; stem simple; leaves lanceolate, or ovate-lanceolate, acute, subdenticulate, petals obcordate, longer than broad; points of the calix very short; capsule sessile, always smooth, oblong, and 4-winged; raceme naked below. *HAB.* Common around Philadelphia with the preceding; apparently a distinct species. Stem simple, leaves linearly punctate (through a lens,) stem more slender, flowers smaller and usually of a brighter yellow. In dry and exposed situations, this species, if such it may be considered, becomes very hairy, in wet places often perfectly smooth.—My attention has been directed to these discriminations through the politeness of professor Barton.

13. * *incana*. Stem low, slender, and erect; leaves flat, hoary and tomentose, very entire, elliptic-ovate, acute; raceme few-flowered, naked, capsules sessile, oblong and quadrangular. *HAB.* In dry woods, Maryland.—Dr. W. C. Barton. *v. s.* in *Herb. Barton*. Stem 6 or 8 inches high, flowers bright yellow. Allied to *Æ. fruticosa*, β. *ambigua*.

14. *Fraseri*, PH. 15. *pumila*.

16. * *riparia*. Nearly smooth; stem erect and virgately branched; leaves linear-lanceolate acute, distantly subdenticulate, flat and rather thick; capsules spiked, distinctly stipitate, obovate, 8-grooved, valves dorsally ridged. *HAB.* on the banks of Cape Fear river, Wilmington, North Carolina, in situations subject to inundation; often attached to drift-wood. *Obs.* Biennial. Stem about 2 feet high, much branched above, almost entirely smooth, except in an early state, branches brown. Root leaves lanceolate, distantly denticulate, as are also those of the stem, smooth and lucid, rather thick; stem leaves attenuated at both extremities, linear-lanceolate, almost imperceptibly and glandularly denticulate, a little pubescent on the margin, opaque betwixt the light, two to two and a half inches

long, only 2 or 3 lines wide; flowers produced towards the summits of the branches, yellow, capsules racemose octangular; margins alated, dorsal angles obtuse, corrugate; dissepiments very thin and membranaceous, stipe a little shorter than the fruit; racemes 4 to 6 inches long.

17. *hybrida*. 18. *linearis*. OBS. Root ligneous, stem slender, flexuose, rarely exceeding a span, often branched, the whole plant conspicuously pubescent; leaves linear, somewhat oblong; radical leaves spatulate-oval; flowers bright yellow nearly the size of those of *Æ. fruticosa*, for a dwarf variety of which it might almost be mistaken; tube of the calix much longer than the germ; capsules subcorymbose or terminal, very few, roundish-obovate, with 8 grooves, usually shorter than the stipe. HAB. From Virginia to Georgia, in open low and sandy woods. 19. *chrysantha*. 20. *pusilla*. probably a variety of *Æ. linearis*, the capsules of which are sometimes nearly sessile, and the fruit of this is described as clavate.

21. * *alata*. *Æ. macrocarpa*. PH OBS. Root perennial, perpendicular, caudex dividing into several simple and decumbent stems, 6 to 12 inches long. Leaves linear-lanceolate acute, upon long petioles, in an early state minutely villous and hoary, margin sometimes distantly and glandularly denticulate, always pubescent as well as the nerves, opaque betwixt the light, 5 or 6 inches long and about half an inch wide. Flowers sessile, produced below the summit of the stem, axillary; tube of the calix 3 or 4 inches long, (and by cultivation, at the expense of the germ, 6 or 7 inches!) segments of the calix sublanceolate, acuminate, flat, externally spotted with purple, and covered with a short silky villus; petals very large, obcordately dilated, nearly entire. Pollen triangular, connecting at its angles by a fine web of arachnoid filaments. Stigma 4-lobed. Capsule oval, of extraordinary magnitude, compressed, coriaceous and shining, producing 4 very broad alated margins, but without any intermediate dorsal ridges, as is usual in this section of the genus, there is consequently no dissepiments, the separation of the 4 cells being produced by the dorsal depression. Seeds gibbous and corrugate, with a lacunose margined depression, disposed in 2 rows in each cell; length of the capsule about 2 inches, breadth one and a half! This splendid and singular species appears to indicate the existence of some distinct and proximate genus. HAB. On the elevated summits of the calcareous and petrosiliceous hills in the vicinity of the lead-mines of the river Meremeck, 30 miles from St. Louis, Louisiana. Discovered by Mr. J. Brad-

bury, F. L. S. Flower by cultivation nearly 6 inches in diameter, and the leaves then become lanceolate.

An American genus, extending through Peru and Chili into Patagonia, with the exception of 2 species at the Cape of Good Hope.

361. **CLARKIA.** *Pursh.*

Calix 4-cleft, tubulous. *Corolla* of 4 petals, unguiculate, cruciately 3-lobed. *Stamina* 4 imperfect, with roundish anthers. *Stigma* petaloid, 4-lobed. *Capsule* 4-celled.

A biennial or annual and herbaceous plant, with the entire habit of *Ænothera*. Leaves alternate, narrow; flowers alternate, subsessile, purple.

SPECIES. 1. *C. pulchella.* *v. s.* Discovered in Northern California by the late governor Lewis, on the banks of two of the principal branches of the Columbia.

362. **GAURA.** *L.*

Calix 4-cleft, tubular. *Corolla* of 4 petals, ascending towards the upper side. *Nut* quadrangular, 1 to 4-seeded.

Habit similar to *Ænothera*, to the last section of which it closely approaches. Leaves alternate, flowers spiked, mostly rosaceous. Germ 4 or more seeded; capsule by abortion 1-seeded. (Leaves impunctate.)

SPECIES. 1. *G. biennis.* 2. *angustifolia.* 3. * *coccinea.* Perennial; stems simple, decumbent, several from the same root; leaves linear-lanceolate, repandly denticulate, canescent and partly villous; raceme lax, many-flowered, petals roundish, filiformly unguiculate, a little longer than the calix; stigma 4-toothed; fruit acute at both extremities, 4-seeded. **HAB.** On the declivities of bare gravelly hills, from the Maha village to the Mandans. About a foot high, covered with a short and hoary villous pubescence, leaves crowded; flowers at first rose colour, at length becoming pale scarlet. Flowering in May.

Of this genus there are 2 other species in Mexico and 1 in tropical America.

363. **EPILOBIUM.** *L.* (Willow-herb.)

Calix 4-cleft, tubulous. *Corolla* of 4 petals; *Capsule* oblong inferior. *Seeds* comose.

Herbaceous; leaves opposite or alternate; flowers reddish, towards the summit of the stem, solitary and axillary, or in terminal bracteate spikes: stamina in a few species declinate.

SPECIES. 1. *E. spicatum*. Commonly called *E. angustifolium*, but the leaves are comparatively more broad than narrow. 2. *latifolium*. 3. *luteum*, PH. 4. *tetragonum*. 5. * *squamatum*. Subcanescently pubescent; root squamose, bulbous; stem terete, branching above; stem leaves opposite, those of the branches alternate, linear and entire, revolute on the margin; flowers pedunculate; petals bifid; stamina unequal; stigma clavate undivided. **HAB.** In wet meadows, common around Philadelphia. *E. rosmarinifolium*. Pursh, Flor. Am. 1. p. 259. but this name has been already applied by Haenke to a very different species. **OBS.** Root in winter an imbricated squamose bulb, with succulent reddish scales! Stem about 1 foot high, slender; flowers small, few and terminal; petals small, white, and veined, bilobed, longer than the calix; stamina unequal, 4 shorter opposite the petals, and 4 longer alternating with them; capsule very long, 4-sided. 6. *coloratum*. Leaves with linear and round diaphanous punctures (through a lens) after the manner of *Enothera*, excepting that the punctures are of two forms. 7. *palustre*. 8. *alpinum*. Probably *E. oliganthum*. Mich. 1. p. 223.

A genus principally indigenous to the north of Europe, extending as far as Greenland; there is also 1 species in Chili, 2 in New-Zealand, and 1 at the Cape of Good Hope. Have not all the species indigenous to the colder regions roots which assume the form of bulbs in winter?

364. OXYCOCCUS. *Persoon*. (Cranberry.)

Calix superior, 4-toothed. *Corolla* 4-parted; segments sublinear, revolute. *Filaments* connivent. *Anthers* tubulose, semibifid. *Berry* many-seeded.

Small prostrate creeping shrubs with evergreen leaves, growing in sphagnose morasses; branches filiform, proliferous; flowers produced at the base of the vernal ramuli, in short gemmaceous racemes, peduncles conspicuous bibracteate; berries red, or rarely white, acid.

SPECIES. 1. *O. macrocarpus*. **OBS.** Repent; leaves oval-oblong, nearly flat and obtuse, distantly subserrulate, under side somewhat glaucous, younger ones pubescent at the points; segments of the corolla linear-lanceolate.—Branches sometimes flexuose and adscendent, serrula-

tions of the leaves about 4, points of the younger leaves, peduncles and the margin of the calix and bractes pubescent; flower-bearing branches proliferous and erect, the rest becoming prostrate and radican; pedicells bi-bracteate, bractes acute. Berries immaculate red and spherical, often persistent throughout the winter. HAB. In sphagnose swamps or overgrown ponds, from Labrador to Carolina.—The fruit an article of commerce as well as domestic consumption.

2. *hispidulus*, *Vaccinium hispidulum*, Mich. 1. p. 228. tab. 23. Willd. Sp. pl. 2. p. 355. *Gaultheria Serpyllifolia*, Pursh, 1. p. 283. The whole habit of this singular plant, as well as its being octandrous, is certainly in favour of this genus, rather than *Gaultheria*, although it possesses occult qualities similar to *G. procumbens*, having the same aromatic taste and smell. The berries of this species are small, white, and produced in very inconsiderable quantities, they are aromatic, not very acid, and rather insipid than agreeable, certainly not "very sweet." HAB. I have observed this plant north-westward as far as the outlet of lake Michigan, and as Mr. Pursh very justly remarks, abounding where evergreens are predominant, keeping pretty constant pace with the boreal forests of Pines, Larches and Firs. It is not uncommon on the mountains of Pennsylvania, growing always amidst Sphagnum. 3. *erythrocarpus*. *Vaccinium erythrocarpum* Mich. 1. p. 227.

A North American genus, with the exception of *O. europæus*: (*Vaccinium Oxycoccus*, Willd.) which has not, I believe, yet been found in America.

†† *Germ superior*.

365. MENZIESIA. Smith.

Calix of 1 leaf. *Corolla* monopetalous, ovate. *Filaments* inserted upon the receptacle. *Capsule* superior, 4-celled, dissepiments produced by the inflected margins of the valves. *Seeds* numerous, oblong.

An heteromorphous genus, *M. ferruginea* and *M. globularis* possessing the habit and fruit of *Azalea*, but the flowers of *Andromeda*; the flowers and ciliated oblanceolate leaves terminally fasciculated;—*M. empetriformis*, *M. cærulea* with decandrous flowers, and *M. polifolia*, having leafy stems, linear or minute leaves with revolute margins and conspicuous red flowers, are scarcely distinct from *Erica*.

SPECIES. 1. *M. ferruginea*. In North California. 2. *globularis*? **OBS.** Branches subverticillate. Leaves obovate-lanceolate, acute, petioles and margin as well as the younger branches pilose, under side of the leaf glaucous, covered with a minute pubescence, upper side somewhat scabrous; under side of the midrib lined with about eight to ten distant tubercles, each terminated by an appressed paleaceous process, and respectively situated near the base of each pair of lateral nerves. Flowers terminally fasciculated, peduncles glandularly pubescent, an inch and a half long. Calix crenate, minute, crenatures 4, ciliate, retuse. Capsule cylindric-ovate, short, 4-valved, coriaceous, receptacle with 4 alated angles, each angle seminiferous and embraced by the 2 inflected margins of each valve. Seeds minute, linear-oblong, acute. 3. *empetriformis*. 4. *cærulea*. These 2 last resemble *Erica*. No. 4. was the *Erica cærulea* of Willdenow.—There is but another genuine species of this genus, which is the *M. polifolia* of Jussieu, in the north of Europe, almost peculiar to the mountains of the west of Ireland, extending also into France and Portugal.

366. ACER. *L.* (Maple.)

Flowers mostly polygamous.—*Calix* about 5-cleft. *Petals* 5, or none. *Samarae* 2, sometimes 3, alated, united at the base, by abortion 1-seeded.

Large or small trees; leaves palmately lobed (in *A. Negundo*, simply or doubly pseudo ternate); flowers lateral and terminal, subcorymbose, racemose, or aggregate, and then subtended by an imbricated gemmaceous involucre, with the pedicells 1-flowered. Calix sometimes petaloid.

SPECIES. 1. *A. rubrum*. **OBS.** Dioicous; calix petaloid red, 8 to 12 parted; stamens about 5, in the male exserted, having a globular gland at the base of each; segments of the hermaphrodite calix shorter and broader, stamens also shorter. Styles 2, long, recurved and pubescent on the upper surface. Flowers aggregated in 5s, surrounded by a gemmaceous involucre. 2. *dasycarpum*. **OBS.** Dioicous; hermaphrodite calix membranaceous, nearly entire, or with 5 crenatures; petals none; stamina mostly 5, rarely 4 or 6. Germ lanuginous, 4-seeded; no glands at the base of the corolla or germ, as in *A. rubrum*; gemmaceous clusters about 5-flowered, internal base of the involucre woolly. **HÆ.** Westward into Upper Louisiana.—These 2, and several others, are scarcely congeners with the

European maple. 3. *barbatum*. 4. *saccharinum*. (Sugar-maple.) 5. *nigrum*. Scarcely distinct from the preceding. Confined almost exclusively to the west side of the mountains. 6. *macrophyllum*, PH. v. s. Somewhat resembling *A. Pseudoplatanus*. 7. *circinatum*, PH. Both indigenous to North California, on Columbia river. 8. *striatum*. Persoon, 1. p. 417. Pursh, 1. p. 267. OBS. Racemes pendulous. Calix 5-cleft, petals 5, oblong; stamina 8, anthers pale, oval, small. This is certainly a correct type of the genus, as well as the following. 9. *montanum*.

NEGUNDO. Dioicous.—Calix minute, 5-toothed. Petals none. Male, with 5 stamina, anthers linear, sessile, and acuminate. *Samare* similar to *Acer*.

A tree, with pseudoternate or imperfectly biternate leaves (something like those of *Fraxinus*), racemes aggregated, filiform.

10. **Fraxinifolium*. HAB. North-westward on the banks of the Missouri to the mountains?

Of this genus there are 5 species on the continent of Europe, 1 in the isle of Crete, which is evergreen, with leaves like *Anemone hepatica*, 1 in Tartary, and 6 in Japan.

367. DIRCA. L. (Leather-wood.)

Calix none. *Corolla* tubulous, border obsolete. *Stamina* unequal, exserted. *Style* filiform. *Berry* 1-seeded.

A low shrub, virgately branched; bark tenaceous; buds 3-flowered, axillary; flowers small, pale yellow.

SPECIES. 1. *D. palustris*. The only species of the genus.

368. JEFFERSONIA. Barton.

Calix 5-leaved, coloured, deciduous. *Corolla* of 8 petals, incurvately spreading. *Stamina* receptacular. *Capsule* obovate, substipitate, 1-celled, opening below the summit by a lunate foramen. *Seeds* many, oblong, arillate at the base.

Stemless; leaves binate; scapes naked, 1-flowered; flowers caducous, white. Natural order *Papaveraceæ*.

SPECIES. 1. *J. diphylla*. The only species of the genus.

ORDER II.—DIGYNIA.

369. CHRYSOSPLENIUM. L. (Golden Saxifrage.)

Calix superior 4 or 5-cleft, coloured. *Corolla* none. *Capsule* birostrate, 1-celled, many-seeded.

Herbaceous, subaquatic, leaves simple, thickish, opposite or alternate; flowers small sessile, often terminal and surrounded with floral leaves, mostly 4-cleft and octandrous, the primary flower sometimes decandrous.

SPECIES. 1. *C. oppositifolium*. Obs. Leaves both opposite and alternate. Stamina seated in the indentions of the margined and sinuated receptacle, indentions 8.—A genus probably of a single species indigenous to Europe and America.

ORDER III.—TRIGYNIA.

370. POLYGONUM. L. (Persicaria, Buckwheat, &c.)

Calix 5-parted, petaloid, persistent. *Seed* 1, superior, 3-sided, covered by the connivent calix. (The number of the stamina and styles uncertain.)

A polymorphous and divided genus? nearly all the species herbaceous; leaves alternate; linear, spatulate, lanceolate, ovate, cordate or sagittate, sheathing at the base, sheathes or ochreae cylindric, embracing the stem; flowers axillary, or spiked, in a few species disposed in paniculated racemes, color reddish or white. Peduncles articulated, as in *Eriogonum* and perhaps in other genera of *Polygonae*? Stems and branches, often nodose, but inarticulate.

§ 1. *Ochreae*, manyflowered, (3—5.)

SPECIES 1. *P. aviculare*, flowers octandrous, styles 3, peduncles shorter than the flowers, seeds granulated. *α. angustifolium*. Mich. 1. p. 237, leaves small, lanceolate-oblong, acute. *β. latifolium*, leaves broad oval, obtuse, flowers pentandrous, stem adscendent. 2 **glaucum* Flowers octandrous, styles 3; stem diffuse, prostrate, leaves ovate-lanceolate, thick and glaucous; pedicells as long as the flowers; seeds acuteangular, acuminate, even, and

shining. HAB. On the sandy beach of the sea, around Egg-Harbour, New Jersey; possesses much the aspect of *P. aviculare*, but produces flowers which are conspicuous and elegant, and occurs in situations which pronounce it native; not naturalized as *aviculare*, the seed is also remarkably distinct. *A. maritimum* of Europe has never yet been found on the American sea-coast. OBS. The whole plant glaucous, very diffuse, branches with numerous nodes, stipules lacerate, 3 to 5-flowered, flowers white and exerted, segments obtuse; filaments of the stamina very short and dilated. 3. *ramosissimum*. 4. *tenuë*. 5. *Hydropiperoides*. 6. *mitis*. 7. *hirsutum*. The whole plant hirsutely pubescent; leaves lanceolate. 8. *virginianum*. 9. *bistortoides*. PH. This species is probably a variety of *bistorta*. 10. *viriparum*. 11. *coccineum*. Sparingly met with in the vicinity of Philadelphia. 12. *pensylvanicum*. 13. *Persicaria*. 14. *orientale*. Partly naturalized.

—Leaves sagittate or cordate.

15. *sagittatum*. 16. *arifolium*. 17. *Fagopyrum*. Buckwheat, merely cultivated, not naturalized. 18. *Convolutus*. Introduced. 19. *clinode*. 20. *scandens*.

§ II. POLYGONELLA. Calix 5-leaved. *Ochrea* 1-flowered; racemes dichotomously paniculate; leaves spatulate, small, (flowers often dioicous.)—Stamens 8. Stigmas 3, subcapitate.

21. *articulatum*. Annual; flowers hermaphrodite, nutant, as long as the capillary peduncles; peduncle articulated near its base; fruit acute-angled, as long as the spreading calix; flowering stems nearly naked; leaves spatulate-linear obtuse. HAB. Canada to Virginia, in sandy and barren soil; also on the banks of Fox River and Lake Michigan (Michigan Territory.) A very elegant species with spreading rosaceous flowers, sometimes white. OBS. Stem about a foot, in flower mostly naked, much branched, branches erect, copiously floriferous. Flowers spreading and obtuse, anthers purple; styles none; stigmas 3, subcapitate as in the 2 following species; ochrea of the flowers truncate, unidentate also as in the 2 following, but larger.

22. * *gracile*. Dioicous; glaucous, annual; racemes very slender, filiform; flowers deflected, at first minute, much longer than the peduncles; peduncle articulated to the calix; fruit acuminate longer than the connivent calix; flowering stems nearly naked; leaves spatulate-linear, obtuse. HAB. In Georgia? Dr. Baldwin. Very similar to the preceding in habit, although a very distinct species, about a foot high, much less branched than *P. articulatum*, branches very slender, somewhat spreading, coming out above the ochrea, perfectly lateral, unaccom-

panied by nodes. Leaves very few, small and distant. Racemes as in the 2 other species dichotomous. Flowers greenish white, at first minute, gradually augmenting in the fruit after the manner of *Rumex*; segments unequal, the larger oblong-ovate, the 2 smaller often horizontal in fruit.

23. *parvifolia* Dioicous; stem shrubby; much branched, leaves cuneate-linear, or spatulate-obovate, retuse, tortuously-spreading; racemes spreading, very numerous, peduncle minute, articulated with the calix; the 2 smaller divisions of the calix reflected in the fruit; fruit included. **HAB.** On the sand-hills of Lynch creek, and around Wilmington, North Carolina, abundant. **Obs.** A small shrub, about the size and form of *Erica vulgaris*, rarely ever 2 feet high; branches brittle, brown, covered with the vestiges of rejected stipules, innumerably branched; leaves almost imbricately approximating and tortuous, variable in breadth, opaque; flowers minute.

The principal part of this genus, excepting the above, is indigenous to Europe, and extending into Siberia (Asia). There are also a few species in the East Indies, Japan, China and New Holland.

371. BRÛNICHIA. *Gærtner.*

Calix at length coriaceous, tubular and ventricose, 5-cleft, angular at the base, and decurrent in the dilated peduncle. *Corolla* none. *Styles* short; stigmas bifid. *Seed* 1, triquetrous, inclosed by the calix. *Perisperm* lobed. (Stamina 8 or 9, rarely 10).

A climbing shrub with alternate, cordate, acuminate leaves; racemes, paniculated, bractes many flowered; calix enlarging and becoming suberose, elongated into a flat and arched peduncle, attenuated and articulated at its base, deciduous at the articulation after the manner of the whole order of Polygonææ? The stem and leaves matriculate. Embryon inverted.

SPECIES. *B. cimbrica*. The only species indigenous to Georgia, Florida, and the Bahama islands.

372. CARDIOSPERMUM. *L.* (Heart-seed.)

Calix 4-leaved. *Petals* 4. *Lepanthium* 4-leaved, unequal. *Capsule* membranaceous, inflated, 3-lobed, 3-celled. *Seeds* round, marked at the hilum with a heart-shaped spot.

Herbaceous climbers; leaves biternately divided; peduncles long, solitary, and axillary, producing 2 tendrils below the summit, and terminating in a many-flowered corymb.

SPECIES. *C. Malicacabum*. A doubtful native, but indigenous to India.

A small tropical genus of 4 species, 2 others in America, and 1 in Guinea.

373. SAPINDUS. (Soap-berry.)

Calix 4-leaved. *Petals* 4, glandulous at the base. *Capsules* 3, carnosae, connate, and ventricose, 2 of them often abortive. *Seed* spherical.

Trees; with pinnated leaves; flowers paniculated terminal and axillary.

SPECIES. *S. Saponaria*. Fruit globose, terebinthinaceous.—HAB. Sea-coast of Georgia.

A tropical genus of 10 species, 5 indigenous to America, and 5 to India.

CLASS IX.—ENNEANDRIA.

ORDER I.—MONOGYNIA.

374. LAURUS. *L.* (Spicewood, Sassafras, &c.)

Calix mostly 6-parted. *Nectarium* consisting of 3. bisetose glands, surrounding the germ. *Filaments* 12, 6 interior, 3 of them sterile and glanduliferous. *Berry* 1-seeded. (Stamina variable in number. Flowers often dioicous.)

Small trees or shrubs with entire, and sempervirent leaves, in some species partly opposite and longitudinally nerved; flowers paniculate or racemose axillary and terminal, (a few species have solitary flowers, but are not probably of this genus.)

SPECIES. 1. *L. Catesbii*. 2. *carolinensis*. Flowering in July. I have met with this plant as far to the north as the Great Cypress Swamp, in Sussex country, Delaware, but very rare. The whole plant is aromatic and spicy.

This extensive genus which affords the Cinnamon, the Cassia, and the Camphor of commerce, is with the above exceptions, 5 species in Japan and 1 in Europe (*L. nobilis*), entirely tropical; India affords 3 of the most important species, long celebrated as spices; in the Canary islands there are 2, the tropical regions of America afford no less than 21, amongst the most remarkable of which is *L. caustica* of Chili, being poisonous, and the *L. Persea*, called avocado, and alligator-pear, producing a large and very grateful fruit formed like a pear.

The deciduous leaved species of the United States appear to constitute a subgenus, which I propose as follows:

* **EUOSMUS.**† Flowers polygamous or dioicous.—*Calix* 6-parted. *Nectarium* none. *Stamina* 9, fertile; 6 exterior, naked, the 3 interior augmented by 6 infertile short stamina, attached by pairs; anthers of the sterile stamina glanduloid. *Berry* 1-seeded.

Trees or shrubs with alternate deciduous leaves, entire or lobed; flowers appearing before the leaves in small

† From *ευωσμος*, odorous.

conglomerate umbellis, or conglomerate bracteate racemes in *E. Sassafras* and *E. * albida*.—(Filaments and anthers adnate; anthers 2 or, unequally, 4-celled, cells closed by so many vertical valves, which opening elastically often carry up the pollen in a mass. Stamina always 9; to the base of the 3 interior fertile stamina are attached 3 pair of short glanduloid infertile ones, destitute of pollen. Cotyledones of the seed, excentrically peltate, or laterally attached to the embryo a little above their base, after the manner of all the LAURINÆ, according to the observations of R. Brown.)

§ I. *Flowers umbellate, leaves entire.*

SPECIES. 3. *E. æstivalis*. Polygamous: Leaves venose, oblong acuminate, every where smooth. 4. *Benzoin*, (Spice-bush.) Polygamous: Leaves cuneate oboval, under side whitish and partly pubescent; buds and pedicells of the umbells smooth. 5. *Diospyrus*. Dioicous; Low, surculose, and virgate; leaves oblong-oval, under side veiny and pubescent; buds and pedicells villous; fruit large. **Obs.** A running twiggy shrub, 2 or 3 feet high, growing in swamps; leaves opaque, attenuated towards the base; bud scales purple, and as well as the younger branches villous; umbellate clusters sessile, 3 to 5-flowered; perfect stamina 9; glanduloid anthers of the imperfect stamens large, orange yellow; berries upon thick and distinct pedicells, oblong-ovate, scarlet, larger than those of *E. Benzoin*; cotyledones large, thick and oily, embryo small, laterally attached nearly at the base of the seedlobes. 6. *geniculata*. Polygamous; Branches divaricate and flexuous: leaves small, cuneate-oblong, mostly obtuse, smooth except on the under side near the base, umbellets terminal, conspicuously pedicellate, smooth; anthers unequally 4-celled. **HAB.** Uniformly in sandy swamps, and on the margins of lagoons from Virginia to Florida. From 8 to 12 feet high; Branches grey and smooth, remarkably divaricated, so as to communicate a characteristic appearance to the ponds which they border; leaves about an inch and an half long, often less than half an inch wide.

§ II. *Buds producing both leaves and flowers; racemes conglomerate, corymbose; leaves lobed.*

7. *Sassafras*. Dioicous; arborescent; buds, younger branches and the under side of the leaves pubescent; leaves entire, or 2 or 3 lobed, under side prominently veined. (Red Sassafras.)—Anthers unequally 4-celled. The female flower produces the 6 infertile stamina only.

8. ** albida*. Dioicous; arborescent; buds and younger branches smooth and glaucous; leaves entire, or 2 or 3

lobed, every where very smooth and thin, under side obsoletely veined, petiole longer. (White Sassafras.) HAB In North and South Carolina abundant, from the Catawba mountains to the east bank of the Santee; growing with the common species, which is in North Carolina less abundant. I have not seen it in flower, therefore the comparison is incomplete, but all the inhabitants distinguish them perfectly by the names of white and red Sassafras, this species is also sometimes denominated Smooth Sassafras; the root is much more strongly camphorated than the ordinary sort and nearly white; it is also better calculated to answer as a substitute for *Ochra* (*Hibiscus esculentus*) than *E. Sassafras*, its buds and young branches being much more mucilaginous.

The genus *Ocotea* of Aublet appears to be very nearly related to the present, but the flowers are paniculated, and the filaments of the anthers are described as broad and truncate.†

ORDER II.—TRIGYNIA.

375. ERIOGONUM. Michaux.

Calix subcyathiform, tubulous at the base, border 6-cleft, segments unequal, externally villous. *Corolla* none. *Seed* 1, triquetrous, without margins, covered by the calix. (Flowers involucrate. Stipules none.)

Herbaceous or suffruticose plants, mostly stemless and caespitose, with alternate leaves, more or less tomentose; flowers involucrate; involucre cup-shaped or campanulate, many-flowered (15 to 20;) flowers circularly articulated to the peduncles, many of them deciduous. (*E. to-*

† This is the *Porostema* of Schreber's genera, and apparently fictitious, so far as it varies from the account of Aublet. It is described as having a 6-parted calix; 9 filaments called nectaries, arranged in 2 series, 3 of them being internal and furnished with glands, each of these filaments is said to produce 4 pores (evidently the 4 polliniferous cells of *L. Sassafras*, and *L. geniculata*) but monstrous to relate, there arises from all these 36 pores, so many filaments supporting *peltate* anthers! and instead of a drupe containing 1 seed, as described by the accurate and celebrated Jussieu, we have to learn that it produces a capsule with several cells, and many seeds!

mentosum produces an erect and dichotomous stem, and verticillated leaves.)

SPECIES. 1. *E. tomentosum*. Called wild Rhubarb. 2. *flavum*. Fras. Catal. 1813. *E. sericeum*. PH. 1. p. 277. 3. *parviflorum*. (*E. pauciflorum*. PH. 2. p. 735.) 4. *parvifolium*. Calix naked; leaves petiolate, alternate, ovate, revolute; stem suffruticose—Rees Encycl. under *Eriogonum*, with the following. **HAB.** Collected on the N. West coast of America, by A. Menzies, Esq. Involucrum very many flowered, profliferous; peduncles smooth. 5. *latifolium*. Calix naked; leaves petiolated alternate, cordate, undulated, petiole amplexicaule; stem suffruticose. **HAB.** North West coast of America—Menzies. **Obs.** Leaves 2 inches long, tomentose beneath, often aggregated towards the summit of the divisions of the caudex.

A North American genus, allied to *Rheum*, and also to the *Plegorhiza adstringens* of Molini.

376. PLEEA. Michaux.

Calix none. *Corolla* 6-parted, stellately spreading; segments linear, acute. *Capsule* roundish, with 3 angles, 3-celled, dissepiment obsolete. *Seeds* numerous, minute, subterete and caudate, attached to the margins of the valves.

Roots cespitose, fibrous; leaves iridescent, compressed and attenuated, sempervirent, very narrow, furnished with distinct sheathes and distichally imbricated. Scape sheathed, nearly naked; flowers few, racemose, peduncles solitary, separately sheathed, about the middle bracteate. Stamina 9 to 12.

SPECIES. 1. *P. tenuifolia*. Rare. Abundant in a single locality, a few miles south of Wilmington, N. Carolina, near the entrance of an extensive and open swamp. **Obs.** Fibres of the root nearly scarlet, sheathing base of the leaves of a fine pink red, leaves deep green, tenaceous and arid; racemes 6 to 9 flowered; flowers nearly saffron yellow, persistent. This plant is very closely allied to the section of *Tofieldia*, which I have called *Triantha*, but differs much in the form of the flower as well as in the habit and number of stamina.

CLASS X.—DECANDRIA.

ORDER I.—MONOGYNIA.

† *Flowers monopetalous.*

377. ARBUTUS. L. (Bear-berry, &c.)

Calix minute, 5-parted. *Corolla* ovate, diaphanous at the base, border small, 5-cleft, revolute. *Berry* superior, 5-celled; cells 1, or many-seeded.

Suffruticose or shrubby; leaves alternate; flowers axillary or terminal subracemose.

SPECIES. 1. *A. laurifolia*. 2. *Menziesii*, PH. 3. *tomentosa*. PH These 3 species are indigenous to the North West coast of America only. 4. *alpina*. 5. *Uva ursi*.

A small and widely dispersed genus, there being 4 species in Europe, one of them also indigenous to Candia and mount Ida, 2 others are common to North America. there is likewise 1 in the Levant, 1 in Acadia, 1 in some unknown part of America, 1 in Peru and 2 in Tierra del Fuego.

378. GAULTHERIA. L. (Mountain-tea, Partridge-berry, &c.)

Calix 5-cleft, or 5-toothed, bibracteate at the base. *Corolla* ovate, border partly 5-cleft, revolute. *Filaments* of the stamina hirsute; *Torus* or receptacle 10-toothed. *Capsule* superior, 5-celled, invested by the calix which becomes a berry.

Very low and suffruticose; leaves alternate or fasciculated, sempervirent; flowers axillary, solitary or racemose.

SPECIES. 1. *G. procumbens*. **HAB.** Usually in the shade of other evergreens, particularly *Kalmias* and *Rhododendrons* from Canada to Georgia. Sometimes used as an indifferent substitute for tea. **Obs.** Stem procumbent, repent, suffruticose; flowering surculi very short, erect and pubescent; leaves of each shoot 4 or 5, crowded at the summit, obovate, ciliate-denticulate. Flowers axillary and solitary, nutant. *Calix* 5-toothed, bibracteate at the base. *Corolla* ovate, 5 angled, apex 5-toothed, inter-

nally pubescent. Stamina included; filaments hirsute, equal in length with the anthers opening by 2 terminal pores, each pore bicornute. Torus, internally 10-toothed, dentures alternating with the stamina. Style cylindric tubulous, the base immersed in the germ; stigmas 5, internally adnate. Germ roundish, 5-angled, 5-celled, cells about 20-seeded. Seeds attached to the 5 lobes of the central axis.—Very nearly allied to *Pyrola*, although monopetalous. 2. *Shallon*. PH. Apparently an *Arbutus*; the calix is not caliculate, the peduncle appears to be merely bibracteolate below the middle.

Of this small genus there appears to be 4 other species indigenous to the mountains of tropical America, and 1 in New Zealand.

579. VACCINIUM. L. (Whortle-berry, Huckle-berry.)

Calix superior, 4 or 5-toothed. *Corolla* urceolate or campanulate, 4 or 5-cleft; border reflected. *Filaments* inserted upon the germ. *Berry* 4 or 5-celled, many-seeded. (Stamina sometimes 8.)

Suffruticose or shrubby, gemmaceous; bud scales often persistent, on the base of the small branches; leaves alternate in some species sempervirent; often scattered with resinous atoms; flowers pedicellate, solitary, axillary fasciculate, or racemose. Berries edible, mostly dark purple.

§ 1. *Leaves deciduous.*

SPECIES. 1. *V. stamineum*. Berries large, partly pyriform and green when ripe; bitter and scarcely edible. 2. *album*. 3. *arboreum*. The largest species of the genus in North America; branches divaricated; flowers partly as in *V. stamineum*; berries rather dry but sweet, with a granular pulp. 4. *dumosum*. Very low, and running profusely; berries perfectly black, to appearance, conspicuously crowned by the persistent calix. 5. *frondosum*. Berries and under side of the leaves glaucous; fruit large and rarely copious; agreeable, but quickly deliquescent and subject to be infested by the larva of insects. 6. *pallidum*. 7. *resinosum*. Flowers reddish, angular. Fruit not much esteemed. 8. *corymbosum*. Fruit subacid, and agreeable, as well as that of the following. 9. *amoerum*. 10. *virgatum*. 11. *fuscatum*. 12. *galezans*. 13. *ligustrinum*. 14. *tenellum*. Sometimes called "Sugar Huckleberries," small and ra-

ther too saccharine, but a very agreeable fruit, brought in great quantities to the Philadelphia market. 15. *uliginosum*. The European Whortle-berry. 16. *myrtilloides*. 17. *cæspitosum*.

§ 11. *Leaves sempervirent.*

18. *Vitis Idæa*. Berries scarlet, farinaceous and insipid. A small subalpine species, indigenous also to the north of Europe. 19. *myrtifolium*. 20. *crussifolium*. A variety probably of the following. 21. *nitidum*. Branches procumbent and repent.—From Virginia to Georgia. 22. *myrsinites*. 23. *buxifolium*. 24. *ovatum*. 25. *obtusum*. These 2 last are indigenous to the North West coast.

A North American genus, with the exception of 3 species in Europe, 1 in Jamaica, 1 in the island of Tahiti in the Pacific, 1 indigenous to Madeira and Cappadocia, and 3 in Japan.

580. ANDROMEDA. L.

Calix 5-parted, minute, inferior. *Corolla* more or less ovate, or subcylindric, smooth; border 5-cleft, reflected. *Capsule* 5-celled, 5-valved; valves producing dissepiments from the middle, margins naked.

A genus not altogether natural, including species of various aspects; they are mostly shrubs, in *A. arborea* and *A. pyrifolia*, bordering upon trees, 4 species indigenous to Siberia and the coldest parts of Europe, with 2 near the extremity of South America, resemble the genus *Erica*, and are amongst the most humble suffrutices; the leaves of most are alternate and sempervirent; flowers axillary and terminal, rarely solitary, more commonly aggregated, or racemose, in 2 or 3 species paniculated, protected by gemmaceous and proper bractes. (Seeds numerous, angular, usually truncate at one extremity, transversely attached to a 5 lobed pendulous receptacle, septa of the valves bipartite in *A. caliculata*.)

SPECIES. 1. *A. tetragona*. In Canada. 2. *hypnoides*. North West coast. 3. *polifolia*. Common also to Europe. 5. *caliculata*. Obs. Flowers unilateral, axillary, solitary, approximating towards the end of the branches in the manner of a raceme; calix bibracteate; capsule roundish, coated; septa spontaneously bipartite in a longitudinal direction, exhibiting 5 distinct capsules primarily attached to a common axis opening externally, and connected by a 5-parted external envelope. seeds numerous, truncate, angular, transversely accumulated.

(The capsule of *Clethra alnifolia* possesses a similar structure, excepting that the capsules are but 3 in place of 5, and do not separate spontaneously in consequence of being inseparably united at the base.) Indigenous also to Siberia. Almost the only species in upper Louisiana. 5. *angustifolia*. Пн. Nearly allied to the preceding. 6. *nitida*. Fascicles of flowers axillary, subracemose. In swamps from North Carolina to Florida. 7. *axillaris*. Obs. Leaves oblong-oval, sublanceolate, acuminate, upper part cartilaginously serrulate, serratures mucronate, under side scattered with minute glandular hairs; younger branches also pulverulently pubescent; racemes axillary, spiked, sessile, imbricately bracteate; corolla cylindric-ovate, anthers awnless.—Stigma capitate. Capsule globular, depressed; septum indivisible, as in the preceding. Receptacular bodies 5, pendulous from the summit of the axis, each conspicuously pedicellate. Seeds brownish, angular, and truncate at the lower extremity. *A. spinulosa* of Pursh is certainly the same species with the present, in which oval leaves are not uncommon. HAB. From Virginia to Florida, and westward throughout the mountains of North Carolina into East Tennessee. 8. *acuminata*. 9. *floribunda*. Discovered and so named by the late Mr. John Lyon. A very elegant species.

Species with deciduous leaves.

10. *mariana*. An extremely fine, common, and hardy species, possessing somewhat the habit of *A. nitida* when flowering again in the autumn; its vernal flowering branches are, however, nearly naked. 11. *speciosa*. From Virginia to Florida. I have never seen the variety *pulverulenta* except in a singular locality of a few miles in North Carolina, not very far from Wilmington; it is undoubtedly a distinct and natural variety, but scarcely a species. 12. *racemosa*. Anthers 4-awned; racemes secund, calix bibracteate at the base; style cylindric, stigma indistinct. Leaves serrulate, somewhat pubescent on the under side. 13. *arborea*. (Called Sour-wood.) Racemes, paniculate; flowers secund, pubescent. Style pentangular, stigma indistinct. Capsule pubescent ovate; septum indivisible. Seeds subulate, longitudinally imbricated.

Principally a North American genus; at the same time there are 3 species in the island of Jamaica, 1 in the island of St. Thomas, 4 or 5 in other parts of tropical America, and 1 at the Straights of Magellan; Japan affords a single species, the islands of the Pacific as far as New Zealand 4 or 5, and Europe with Siberia 6.

381. *LYONIA†. (Species of ANDROMEDA. Willd.)

Calix 5-toothed. *Corolla* subglobose, pubescent. *Capsule* 5-celled, valves 5, septiferous in the middle, having their margins closed by 5 other external narrow valves. *Seeds* numerous, subulate, longitudinally imbricated.

Shrubs with deciduous or sempervirent and alternate leaves; flowers small, collected into interrupted naked panicles or lateral and axillary fasciculi; peduncles exerted, destitute of bractes.—(Corolla covered with more or less of the pubescence of the leaves; anthers awnless, filaments each with an oval dilation at the base; style cylindrical, stigma indistinct; capsule subglobose or ovoid, pentangular; dissepiments indivisible; the 5 lobes of the receptacular axis connate, situated at the summit of the capsule; seeds slender, caudate.)

Leaves sempervirent.

SPECIES. 1. *L. ferruginea*. **Obs.** Under side of the leaves and nearly all the rest of the plant, not excepting the flowers, invested with brown umbilicate furfuraceous scales; leaves obovate and flat, reticulated, but scarcely revolute on the margin; pedicells aggregated in 3s and 5s about 3-4 of an inch long; flowers very small, globular-ovate; capsule cylindrical-ovoid, furnished with very conspicuous accessory valvulæ, which are deciduous, about half the breadth of the proper valves, and a little uncinatè at the summit.—I have not been able to find these singular valvulæ in any other of the *Andromedas* except the species included in the genus here proposed.

2. *rigida*. **Ph.** Differs from the preceding in being arborescent, with the leaves more oblong, convex and revolute on the margin, having the veins on the upper side, in particular obsolete or hidden, and the flowers globose. Michaux also adds that it flowers at a different time.

Leaves deciduous.

3. *paniculata*. Pubescence pilose and minute, upper surface of the older leaves partly smooth; leaves obovate-lanceolate, nearly entire, somewhat acuminate at both extremities, membranaceous; panicle terminal, nearly naked, corolla globose, somewhat pubescent; anthers awnless.—Capsules, pentangular, roundish.

† To commemorate the name of the late Mr. John Lyon, an indefatigable collector of North American plants, who fell victim to a dangerous epidemic amidst those savage and romantic mountains which had so often been the theatre of his labours.

4. *frondosa?* PH. Every part of the plant densely and pulverulently villous: leaves oblong, or oblong-obovate, partly obtuse, under side furfuraceously villous, often ferruginous, coriaceous and opaque, deciduous, prominently veined beneath, margin revolute, entire, and scabrous; panicle terminal, frondose? "corolla globose, hispid (pubescent?) anthers awned." PH. I can scarcely entertain a doubt of the anthers being awnless in this species as well as in the preceding, although I am not certain whether this plant be that which he has described. Capsule roundish, pubescent, pentangular in consequence of the application of the 5 narrow accessory valvules, which are, however, much less conspicuous than in the sempervirent species; seeds subulate, longitudinally imbricated.

Were not this group of species so perfectly natural and easy to distinguish from the genuine *Andromedas*, it might have been retained as a subgeneric section of that genus, notwithstanding the singular structure of the capsule.

382. KALMIA. L. (Calico-bush, American Laurel.)

Calix 5-parted. *Corolla* salverform; border on the under side producing 10 cornute protuberances, and as many cavities in which the anthers are concealed. *Capsule* 5-celled, many-seeded, dissepiments marginal.

Shrubs with alternate or ternately verticillated and sempervirent leaves, (except, *K. cuneata* in which they are deciduous;) flowers in terminal racemose compound corymbs, in one species solitary and axillary; peduncles long, 1-flowered, tribracteate at the base, external bracte originating from the rachis; buds naked; (anthers opening by 2 oblique truncate pores.)

SPECIES. 1. *K. latifolia*. Canada to Georgia. 2. *angustifolia*. 3. *glauca*. **Obs.** Branches terete, branchlets mostly triquetrous with the leaves ternate: leaves petiole, subovate-oblong obtuse, nearly flat, scattered and ternate, every where smooth, glaucous on the under-side, at length dependent; corymbs terminal, compound; corymbulets racemose, ternate; flowers subfastigiate, peduncle with 3 bractes at the base, disposed in 2 contrary series, pulverulently and viscidly pubescent as well as the calix; segment of the calix ovate acute; flower salverform, margin crenately lobed; anthers opening by 2 oblique truncate pores; stigma truncate entire. 4. *cuneata*. **Obs.** Stem

slenderly and virgately branched; leaves deciduous, scattered, sessile, cuneate-oblong obtuse, with a mucronulate point, under side glandularly pubescent, from 10 to 15 lines long and 5 or 6 wide. Flowers disposed in sessile lateral fastigiata clusters of 4 to 6 in each, peduncles filiform more than an inch long, 1-flowered, bractes very minute. Capsules roundish, as in all the rest of the genus. **HAB.** v. v. In swamps betwixt Camden and Statesville, South Carolina. 5. *hirsuta*. **HAB.** Constantly on the drier margins of open swamps, abundant around Savannah in Georgia, accompanying the *Chamærops serrulata*, &c.

A North American genus, considered poisonous and often fatal to cattle; it is also not improbable but that the deleterious honey, recently complained of in Philadelphia, might have been collected by the bees from the flowers of the Calico-bush (*Kalmia latifolia*,) which in some places pervades the rocky woods and depressed summits of mountains, almost in a similar manner with the *Erica vulgaris* of Europe.

383. RHODODENDRON. L. (Mountain-Laur-el.)

Calix 5-parted. *Corolla* partly funnelliform, and somewhat oblique. *Stamina* declinate. *Capsule* 5-celled.

Large or ordinary sized shrubs, with sempervirent and alternate leaves; flowers subcorymbose lateral and terminal; pedicells long, 1-flowered, bracteolate at the base. Buds mostly terminal large and imbricated. (Anthers opening by 2 terminal truncate pores.)

SPECIES. 1. *R. maximum*. 2. *punctatum*. Found occasionally almost to Charleston, South Carolina.—S. Elliott, Esq. 3. *catarabiense*. Leaves distinctly petiolated, oval, whitish on the under side, often as much as 2 inches broad.

Of this very ornamental genus there are 3 species in Europe, 1 in the Levant, 3 in Siberia, 1 on the summit of Caucasus, and a very splendid and arborescent species, indigenous to the mountains of India.

384. RHODORA. L.

Calix 5-toothed. *Corolla* unequal, of 2 petals, the upper one deeply bifid. *Stamina* declinate. *Capsule* 5-celled.

A shrub resembling Azalea, with purple flowers; younger leaves revolute; flowers fasciculated, terminal.

SPECIES. *R. canadensis*. The only species of the genus.

385. **EPIGÆA. L.** (Trailing-Arbutus.)

Calix large, 5-parted, tribracteate at the base. *Corolla* salverform, border 5-parted, spreading; tube internally villous. *Capsule* 5-celled; *Receptacle* 5-parted.

Herbaceous subcespitose evergreens; leaves alternate; flowers in dense axillary and terminal racemes.

SPECIES. *E. repens*. Flowers fragrant, appearing early in the spring.—The mountains of the West India islands afford a second species of this genus.

386. * **PTEROSPORA. †**

Calix 5-parted. *Corolla* monopetalous, ovate, margin 5-toothed reflected. *Anthers* excentrically peltate, 2-celled, adnate to the filaments by the margin; bisetose. *Capsule* 5-celled, imperfectly 5-valved; dissepiments medial; septa and valves united towards the base and coalescing with the receptacular axis; *Receptacle* 5-lobed. *Seeds* very numerous and minute, each furnished with a terminal wing.

An evanescent annual, destitute of verdure, with the habit of *Monotropa* to which it is allied. Leaves none, neither radical nor cauline; stem simple, racemose, flowers numerous, scattered; reddish, resembling those of *Andromeda*, peduncles rather long, 1-flowered, cernuous.

P. Andromeda.

Root Every part of the plant, except the corolla, covered with short brown viscid hairs. Leaves none. Stem about a foot high, perfectly simple, brown-red or purple, somewhat cylindric, sensibly attenuated upwards. Flowers numerous, (at least 60 or more) irregularly dispersed in an elegant raceme; peduncles spreading equally around the stem, sometimes collected in fascicles of 4 or 5 each, cylindric, nutant, 3-4 of an inch long, each

† From πτερον, a wing, and σπορα, a seed.

subtended at the base by a longish linear paleaceous bracte. Calix 5-parted, segments ovate, nearly half the length of the corolla, somewhat pubescently ciliate, furnished with obscure longitudinal nerves. Corolla monopetalous, marcescent, ovate, open, margin 5-toothed reflected; dentures short-oval, obtuse, rosaceous, the rest of the corolla white. Stamina 10, included within the corolla; filaments subulate, flat and membranaceous, arising from the base of the germ; anthers small, 2-celled, traversed by and inseparably connected with the filaments, of an oboval form, attached by the margin, opening inwards from the base, or junction with the filament in an horizontal manner, or in other words in a contrary direction to that of the filament which supports it; at the base of this singular anther there is situated 2 small filiform processes nearly its length, which have probably been applied to the 2 sutures of the anthers before opening? but this I have not been able to verify; they may be merely such processes as we find in similar situations in *Andromeda*, *Vaccinium*, &c. Style 1, short and columnar; stigma capitate, obscurely 5-lobed. Capsule 5-celled, subglobose, valves 5, coalescing towards the base by their dissepiments with the axis of the receptacle; receptacle 5-lobed, lobes large alternating with the dissepiments; septa medial (or arising from the centre of the valves.) Seeds extremely numerous and minute, globular-ovoid, acute at the base, so as to appear almost fusiform, terminated upwards by a dilated roundish reticulated membranaceous wing. From an external inspection of this minutest of seeds, we perceive that the embryo, as the umbilicus, must be concentric and probably surrounded by a perisperm, but it may fairly be doubted whether this plant and *Monotropa* its coordinate are not deprived of cotyledones. *v. s.*

HAB. In Upper Canada, near the Falls of Niagara
| Mr. C. Whitlow.

† † *Flowers polypetalous, regular.*

387. *HYPOPITHYS. *Dillenius*. (Pine-sap.)

Calix 3 to 5-parted. *Corolla* pseudo-polypetalous, persistent; segments 4 or 5, each with a cucullate nectariferous base. *Anthers* small, horizontal, 1-celled, at length opening flat. *Stigma* orbicular, with a bearded margin. *Cap-*

sule 5-celled, 5-valved. *Seeds* very numerous, minute, subulate.

Parasitic plants growing upon the roots of trees, destitute of proper leaves and verdure; root densely squamose, scales imbricated; stems aggregated, simple, invested with alternate scales; flowers racemose, pedicellate, raceme at first bent, at length erect. Scent of the whole plant musky.

SPECIES. 1. *H. *europea.* (*Monotropa Hypopithys.* Sp. Pl.) In the pine-forests of Canada. 2. *lanuginosa.* **OBS.** Every part of the plant pubescent except the base of the stem and lower scales; scape more or less convolute and angular (often triangular;) peduncles nearly an inch long. Calix inconstant in the number of its segments; filaments pubescent, alternated at the base by 10 very short recurved filiform appendices; anthers excentrically peltate or rather rivetted to the filaments on one side, somewhat coriaceous, persistent, and opaque, almost reniformly dilated, opening outwards their whole breadth, and at length becoming revolute. Style pubescent, stigma orbicular; somewhat depressed, internally partly 5-lobed, margin bearded. Dissepiments of the capsule coalescing in the axis towards the base; consequently the fruit never expands, as is also the case with *Pyrola*, the margins of the capsule merely shrinking for the purpose of dissemination.

388. MONOTROPA. L.

Calix none. *Corolla* pseudo-polypetalous, persistent; segments 5, each with a cucullate, nectariferous base. *Anthers* reniform, horizontal, 1-celled, emitting the pollen near the middle, by 2 transverse foramina. *Stigma* orbicular, naked. *Capsule* 5-celled, 5-valved. *Seeds* very numerous, minute, subulate.

Parasitic plants, mostly upon the roots of trees, destitute of proper leaves and verdure; root an agglomeration of intricate succulent fibres producing many 1-flowered scapes or stems, scapes squamose, flowers at first nutant, primarily incurved. The whole plant white and smooth, destitute of the musky odor of *Hypopithys*, scent when bruised somewhat nauseous and liliaceous.

SPECIES. 1. *M. morisoniana.* 2. *uniflora.* **OBS.** Root perennial? roundish, about the size of a walnut, composed of a vast number of intricately ramified and agglomerated

succulent, brownish, brittle fibres. Stems several from the same root, squamæ ovate-obtuse, 5 to 7 nerved, nerves simple, rectilinear. Corolla persistent, sometimes subtended by 2 or 3 bractes; petals channelled, erect, adnate to the base of the germ, obsoletely 3-nerved, claws broad, cavernous. Filaments of the stamina pubescent, alternated at the base by 10 short recurved filiform processes; anthers conspicuous, membranaceous, peltate, reniform, and horizontal, partly inflated, 1-celled, furnished with 2 linear, transverse and margined foramina, situated about the middle, for the escape of the pollen. Style scarcely any; stigma every where smooth, orbicular, with a funnelliform depression, and glandular margin, internally somewhat 5-toothed. Capsule 5-celled, 5-valved, 10-striate, septa medial, distinct above, coalescing in the axis towards the base, margins of the valves connected by cancellate fibres. Seeds very numerous and minute, entirely similar to those of *Pyrola chlorantha*, *P. rotundifolia*, &c. presenting through a lens a hyaline nucleus, which is nearly spherical, situated towards the centre of a membranaceous integument, attenuated below and terminating obtusely above. The seed is likewise similar in *Hypopithys*, and all these 3 genera are distinctly allied to the genus *Pyrola*, but the singular form and disposition of the anthers interposes a difficulty of considerable moment against incorporating them with the natural order ERICÆ. As a natural order, or section, the MONOTROPEÆ may be defined as follows:—Calix superior, 5-parted, persistent, sometimes wanting, or in the form of irregular bractes. Corolla perigynous, monopetalous, persistent, mostly divided to the base, so as to appear almost polypetalous. Stamina definite, distinct, double the number of the petals and arising from their base; anthers excentrically peltate, horizontal, adnate to the filaments, mostly 1-celled, opening variously, not by terminal pores. Germ superior, style 1, stigma simple, discoid. Fruit capsular, superior, 5-celled, 5-valved; septa medial, coalescing in the axis towards the base, receptacle 5-lobed, pendulous. Seeds numerous and very minute, nearly spherical, situated towards the centre of a samaroid attenuated membranaceous epispERM, sometimes alated at its summit—Plants after the manner of *Orobanche*, destitute of leaves and verdure; stems simple, scapiform, squamose, 1 or many-flowered.

389 PYROLA. L. (Wintergreen.)

Calix 5-cleft or 5-parted. *Petals* 5, deciduous. *Style* exerted. *Capsule* 5-celled, opening

at the angles near the base, margins of the valves connected by an intricate tomentum; (septa medial, coalescing with the receptacular axis; lobes of the receptacle simple. *Seeds* very numerous and minute, samaroid.)

Herbaceous evergreens, with creeping shoots; leaves radical, alternate, aggregated, roundish, elliptic or ovate; scapes racemose or rarely 1-flowered, flowers pedicellate, unibracteate; style straight or declinate. Anthers biporate at the base, becoming inverted on the opening of the flower, and then presenting the pores upwards.

† *Style straight.*

SPECIES. 1. *P. uniflora*. Flower fragrant, exhaling an odor similar to that of *Convallaria majalis*. Leaves subovate, serrate; scape 1-flowered; pores of the anthers tubular. 2. *minor*. 3. *secunda*. Flowers inclined to one side of the raceme.

†† *Style declinate, stamina ascending.*

4. *rotundifolia*. Leaves roundish, or dilated oval, obsoletely crenulate, partly coriaceous and lucid, petiole conspicuously marginated, about the length of the lamina; scape many-flowered; bractes ovate, acute; calix 5-parted, segments oblong-ovate, reflected at the points; petals longer than the stamina. OBS. The largest species of the genus; flowers white, with a rosaceous tinge, somewhat fragrant, scape 3 to 5-angled, sometimes convolute; bractes upon the naked part of the scape about 3, sheathing; bractes of the flowers as long or longer than the peduncles, and conspicuous; stigma annulate, 5-lobed.

5. * *elliptica*. Leaves membranaceous, oblong-oval and obtuse, or elliptic-ovate, plicately serrulate and acute, lamina always much longer than the petiole; scape naked or furnished with a single scale; bractes linear and subulate; calix 5-toothed, points subulate, reflected. HAB. Common around Philadelphia, and in the woods of New Jersey, with the former; flowering in June. Nearly allied to *P. rotundifolia*, but distinct both in character and aspect; the whole plant is smaller, the scapes are low and slender, accompanied by smaller flowers which are white and odorous, the petals are oblong-oval, about equal in length with the stamina which become fulvous, segments of the calix semiovate and dilated; scape acutely triquetrous, rarely convolute; style very long, stigma annulate 5-lobed.

6. *chlorantha*. Stamina slightly ascending; style twice their length, clavate, deflected and recurved; raceme

many-flowered; calix (appressed) shorter than the stamina. (Leaves opaque, roundish, lamina shorter than the petiole.)—Swartz, in Stockholm Trans. 1810. p. 190. t. 5. A very correct figure. *P. asarifolia*. Michaux, Flor. Am. 1. p. 251. *P. convoluta*. W. Barton, Prodr. Flor. Philad. p. 50. HAB. Recently discovered in Sweden by Swartz. Abundant in the sandy pine forests of New Jersey, near Philadelphia, &c. OBS. Leaves smaller than in *P. rotundifolia*, dark-green and not lucid, roundish-oval or more dilated and emarginate, margin obsoletely and repandly crenulate, lamina mostly longer than the petiole which is nearly destitute of a margin; scape naked, or with a single scale, acutely triquetrous, often remarkably convolute; bracts linear-lanceolate, shorter than the peduncles; calix 5-toothed, segments subsemi-ovate, dilated, subacute, appressed to the corolla; flowers greenish, and almost destitute of odor; petals nearly equal with the stamina; stigma annulate, 5-lobed, viscid; capsule roundish, umbilicately depressed, margins of the valves connected by an intricate tomentum, free at the base.

7. *dentata*. Rees Encycl. under *Pyrola*, with the 2 following. 8. *aphylla*. A species said to be destitute of leaves. 9. *picta*. Leaves ovate, subserrate, discoloured, flowers secund, pores of the anthers tubular.—Collected by A. Menzies, Esq. on the North West coast of America, with the 2 preceding.

A genus almost equally indigenous to Northern Europe, Asia, and North America.

390. CHIMAPHILA. Pursh. (Umbellate Winter-green.)

Calix 5-toothed. *Petals* 5. *Style* very short, immersed in the germ; *Stigma* annulate, orbicular, with a 5-lobed disk. *Filaments* stipitate; stipe discoid, ciliate. *Capsule* 5-celled, opening from the summit, margins unconnected.

Low suffruticose plants with evergreen serrated leaves, almost verticillately aggregated; scapes naked, umbellate. Anthers biporose at the base, becoming inverted in inflorescence.

SPECIES. 1. *C. umbellata*. OBS. Stem proliferous; stamina sometimes 12 with 6 petals, &c. proper filaments arising from so many pedicells about the same length, which are thick, angular, and acutely terminated below, discoid above, with a ciliate or pubescent margin, disk violace-

ous; anthers spotted, pores truncate, divergent; germ surrounded at the base by a glandular ring. Style extremely short, hid in the umbilical depression of the germ; stigma convex, orbicular, disk cloven into 5 angular segments; germ somewhat conic. Capsule 5-celled; septa medial, artificially bipartite, coalescing below in the receptacular axis, margins of the valves destitute of connecting filaments, beginning to open at the summit; receptacle 5-lobed, pendulous, lobes bipartite. Seeds similar to *Pyrola*.

2. *maculata*.—Scape 1 to 3-flowered, sometimes with 12 stamina and 6 petals, flowers white; disk of the stipe which supports the filaments entirely villous; leaves ovate-lanceolate, incisely serrate, discolored. HAB. Indigenous also to the North West Coast of America.—Menzies.

Probably both species of this genus will be found also in East Asia and Europe.—The disposition of the pores at the base of the anthers in place of the summit, in this and the preceding genus, adduces an additional affinity to the genus *Monotropa*; we learn that there exists also a leafless species of *Pyrola*, on the North West Coast. V. Encycl.

391. LEDUM. L. (Labrador-tea.)

Calix 5-cleft. *Petals* 5. *Stamina* exserted. *Capsule* 5-celled, opening at the base. (*Stamina* also 5.)

Low shrubs with coriaceous leaves, which are revolute on the margin, and commonly tomentose on the under surface; flowers white, in terminal corymbs, peduncles long and 1-flowered, bracteate at the base.

SPECIES. 1. *L. palustre*. 2. *latifolium*. The leaves of this species are said to be a good succedaneum for tea. Indigenous also to Greenland. 3. *buxifolium*, capsule ovate, opening at the summit; leaves smooth on both sides. Probably a distinct genus, but requires further examination. This species is extremely abundant on the highest summits of the Catawba ridge in North Carolina.

Of this small genus *L. palustre*, is also indigenous to the north of Europe.

392. CLETHRA, L.

Calix 5-parted, persistent. *Petals* 5. *Style* persistent; *Stigma* short and trifid. *Capsule* 3-celled, 3-valved, enclosed by the calix.

Shrubs with alternate deciduous leaves; flowers spiked axillary and terminal, bracteolate.

SPECIES. 1. *C. alnifolia*. 2. *tomentosa*. 3. *scabra*. 4. *paniculata*. 5. *acuminata*. Some of these species are unquestionably doubtful. The capsule in this genus is constructed similar to that of *Andromeda caliculata*, excepting the difference in the number of the cells, the seeds are likewise angular.

A North American genus, with the exception of a single species indigenous to the mountains of Jamaica.

393. MYLOCARIUM. Willd. (Buckwheat-tree.)

Calix 5-toothed. *Petals* 5. *Stigma* capitate, 3-angled, sessile. *Capsule* superior, suberose, 2 or 3-winged, 3-celled, cells 1-seeded. *Seed* subulate.

A tall evergreen shrub with subverticillated branches; leaves very entire, veinless, aggregated towards the summits of the branches; racemes bracteate terminal, pedicells 1-flowered bibracteolate. A genus; nearly allied to *Banisteria*?

SPECIES. *M. ligustrinum*. On the margins of swamps in Georgia and Florida, 8 to 12 feet high. The only species known.

394. MELIA. L. (Pride of China.)

Calix 5-parted, small. *Petals* 5. *Lepanthium* cylindric 10-toothed, dentures bifid at the points, orifice internally antheriferous. *Style* cylindric, stigma 5-rayed. *Drupe* globose, nut 5-celled, 5-seeded.

Trees or shrubs, leaves unequally pinnate or bipinnate; flowers paniculate axillary.

SPECIES. 1. *M. Azedarach*. Leaves bipinnate, leaflets smooth, ovate, dentate.—Flowers odorous, somewhat similar to jessamine, anthers alternating with the dentures of the lepanthium. **HAB.** Introduced into the southern states from India, and planted in vistas; in many places it is almost naturalized, it exists well without shelter as far south as Virginia, and small trees may now and then be seen in Philadelphia. The root has been used as a vermifuge, and in Barbary lamp oil is expressed from the nuts.

A genus indigenous to India.

395. **TRIBULUS. L.** (Caltrops.)

Calix 5-parted. *Petals* 5, spreading. *Style* none; stigma partly 5-cleft. *Capsules* usually 5, gibbous, mostly spinose, each 2 or 3 seeded.

Herbaceous plants, mostly prostrate or decumbent; leaves abruptly pinnate, flowers solitary, alternate, yellow.

SPECIES. 1. *T.* trijugatus*. Leaflets 3 pair, terminal ones largest, under side pubescent; capsules 5, small, 1-seeded, muricate, spineless. **HAB.** In wastes and gardens, as a weed around Savannah in Georgia, probably introduced from the West India islands, allied to *T. maritimus*, but certainly distinct. **Obs.** Annual; stem diffuse, prostrate, terete, pubescent, and striated. Leaves opposite, bistipulate, equally pinnate, pinnæ always 3 pair, uppermost leaflets largest, oblique, lateral ones oblong, all abruptly and minutely pointed, upper side smooth, the under pubescent. Calix and peduncle pilose, segments ovate, acuminate. Petals roundish, spreading, yellow;—the flower resembling that of a small *Cistus*. Stamina 10, small. Fruit smooth, turbinate, pentangular, acuminate, not larger than that of *Pyrola*, capsules 5, 1-seeded, cristately muricate, attached to a large common axis.

Of this genus there are 2 other species in tropical America, 1 in Ceylon, and 1 common to Barbary and the south of Europe.

396. **DIONÆA. L.** (Venus's Fly-trap.)

Calix 5-parted. *Petals* 5. *Stigma* fimbriate, spreading. *Capsule* roundish, membranaceous, 1-celled, many seeded.

Herbaceous; leaves radical, marcescent, alternately imbricated at the base so as to produce a squamose bulb, petiole spathulately alated, terminating in an articulated circular ciliated lamina, expanding to the light, and remarkably sensible to the touch of any extraneous body, and thus by suddenly folding, accidentally enclosing insects or the smaller leaves of neighbouring plants.†

† This sensibility is said to reside principally in the 4 capillary processes situated upon the disk of the lamina. While engaged in collecting this plant in its singularly insulated situation near Wilmington, in North Carolina, I had occasion to

Flowers in a terminal subumbellate scape. Stamina 10 to 15.

SPECIES. *D. muscipula*. **Obs.** Scape about 10-flowered, flowers in an umbell by pairs, each pair subtended by a single bracte. Calix persistent, 5-parted, segments ovate-oblong, margin membranaceous and glanduliferous. Petals 5, marcescent, cuneate-obovate and emarginate, with the margin somewhat lacerated, inserted with the stamina beneath the germ, rolling inwards on withering, at first convolute as in the flowers of *Hypericum*, in flower spreading and incurved, numerously nerved, nerves dichotomal above, diaphanous. Stamina 10 to 14 or 15, more rarely 16, disposed without any order relative to the petals, strictly polyandrous; filaments filiform, shorter than the petals, the interior ones sometimes petaloid; anthers whitish, with 4 angles, diaphanous; bursting on the opening of the corolla; pollen nearly white, conspicuous, 3 or 4-angled, lobes round. Style 1, tubular, stigma lobed, lobes lacerately fimbriate, at first involute towards the orifice of the style, after the manner of the coma in *Valeriana*. Germ roundish and depressed, partly 5-lobed, inflated, lobes emarginated, cell 1, vales none. Seeds 20, 25, or 30, black and polished, inversely conic-ovoid, destitute of perisperm? somewhat about the size and form of the seeds of *Hypericum perforatum*, attached to the receptacle by so many minute umbilical filaments, umbilicus not quite central, agreeing with the parallel of insertion upon the convex and favulose receptacle, which centrally occupies the base of the capsule. Capsule membranaceous, at length shrinking away so as to leave the seeds exposed upon the polyphore. Taste of the plant sweetish and afterwards transiently pungent, sap somewhat resinous, at first yellow. In drying the plant becomes black.

HAB. Hitherto exclusively found on the North side of Cape Fear river, North Carolina, and no where more abundant than round Wilmington. I have traced it for 50 miles north of that place, and am informed that it extends to Fayetteville.—This singular plant, notwithstanding the extraordinary peculiarity of its foliage, is evidently allied to the *HYPERICINA*, and more particularly to the genus

observe that a detached leaf would make repeated efforts towards disclosing itself to the influence of the sun, these attempts consisted in an undulating motion of the marginal cilia, accompanied by a partial opening and succeeding collapse of the lamina, which at length terminated in a complete expansion and in the destruction of sensibility.

Elodea; in *E. campanulata*, the stamina are usually 9 to 12, the capsule membranaceous, in an early state by the inflection of the margins of the valves 3-celled, at length on opening resolving into a single cell with 3 parietal seminiferous margins, the seeds are in many respects similar to those of *Dionæa*, and *Drosera*, both in relative situation and form. The discrepancy consists then principally, in the disunion of the filaments at the base, 2dly, in the absence of valves, and 3dly, in the central and separate situation of the receptacle. The importance of the first of these objections is removed by the example of *Sarothra* inseparable from this order, in which there is also a capsule of a single cell, many species of *Hypericum* have also separated stamina; the second and third objections appear of considerable importance, and operate also against uniting *Dionæa* with *Drosera*, notwithstanding their other affinities and the additional one of a simple style, though deeply and divaricately divided, which we have found in the genus *Drosera*.—The limits of this little work will not admit of extended discussions; and we shall now merely suggest that these plants, if not actually incorporated with the HYPERICINA, ought to form a proximate order.

397. JUSSIEUA. L.

Calix 4 or 5-parted, superior, persistent. *Petals* 4 or 5, ovate. *Capsule* 4 or 5-celled, 4 or 5-valved, oblong, cylindric or angular, manyseeded, crowned by the calix; septa medial. *Seeds* numerous and minute attached to an angular axis. (Stamina 8 or 10.)

Herbaceous; leaves alternate; flowers solitary, axillary. Distinguished from *Ænothera* principally by the persistence of the calix, and from *Ludwigia* by the form of the capsule and number of stamens.

SPECIES. 1. *J. grandiflora*. Herbaceous and aquatic. Flowers conspicuously pedunculate, germ bibracteolate at the base; flowers equal to *Ænothera fruticosa*. 2. *erecta*. 3. *subcaulis*, PH. 4. **leptocarpa*. Annual; erect; stem and calix partly hirsute; leaves lanceolate subglabrous attenuated at both extremities; flowers sessile 5 or 6 petalled; capsule slender and cylindric. **HAB.** On the Mississippi and Missouri, copious; not aquatic. Allied to *J. pubescens*, but smooth except the stem, which is nearly simple about a foot high and irregularly angular; leaves about 2 inches, attenuated, but sometimes obtuse; germ cylin-

dric 10 to 15 lines long, scarcely thicker than the capsule of an *Epilobium*, which the whole plant approaches in habit; calix 5 and sometimes 6-parted, with as many petals and 10 to 12 stamina; petals scarcely longer than the calix, yellow.

Principally a tropical genus almost equally divided betwixt India and America.

††† *Polypetalous; flowers irregular.*

398. CASSIA. L.

Calix 5-leaved. *Petals* 5, subequal. Three upper anthers sterile, the 3 lowest rostrate, upon longer and incurved filaments. *Legume* membranaceous, 2-valved.

Aborescent, suffruticose or herbaceous, some species annual; leaves pinnate; common petiole, and sometimes the partial ones glandulous; flowers axillary, aggregate, spiked or rarely solitary.

SPECIES. 1. *C. Tora*. In Georgia, and on the banks of the Mississippi. 2. *occidentalis*. 3. *ligustrina*. 4. *linearis*. 5. *marylandica*. In most of the Atlantic States and in Louisiana, a considerable distance up the Missouri—Considered an efficient substitute for the Senna of the shops, which is, however, said to be the produce of a species of *Cynanchum*. 6. *Chamechrista*. From New England to Florida. 7. *faciculata*. 8. *nictitans*.

A tropical genus of more than 70 species, chiefly indigenous to America and India.

399. SOPHORA. L.

Calix 5-toothed, campanulate, gibbous on the upper side. *Corolla* papilionaceous; lateral petals (or wings) the length of the vexillum. *Legume* moniliform.

Aborescent or herbaceous; leaves pinnate; leaflets mostly numerous; flowers terminal, racemose or spiked.

SPECIES. 1. *S. sericea*. Leaves pinnate, about 10 pair; leaflets cuneate-oval, or subelliptic, smooth above, under side silky-villous; spikes many-flowered, subsessile; stem low and herbaceous. **HAB.** On the elevated plains of the Missouri, near the confluence of White river.—**Obs.** Perennial, stem branched scarcely a foot high, leaflets about 2 lines long. Spikes 3 or 4 inches, not exerted beyond the leaves, bractes subulate. *Calix* tubulous, gib-

bous at the base on the upper side, margin 5-toothed, obtuse. Flowers white, rather large; vexillum resupinate, reflected, the claw rigid, limb rounded and obcordate; wings oblong, horizontal; carina of 2 petals cohering above, each with a single denture near the base and subulately terminated above as in *Oxytropis*. Filaments diadelphous, 9 and 1, but divided down nearly to the base. Germ cylindric and villous; style short rising erect, subcapitate. Legume not seen,—but the striking affinity of this plant to the well preserved specimens of *S. alopecuroides* in the Banksian herbarium justifies its admission into this genus. I am also obliged, however unwillingly, to state, after seeing the specimen so marked by the author himself, in the herbarium of A. B. Lambert, esq. that this is *Astragalus carnosus!* of Mr. Pursh, Flor. Am. 2. p. 740. Supplement; he having by mistake, applied the description of the fruit of an *Astragalus* which I had published to this species of *Sophora*.

A small and widely dispersed but scarcely natural genus, of which there are 2 very splendid and aborescent species in New Zealand, which now form the genus *Edwardsia*, 1 in tropical America? 2 in India, 1 in the Isle of France, 1 in the Levant, greatly resembling that which we have described, 1 in Siberia, and 1 in Japan.

400. BAPTISIA. Ventenat. R. Brown. PODALYRIA. Michaux. Lamark. Willdenow. (Wild Indigo.)

Calix half 4 or 5-cleft, bilabiate. *Corolla* papilionaceous, petals nearly equal in length; *vexillum* laterally reflected. *Stamina* deciduous. *Legume* ventricose, pedicellate, many-seeded.—
BROWN. Hort. Kew. 3. p. 5.

Herbaceous perennials; leaves ternate, stipulate; flowers in terminal rarely lateral spikes or racemes, in some species solitary and axillary; in *B. perfoliata*, the leaves are orbicular and perfoliate.

SPECIES. 1. *B. perfoliata*. 2. *uniflora*. 3. *villosa*. Des. Legume oblong, obtuse, subcylindric; allied to *aloea*. 4. *alba*. 5. *cerulea*. 6. *mollis*. Leaves conspicuously petiolate. This is the lowest species with which I am acquainted, and possesses the aspect of an herbaceous *Psoralea*. Stem purplish, somewhat decumbent, pubescent; leaves often 2 inches long and 1 wide, minutely pubescent on both sides; common peduncle 2-4 of an inch

long, in which particular it strikingly differs from every other known species; stipules small, linear-lanceolate, acute; legume small with a subulate point. **HAB.** In North Carolina, principally upon the Catawba ridge, where it occurs abundantly in the open bushy forests. 7. **leucophæa*. Dichotomous stem and nerves a little villous; leaves ternate, sessile, rhomboidally obovate; stipules and bractes ovate, acute, large and foliaceous; racemes lateral, many-flowered; flowers secund; legume acuminate. **HAB.** In Georgia and Louisiana. (Abundant around St. Louis.) Somewhat allied to *P. cærulea*, but very distinct. A large species with ochroleucous flowers, in long and dense spikes, larger than those of any other North American species. Stem rather low but divaricate, leaves 2 inches long and an inch broad, obtuse. 8. *tinctoria*. So called from having been formerly employed as a substitute for indigo, all the genus probably possess this property in different degrees, though there is something peculiar in the structure of this plant. Calix about 4-toothed, the 2 uppermost of the 5 cohering into one, wings each furnished with a callosity at the lateral tooth.

A North American genus; the simple leaved species of the Cape of Good Hope being alone retained in *Podalyria*.

401. **THERMIA. THERMOPSIS.** *R. Brown.*
Hort. Kew. 3. p. 3.

Calix subcampanulate, half 4-cleft, the upper segment truncate and emarginate. *Corolla* papilionaceous, petals nearly equal in length; *vexillum* reflected at the sides; *carina* obtuse. *Legume* compressed and falcate, attenuated at the base, many-seeded.

Herbaceous; leaves ternate petiolate, stipules large and foliaceous; spikes terminal, interrupted, subverticillate, erect; flowers yellow. Very distinct in habit from *Cytisus* but requires further comparison with that genus?

SPECIES 1. **rhombifolia*. Leaflets rhombic-ovate, subcuneate, under side somewhat silky pubescent; stipules foliaceous, obliquely ovate, shorter than the petiole; raceme interrupted. *Cytisus rhombifolius*, T. N. in Fras. Catal. 1813. Pursh, Flor. Am. Sept. 2. p. 741. Suppl. **Obs.** Roots perennial, horizontally creeping to a considerable extent, sending up simple erect stems from 8 to 12 inches high, angular and nearly smooth, producing a few simple axil-

lary branches after flowering. Lower stipules roundish and nearly as large as the leaves, common petiole nearly an inch long, exceeding the stipules in length; leaves about an inch long, and 1-2 an inch wide, scarcely obtuse, slenderly villous on the under side, smooth above, raceme subsessile, short and terminal, 3 or 4 inches long, few flowered; pedicells subverticillately aggregated; flowers yellow, † stamina deciduous, at least in the fruit, the cartilaginous cupulate torus alone persistent. Legume compressed, falcate, about 3 inches in length, here and there interrupted by abortive portions, but not articulated or intercepted, terminated by the persistent filiform style, with a minute and smooth stigma.—HAB. On denudated argillaceous hills near Fort Mandan. This plant is very closely allied to *Sophora lupinoides* of Pallas, *Thermopsis lanceolata* of Brown, and they appear inseparable in genus, that species when in perfection produces a long verticillated spike of flowers; some of Pallas's specimens, however, in the herbarium of A. B. Lambert, Esq. have a single verticill of flowers only as in the starved specimen figured in the Botanical Magazine, in this species the leaves are on both sides closely covered with a silky villous; the primary leaves it appears occur sometimes simple but always accompanied by the stipules after the manner of *Baptisia*.

402. **CERCIS.** *L.* (Judas-tree, Red-bud.)

Calix 5-toothed, the lower part gibbous. *Corolla* papilionaceous, lateral petals or wings larger than the vexillum; carina dipetalous. *Legume* compressed. “Seminiferous suture margined. *Seeds* obovate.”—BROWN.

Small trees with simple orbicularly cordate leaves; flowers disposed in clusters upon the trunk and branches, purple, appearing before the leaves.

SPECIES. 1. *C. canadensis*.—Of this genus there is another species indigenous to the south of Europe.

403. **VIRGILIA.** *Lamark. Persoon. R. Brown.*

Calix 5-cleft. *Corolla* papilionaceous, petals nearly equal in length; sides of the *vexillum* not

† This plant is noticed in the travels of Lewis and Clarke, as flowering early, and attracted attention soon after they left the Mandans in the spring.

reflected. *Stigma* beardless. *Legume* compressed, oblong, many-seeded.—R. BROWN. Hort. Kew. 3. p. 4.

A small genus of trees or shrubs, with pinnated leaves and flowers in erect or pendulous racemes, which are yellow, white or blue. Probably not a natural group.

SPECIES. 1. *V. lutea*. Racemes pendulous, legumes flat and petiolate; flowers yellow. A tree whose bark affords a yellow dye, similar to *V. aurea*. The whole tree except in the colour of its flowers, strongly resembles *Robinia Pseudacacia*. An occidental tree, hitherto found only in the mountains of Tennessee.

Of this genus there are 2 species at the Cape of Good Hope, 1 which is shrubby in New Spain, and 1 called *V. aurea* in Abyssinia.

ORDER II.—DIGYNIA.

404. HYDRANGEA. L.

Calix superior, 5-toothed minute. *Petals* 5. *Capsule* mostly 2-celled, striate, opening betwixt the persistent styles by a terminal foramen. *Seeds* many, longitudinally striate.

Shrubs with opposite leaves; flowers cymose, in *H. quercifolia* subpaniculate, margin of the cyme radiate, radii masculine or imperfect;—(flowers in *H. vulgaris* often with 3 styles and a capsule of 3-cells; capsule properly superior, invested by the cohering calix, septa marginal; styles each terminating downwards in a 2-lobed pendulous receptacular placenta; seeds small, marked with about 10 striæ. Proper capsule when divested of the calix, dividing horizontally above the middle.)

SPECIES. 1. *H. vulgaris*. The whole plant distinctly pubescent, more particularly the nerves on the under side of the leaf; leaves concolor, broad oval, acuminate, sharply dentate, cyme mostly naked, styles 2 and 3. (Obs. *H. cordata*? also of Mr. Pursh. 2. *nivea*. Leaves broad-oval, acuminate, obsolete dentate, under side whitely tomentose; flowers constantly radiate. 3. *quercifolia*. Leaves sinuately-lobed; ferruginously tomentose on the under side; cymes radiate, paniculate. **HAБ.** In Florida and on the Mississippi, near Natchez. *v. v.*

An American genus, if we exclude *H. hortensis* of India, separated principally on the ground of its producing 3 styles, which is perhaps occasionally common to every *Hydrangea*.

405. SAXIFRAGA. L. (Saxifrage.)

Calix 5-parted, persistent. *Petals* 5. *Capsule* 1-celled, many-seeded, opening betwixt the persistent styles.

Leaves alternate, rarely opposite, entire or divided; sometimes all radical; flowers mostly numerous, densely or loosely paniculate, in some species nearly solitary.

SPECIES. 1. *S. Aizoon*. 2. *stellaris*. 3. *serpyllifolia*. 4. *androsacea*. 5. *bronchialis*. 6. *nivalis*. 7. *virginica*. 8. *Geum*. 9. *leucanthemifolia*. 10. *pennsylvanica*. 11. *erosa*. PH. Panicle slender and divaricately branched, by which it is readily distinguished from No. 10. 12. *oppositifolia*. Flowers bright purple. 13. *aizoides*. 14. *setigera*. 15. *rivularis*. 16. *sibirica*. 17. *pectinata*. 18. *cæspitosa*. 19. *tricuspidata*. **NOTE.** All these species, except Nos. 7, 9, 10, 11, are indigenous to lower Canada, Labrador, or the colder regions of New California. The whole genus of more than 70 species is chiefly alpine and European.

406. TIARELLA. L.

Calix 5-parted, persistent. *Petals* 5, entire, inserted upon the calix and conspicuously unguiculate. *Capsule* 1-celled, 2-valved; one of the valves larger.

Leaves mostly radical, simple, or ternately divided, scapes or stems racemose or paniculate.

SPECIES. 1. *T. cordifolia*. 2. *Menziesii*. 3. *trifoliata*. 4. *biternata*.

A North American genus, of which Nos. 1 and 3, are also indigenous to Northern Asia.

407. MITELLA. L.

Calix 5-cleft, persistent. *Petals* 5, pinnatifid, inserted upon the calix. *Capsule* 1-celled, subsemibivalve; valves equal.

Leaves simple, mostly radical; scapes naked or bifoliate, 1 species produces a prostrate stem; flowers racemose or loosely spiked.

SPECIES. 1. *M. diphylla*. 2. *cordifolia*. 3. *reniformis*
4. *prostrata*. 5. *grandiflora*.

A North American genus with the exception of *M. nuda* of Northern Asia.

408. SAPONARIA. L. (Soapwort.)

Calix tubulous 5-toothed, naked at the base.
Petals 5; unguiculate. *Capsule* 1-celled.

Flowers axillary, commonly corymbose, calix in some species angular.

SPECIES. 1. *S. officinalis*. Introduced, but now abundantly naturalized. This species occurs sometimes monopetalous.

409. DIANTHUS. L. (Pink.)

Calix cylindric, coriaceous, 5-toothed, the base surrounded by 4 to 8 scales. *Petals* 5, unguiculate. *Capsule* cylindric, 1-celled, bursting at the summit.

Flowers aggregate, fastigate; or dispersed upon a branching stem. Some of the species suffruticose. Leaves opposite as in the preceding genus to which this is nearly allied, always narrow, linear or subulate.

SPECIES. 1. *D. Armeria*. Introduced, now naturalized in a few localities in New Jersey. 2. *carolinianus*. A very obscure species.

A genus of more than 40 species, not one of which is yet found to be indigenous to either America; commencing sparingly in the north of Europe, where several of the species are rather naturalized than indigenous, we observe the genus to accumulate towards the south, and passing into Barbary, the Levant, and Greece, at length partly terminates in Arabia Felix, Palestine and Persia; a few species are found, however, in Siberia, in China, in Japan, and even at the Cape of Good Hope. The fine hardy and odorous species have been cultivated from the earliest times, and are amongst those ancient denizens of the humblest gardens which bid defiance to the inroads of the rarer foreigners.

410. SCLERANTHUS. L. (Knewel.)

Calix 1-leaved, border 5-cleft. *Stamina* inserted upon the calix. *Corolla* none. *Seeds* 1 or 2 included in the calix.

Small plants with opposite and linear leaves; flowers axillary and subcorymbosely terminal. Possesses the habit of *Arenaria*.

SPECIES. 1. *S. annuus*. So abundantly naturalized in sandy arable fields as to appear native.

An European genus of 3 species.

ORDER III.—TRIGYNIA.

411. CUCUBALUS. L. (Campion.)

Calix inflated or campanulate, 5-toothed. *Petals* 5, unguiculate, naked, or partly crowned at the orifice. *Capsule* 3-celled.

Flowers axillary dichotomal or terminal, often subpaniculate.

SPECIES. 1. *C. Behen*. Introduced? 2. **niveus*. Upper part of the stem, divaricate and dichotomous; leaves oblong-lanceolate, acuminate, minutely and pulverulently pubescent, uppermost ovate; calix obtuse, campanulate, inflated, subpilose; petals small, reflected, bifid at the extremity, claws exerted beyond the calix, nearly naked; flowers solitary, dichotomal and terminal. *Silene nivea*. Muhlenberg's Catalogue. v. s. For the dried specimen I am indebted to the friendship of Z. Collins, Esq. to whom it had been communicated. **HAB.** Upon an island of the Susquehannah, near to Columbia.—Muhlenberg. **OBS.** Stem nearly smooth and slender. Leaves opposite, about 2 inches long and half an inch wide, sessile. Flowers remote, solitary, dichotomal and terminal, each arising from the centre of a pair of leaves; peduncles about half an inch long. Calix somewhat pilose, reticulately veined, border 5-cleft, segments obtuse, and membranaceously margined. Petals white, nearly naked at the orifice, exerted, but narrow, limb reflected, scarcely half the length of the calix. Seeds bright brown, subreniform, striate and transversely rugose. Too nearly allied to *C. Behen* to be admitted into the genus *Silene*. 3. *stellatus*. Leaves verticillate.

The remainder of this genus of 10 species, is entirely European, excepting *C. spargulifolius*, of Armenia. In the Flora Britanica, and Hortus kewensis, this genus is limited to a single anomalous species, *C. bacciferus* and the rest referred to *Silene*.

412. **SILENE. L.** (Catch-Fly. "Wild-Pink.")

Calix cylindric or conic. *Petals* 5, unguiculate, generally crowned at the orifice. *Capsule* 3-celled.

Peduncles 1 or many-flowered, axillary, terminal, or dichotomal.

SPECIES. 1. *S. quinquevulnra*. 2. *pennsylvanica*. 3. *virginica*. 4. *Catesbeii*. Flowers scarlet. 5. *regia*. Curt. Bot. Mag. Stem tall and erect; leaves broad-ovate, somewhat asperate; branches trichotomally floriferous; calix long and cylindric, petals generally entire, style and stamina exserted. **HAB.** Throughout the western states sparingly from Ohio to Lower Louisiana, one of the most splendid species in existence. **Obs.** Root perennial. Stem erect and stout 4 or 5 feet high, much branched, joints tumid, branches rigid and erect, and as well as the whole plant pulverulently pubescent and viscid, upper leaves acuminate. Flowers large, and bright scarlet, very numerous, dichotomal and terminal. Calix conspicuously striated. Petals oblanceolate usually entire, appendices of the orifice distinct.

6. **rotundifolia*. Decumbent; stem, calix and margin of the leaves very pilose; leaf dilated-oval, acuminate at each extremity; flowers few trichotomal; petals laciniated, subquadrifid, lateral segments shorter; orifice crowned. **HAB.** In the state of Ohio and Tennessee, on the moist ledges of rocks; flowering from July to August. A very singular and beautiful species with bright scarlet flowers. **Obs.** Partly procumbent and diffuse, the stems being weak and almost filiform. Leaves nearly smooth excepting the margin, ventricosely dilated, and abruptly attenuated at each extremity; subulately and abruptly acuminate above. Flowers few, almost terminal, simply or doubly trichotomal. Calix densely pilose and soft, angularly striate, cylindric, smaller towards the base. Petals furnished with the usual appendages at the orifice; limb about half an inch long, almost like that of *Lychnis Flos cuculi*, dilated, and pilose on the margin, cleft distinctly about half way down, each of the segments again subulately divided, besides these there are also 2 other external subulate segments originating towards the base. Capsule conspicuously stipitate.

7. **Baldwynii*. Flowers very large and rosaceous trichotomal; petals divaricately laciniate, stem, calix and sublanceolate leaves pilose. *v. s.* In herb. Baldwyn. **HAB.** On the banks of Flint river, Florida.—Dr. Baldwyn. Ve-

Very distinct from *S. Catesbæi*, but requires further examination. Flowers pale red and of uncommon magnitude. 8. *antirrhina*. 9. *nocturna*. 10. *acaulis*.

A genus comprehending nearly 100 species, extending throughout Europe and passing into Barbary, Greece, the Levant, and Siberia; no part of the southern hemisphere appears to afford any species except the Cape of Good Hope.

313. STELLARIA. L. (Stitchwort.)

Calix 5-leaved, spreading. *Petals* 5, bipartite. *Capsule* ovate, 1-celled, many-seeded, summit 6-toothed.

Flowers dichotomal and terminal, white; stems furnished with an elastic centre.

SPECIES. 1. *S. pubera*. **Obs.** Perennial. Stem diffuse and decumbent, dichotomous, having a pubescent line on one or two sides. Leaves sessile, ovate-oblong, acute, somewhat undulated, conspicuously pubescent on the margin and under side of the mid-rib towards the base, from 10 to 15 lines long and about 5 broad. Flowers always dichotomal (or in the forks of the branches;) peduncle pubescent, deflected. Calix pubescent, segments lanceolate-ovate, somewhat acute, with inflated nerves which are often abruptly dichotomous. Petals deeply bifid, longer than the calix, stellately expanding, large, very obtuse at the base and closely sessile, lobes linear-oblong. Capsule roundish. ovate. The whole plant has much the aspect of *S. nemorum*. 2. *media*. (Chickweed.) Introduced. 3. *graminea*. 4. *uliginosa*. Smith. Flor. Brit. These 2 last species are native, and very common.

5. * *elongata*. Stem diffuse and procumbent, pubescent; leaves oblong-lanceolate mucronulate; peduncles lateral, and solitary, very long; flowers apetalous. **HAB.** In Carolina and Georgia. *S. longipedunculata*. **Dr. Baldwin.** **Obs.** Stem extremely long and intricately branched, uniformly pubescent as well as the peduncles; leaves about 2 lines wide and 8 or 10 long, smooth, attenuated below, terminated by callous points. Peduncles solitary, from 10 to 15 lines. Calix acute, membranaceously margined. Petals none. Styles 3. Capsule 1-celled, summit 6-toothed, so that it is not a species of *Micropetalon* but a *Stellaria* which renders that genus unnatural.

An European genus.

314. ARENARIA. L. (Sand-wort.)

Calix 5-leaved, spreading. *Petals* 5, entire.
Capsule 1-celled, many-seeded.

Flowers axillary or terminal; leaves stipulate; flowers sometimes with 5 to 8 stamina, and 5 styles. Seeds membranaceously margined in *A. rubra*, and *A. media*.

SPECIES. 1. *A. peploides*. On the sea-coast. 2. *lateriflora*. Common in the mountainous parts of Pennsylvania. 3. *serpyllifolia*. 4. *thymifolia*. 5. *macrocarpa*. 6. *patula*. 7. *squarrosa*. 8. *striata*. 9. *glabra*. 10. *juniperina*. 11. *laricifolia*. 12. *fusculata*. 13. *canadensis*.

An European genus and many of the species alpine.

ORDER IV.—TETRAGYNIA.

315. MICROPETALON. Persoon. SPERGULA-
LASTRUM. Mich.

Calix 5-leaved, spreading. *Petals* 5, minute,
entire or none. *Capsule* ovate, 4-valved.

Habit similar to *Stellaria*.

SPECIES. 1. *M. lanuginosum*. 2. *lanceolatum*. 3. *gramineum*. Is not this *Stellaria graminea*?

A trifling genus which ought to be united with *Stellaria*.

ORDER V.—PENTAGYNIA.

316. SPERGULA. L. (Spurrey.)

Calix 5-leaved. *Petals* 5, entire. *Capsule*
ovate, 1-celled, 5-valved.

Leaves verticillate, stipulate, or opposite and naked, flowers axillary and terminal sometimes pentandrous. Seeds mostly marginated. A genus partly distinguishable by habit from *Arenaria*, but destitute of character.

SPECIES. 1. *S. arvensis*. 2. *saginoides*. Common in sandy fields and upon rocks from New Jersey to North Carolina.

317. CERASTIUM. L. (Mouseeear-Chickweed.)

Calix 5-leaved. *Petals* 5, bifid or emarginate. *Capsule* 1-celled, bursting at the summit, 10-toothed.

Flowers terminal; stamina sometimes 5, and 3 styles; capsule subcylindric, or roundish. Stems with an elastic centre.

SPECIES. 1. *C. vulgatum*. 2. *viscosum*. 3. *semidecandrum*. 4. * *glutinosum*. Softly pubescent and viscid, erect; leaves elongated, distant, linear-oblong, acute; petals oblong, bifid at the point, longer than the calix; peduncles at length much longer than the flowers, at first shorter. HAB. On the banks of the Schuylkill near Philadelphia. A very distinct and truly indigenous species.

Obs. Annual. Stems nearly simple and erect, several from the same root, often a foot high, remarkably viscid above. Radical leaves spatulate, all rather acute, cauline subamplexicaule, linear-oblong, sublanceolate, plaited at the point, often 2 inches long, and only 3 lines broad. Flowers terminal, subpaniculate; petals linear-oblong. Stamina 10, 5 alternately longer. Styles 5, short. Capsule double the length of the calix, 10-toothed, oblong-cylindric, teeth acuminate.

5. *arvense*. 6. *tenuifolium*. 7. *elongatum*. PH.

An European genus.

318. AGROSTEMMA. L. (Corn Cockle.)

Calix 1-leaved, tubulous, coriaceous, summit 5-cleft. *Petals* 5, unguiculate; limb obtuse, and undivided. *Capsule* 1-celled, with a 5-toothed opening.

Flowers terminal. Petals in *A. Githago* entire and naked; the rest have emarginate petals and an appendiculate orifice.

SPECIES. 1. *A. Githago*. Naturalized in corn-fields as in Europe.

319. LYCHNIS. L.

Calix tubulous, 5-toothed. *Petals* 5, unguiculate; limb subbifid. *Capsule* 1 to 5-celled, with a 5-toothed opening.

A genus of various habit and scarcely natural; flowers fastigiate, dichotomously paniculate, or solitary.

SPECIES. 1. *L. Alpina*.

A dispersed genus, but principally European.

320. OXALIS. *L.* (Wood-sorrel.)

Calix 5 leaved, persistent. *Petals* 5, partly connected at the claws. *Stamina* unequal, connected at the base, 5 of them alternately shorter. *Capsule* pentangular, 5-celled, bursting at the angles. *Seeds* covered by an elastic arillus.

Herbaceous plants with tuberous roots, caulescent or scapose; leaves aggregated, alternate, ternate, in a few species simple or binate, digitate, or multifid, in 1 pinnate with the leaves sensitive as in *Mimosa*; leaves at first spirally involute; scape 1-flowered, or umbellate, and involucrate.

SPECIES. 1. *O. Acetosella*. 2. *violacea*. This species appears often to flower again late in the autumn, and is then destitute of leaves. 3. *Lyonii*. PH. 4. *corniculata*. 5. *stricta*. 6. *Dillenii*. These 2 last are scarcely distinct species.

This genus of more than 100 species is, with a few exceptions in Europe and America, peculiarly indigenous to the Cape of Good Hope. The leaves of all the species are more or less sensitive and nictitant.

321. PENTHORUM. *L.*

Calix 5 to 10 cleft. *Petals* 5 or wanting. *Capsule* with 5 cusps, and 5-cells, cells dividing transversely, many-seeded; seeds minute.

Herbaceous, and subaquatic; leaves alternate, not succulent, margin serrate; flowers terminal, cymosely spiked.

SPECIES. 1. *P. sedoides*. According to Mr. Parish there is a second species of this genus in China, collected by Sir G. Staunton.

322. SEDUM. *L.* (Stonecrop.)

Calix 5-cleft. *Petals* 5. Five nectariferous scales at the base of the germ. *Capsules* 5, superior, many-seeded, opening internally.

Herbaceous and succulent; leaves alternate, sometimes subverticillate; flat or cylindric; flowers cymose, mostly terminal, sometimes solitary and axillary.

SPECIES. 1. *S. pulchellum*. Closely allied to the following. Commencing in Virginia about Harper's Ferry,

it continues throughout the mountains to Georgia, mostly upon the shelvings of rocks and also upon the trunks of decayed trees on the banks of the Ohio, &c. 2. *ternatum*. Generally accompanying the preceding. 3. *stenopetalum*. PH. Towards the Columbia. 4. *telephioides*. Scarcely distinct from *S. Telephium*.

Almost exclusively an European genus.

323. *DIAMORPHA. †

Calix 4-cleft. *Petals* 4. *Capsule* opening externally, 4-celled, cuspidate, cusps subulate, divergent; cells about 4-seeded.

A very small succulent biennial, verticillately branched from the base; branches 3 or 4; flowers minute, cymose, terminal; leaves alternate subterete.

SPECIES. 1. *D. pusilla*. *Sedum pusillum*. Mich. 1. p. 276. *Tillea cymosa*, of the present publication, which see p. 110, it is however very distinct from that or any other genus with which I am acquainted. The capsule is at length coriaceous, its summit nearly flat, with 4 horizontal diverging subulate cusps, the cells uniformly 4 are carinate and open externally. Although the fruit may be considered as 4 ingrafted capsules, they are never at any period separable.

NOTE. This genus should have been placed in *Octandria Tetragynia*.

ORDER VI.—DECAGYNIA.

324. PHYTOLACCA. L. (Poke.)

Calix 5-leaved, petaloid. *Berry* superior, 10-celled, 10-seeded.

Herbaceous, rarely shrubby; flowers racemose, racemes often opposite to the leaves, rarely axillary; leaves acute, mostly lanceolate. Styles 5, 7, 8, and 10: stamina 7, 8, to 20.

SPECIES. 1. *P. decandra*. The young shoots when boiled form an article of diet, while the full grown plant proves a drastic purgative. A tincture of the ripe berries

† From *διαμορφῆν*, *deformed*, or contrary formed; in reference to the fruit, which is formed differently and contrary to the rest of the *SEMPELVIVÆ*.

has been recommended in rheumatism. It is said that there is a method of fixing the fine purple color of the fruit upon wool, but that a more durable red is obtained from the root. This species has become naturalized in the south of Europe.

The few species of this genus, about 6, are all indigenous to North or South America, except *P. abyssinica*, and *P. icosandra* of India.

CLASS XI.—ICOSANDRIA.

ORDER I.—MONOGYNIA.

225. CACTUS. L. (Indian Fig, Melon Thistle, &c.)

Calix superior, multifid, segments imbricate. *Petals* numerous, arranged in several series, those of the interior larger. *Stigma* many-cleft. *Berry* umbilicate, many-seeded.

Arborescent, shrubby and herbaceous species of various forms, remarkably carnosé, articulated and proliferous, but usually destitute of proper leaves, mostly producing divergent clusters of spines intermixed with tenaceous and pungent bristles or pubescence.

† MELOCACTUS. *roundish.*

SPECIES. 1. *C. mamillaris*. Tubercles ovate terete, bearded; flowers scarcely exserted; berries scarlet about equal with the tubercles.—On the high hills of the Missouri probably to the mountains. A species which was hitherto supposed solely indigenous to the tropical parts of America. It appears to be smaller than the West India plant. 2. **viviparus*. Cespitose; glomeruli subglobose; tubercles cylindric-ovate, bearded, marked above with a proliferous groove; flowers central large and exserted; exterior segments of the calix, ciliate; fruit ficiform, greenish. HAB. With the above, on the summits of gravelly hills; flowering from June to August; flowers large and bright-red, almost similar to those of *C. flagelliformis*. OBS. Nearly allied to the preceding in habit, but differing probably from every other species of this section by the remarkable proliferous tendency of its leaves, which not unfrequently multiply to the destruction of the parent plant, it consequently never becomes so large as *C. mamillaris*; inhabiting a climate which is scarcely temperate, from the great elevation of the land above the level of the sea, these 2 species in this country produce long and somewhat fusiform roots, penetrating deep into the earth; towards the approach of winter the upper part of the

plant becomes dry, excessively spiny, and almost juiceless, in the spring numerous shoots issue from the root, and those glomeruli which have withstood the intensity of the frost, thus the plants becomes cespitose, forming masses sometimes of 2 or 3 feet in breadth. In spite of its armature the wild antelope of the plains finds means to render it subservient to its wants by cutting it up with his hooves.

The flowers are generally central, more than an inch in length; segments of the calix linear, exterior ones revolute with a fringed margin; petals numerous, narrow, linear and acuminate; berry about the size of grape, smooth and eatable; seed small, cotyledones none, (in the seeds which germinated with me, merely a tubercle similar to those of the parent plant.)

†† *OPUNTIAE*. *Compressed, articulations proliferous.*
Seeds larger, with 2 distinct cotyledones?

3. *Opuntia*. (Common Indian Fig, or Prickly-Pear.) Articulations compressed, ovate; spines double, exterior ones strong and subulate, often deciduous, interior setaceous; fruit succulent, smooth. *HAB.* Common in sandy fields from New Jersey to Florida.—Cotyledones 2, rolled horizontally around the radicle, which is directed towards the umbilicus.

4. * *ferox*. Articulately proliferous; articulations larger, nearly circular and very spiny; spines double, larger spines radiate persistent; flowers numerous; fruit dry and spiny. *HAB.* In arid situations on the plains of the Missouri, common. *Obs.* A much larger plant than *C. opuntia* to which it is nearly allied; exterior spines radiate, with one of them central, solitary and erect; flowers aggregated, marginal, dilute sulphur yellow, rosaceous towards the base; petals submarginate. Style thick, stigmas 8 to 10 greenish. Cotyledones 2, distinct. Flowering in July. Upon this species I found the *Coccus coccinelliferus*.

5. * *fragilis*. Articulately proliferous; articulations short and oblong, somewhat terete, doubly spiny and fragile; flowers solitary, small, at the point of the articulations; fruit dry and spiny. *HAB.* From the Mandans to the mountains, in sterile, but moist situations, much smaller than the preceding, and remarkable for its brittleness, the articulations though not very tumid coming off and attaching themselves to every thing which they happen to touch, so much so as to lead the hunters to say that it grows without roots.—Most of the species of this section have irritable or sensitive stamina.

An American genus of near 40 species, almost exclu-

sively tropical. They are amongst the most singular of vegetable productions, but scarcely all referrible to the same genus.

326. * BARTONIA.

Calix superior, 5-cleft, persistent. *Corolla* of 10 petals. *Capsule* cylindrical-oblong, 1-celled, summit flat, valvular: *valvulae* 3 to 7. *Receptacular placentae* 3 to 7, parietal. *Seeds* numerous, compressed, arranged horizontally in a double series.

Herbaceous; leaves alternate, pinnatifid, asperate; flowers large, terminal and solitary, vespertine, (or expanding towards sunset,) not deciduous or marcescent after closing, but reopening at the usual time for several days in succession, when closed involute in a cone; small valves of the capsule variable in number, but corresponding with the placentae, and the spiral striatures of the stigma; in the germ there exists the rudiments of a columnar receptacle. The whole plant turns blackish in drying, on the slightest wound it also exudes a resinous sap which instantly blackens in the air. Pubescence compoundly barbed and tenacious, as appears to be more or less the case in the whole order of the LOASEÆ.

SPECIES. 1. *B. ornata*. Leaves lanceolate, interruptedly pinnatifid; segments subacute; base of the capsule foliose; valves 5 to 7; seeds nearly without margin. *B. decapetala*. Bot. Mag. Obs. The whole plant, except the petals more or less scabrous with short barbed hairs. Biennial; root long, succulent and fusiform. Stem irregularly angular and much branched, 2 to 4 feet high. Leaves alternate, sessile, oblong-lanceolate, interruptedly and sinuately pinnatifid, 6 to 8 inches long; segments 3 to 6 lines in length, incurved, generally with 1 or 2 dentures on the lower side; uppermost leaves ovate-lanceolate, or dilated at the base. *Calix* inseparably investing the germ, border 5-cleft, superior, segments lanceolate, acuminate, persistent, an inch long. Flowers odorous, yellowish white, of uncommon magnitude almost resembling some species of *Cactus*, solitary and terminal, sessile. Petals 10, lanceolate-ovate, concave and spreading, conspicuously unguiculate, acute, numerous, nerved, inserted upon the calix, about 2 inches long, the 5 interior somewhat smaller. Stamina very numerous, from 200 to 250 more or less, a little shorter than the corolla and in-

serted also upon the calix; filaments scarcely attenuated, filiform; anthers small, oblong, distinct, inserted upon the subulate summit of the filament, about a line in length, 2-celled. Germ appearing inferior, being inseparably invested by the lower part of the calix. Style filiform, a little longer than the stamina, tubular, arising from the centre of the valves, longitudinally and spirally striate, nectariferous at the base, striæ 5 to 7, corresponding in number with the valves of the capsule; distinct stigma none. Capsule cylindrical-oblong, 1-celled, terminated by the persistent calix; summit flat and orbicular, valvular, valves 5 to 7, opening from the centre; receptacle parietal, placentalæ 5 to 7, succulent, 2 rows of seeds in each. Seeds numerous, flat, subovate, nearly immarginate; embryo straight, surrounded by a thin carnosous perisperm, cotyledones 2, flat, white; radicle umbilical, inferior, exserted, plumule inconspicuous. HAB. On the banks of the Missouri in broken argillaceous soils. Flowering from the latter end of August through September, and into October, but never in July.†

† In reply to the insinuations of Mr. Pursh, under this article, I must here remark, that he could not possibly have had any authority to assert, or even suppose me capable of disputing with the late indefatigable and unfortunate M. Lewis, the discovery of this plant: this charge is merely a subterfuge. Mr. Pursh, before he had perused the notes which I had made from the living plant on the Missouri, with an intention of rendering them public, had not then, by his own acknowledgment, any thing like materials for publishing this genus, my friend A. B. Lambert, Esq. Vice President of the Linnean Society, can also aver the truth of this statement. Mr. P. possessed merely an imperfect capsule of the plant, which M. Lewis had collected while descending the Missouri, he not having seen it then at the time of flowering; the collections made by that gentleman while ascending the Missouri were unfortunately lost, and it is only in that collection, according to the time of the year, which he could possibly have had flowering specimens, of this late autumnal plant. This unfortunate want of fidelity, prevented me from communicating to Mr. F. Pursh, many of the plants which now appear in this work. Appeals to the public are to me extremely irksome, but silence on such an occasion would have been indeed the most degrading condemnation, and a tacit submission to reiterated injustice. It was not surely honourable in Frederick Pursh, whom I still esteem as an able botanist, to snatch from me the little imaginary credit due to enthusias-

2. nuda. Leaves sublanceolate, interruptedly pinnatifid, segments obtuse, capsule naked, valves 3, seeds marginated; exterior stamina petaloid often sterile. HAB. Near the Great Bend of the Missouri, on gravelly hills, apparently perennial, at least often existing 3 or 4 years, judging from remaining vestiges. OBS. Possessing all the habits of the preceding, the specific character excepted. OBS. Leaves subcanescently hirsute, asperate, pubescence short and appressed, hairs subulate and diaphanous, (through a common lens) repeatedly barbed from the point to the base, after the manner of this and the following genus; but never glandulous. Flowers smaller than the preceding, of the same color, and making a nearer approach towards *Mentzelia* by the external petaloid filaments.

The genus *Bartonia* one of the most singular and splendid in North America, appears to be distinctly concatenated with *Loasa* and *Mentzelia*, but approaches nearer to the latter than the former, indeed nothing essentially separates it from this genus, except the augmentation of petals and the structure of the capsule and seeds, but these exceptions on the other hand approximate it to *Loasa*, from which it is essentially distinguished by the absence of lepanthia or internal heteromorphous petals, by the unconnected disposition of the stamina which are more numerous, and also by the inferior position of the germ and the perfect flatness of the converging valves of the calix.—We have here for our reflection an additional proof of the wonderful harmony of Nature, and a recommendation to the philosophical study of natural affinities.—Can we be better employed than in occasionally contemplating and demonstrating this vast and infinite chain, in which even we ourselves are subservient,—a mysterious but sublime concatenation, to us without beginning and without end!

327. MENTZELIA. Plumier. L.

Calix 5-cleft, superior, deciduous. *Petals* 5.
Capsule inferior, 1-celled, cylindric, 3 to 6 seeded, summit flat, 3-valved. *Seeds* oblong, partly angular, longitudinally arranged.

A genus of herbaceous and asperate plants clothed with multibarbe hairs; leaves alternate more or less ovate and

tic researches made at the most imminent risk of personal safety!

crenate; flowers dichotomal and terminal, solitary, yellow; exterior stamina petaloid or all fertile, from 20 to 30.

SPECIES. 1. *M. aurea*. Stem dichotomous; leaves lanceolate-ovate, deeply and angularly crenate; flowers dichotomal, sessile; petals oval, acuminate, entire; capsule about 3-seeded. **HAB.** On the shelvings of rocks, and rocky hills, Louisiana, near the lead mines of St Louis, and on the banks of the Missouri, below the confluence of the Platte. **Obs.** The whole plant is extremely asperate and tenaceous; pubescence repeatedly barbed. Root succulent and tuberous; stems about 12 inches high, divaricate and dichotomously branched. Leaves 10 to 15 lines long, sessile, 6 to 8 lines wide, the uppermost ovate, the lower attenuated at both extremities, subacute; margin particularly toward the middle deeply and incisely crenate. Flowers solitary, of a deep golden yellow, scarcely a third part so large as those of *M. hispida* but very elegant in form, stellately expanding, about 8 lines in diameter, very evanescent, opening to the sun only about 4 hours. Calix persistent, segments narrow and linear. Stamina all equal and fertile, none of them petaloid, 20 to 22, nearly as long as the corolla; filaments subulate; anthers terminal distinct, small and nearly round. Style filiform, the length of the stamina, convolute, marked with 3 longitudinal striæ as in *Bartonia*, also corresponding with the number of valves and seeds in the capsule, stigma none. Capsule cylindric, sessile, very small. Seeds about 3, linear-oblong, smooth, subangular, nearly the whole length of the capsule, or longitudinally arranged. (The seeds of *M. hispida* according to the description of Cavanilles, are very asperate.) This species appears to be considerably allied to *M. aspera*, deciding from figures and description.

528. DECUMARIA. L.

Calix superior 8 to 10 cleft. *Petals* 8 to 10. *Capsule* 7 to 9-celled, many-seeded. *Seeds* subulate, minute.

Sarmentose twining shrubs with ovate leaves; flowers in corymbose panicles white and odorous. Stamina 16 to 25.

SPECIES. 1. *D. barbara*. 2. *sarmentosa*. A genus peculiar to the southern states of America.

529. PHILADELPHUS. L. (Mock-Orange.)

Calix superior, turbinate, 4 or rarely 5-cleft.

Petals 4 or 5. *Stigma* 4-cleft. *Capsule* 4 or 5-celled, many-seeded.

Shrubs with opposite impunctate leaves; flowers opposite or terminal, partly spiked or corymbose, white, each of them bracteolate. (Fruit grooved, inseparably invested by the calix; separable into 4 or 5 parts, each part having a dorsal cleft and inflected margins which are united inwards towards the base.)

SPECIES. 1. *P. inodorus*. 2. *Lewisii*. PH. 3. *grandiflorus*. 4. * *hirsutus*. Style and stigma undivided; leaves oblong-ovate acute, sharply and angularly denticulate, upper side hirsute, the under whiteish and hirsutely villous; branchlets about 3-flowered; peduncle bibracteate near the summit. **HAB.** On the rocky banks of French Broad river, Tennessee, near the Warm Springs, abundant. **Obs.** A smaller shrub than any of the preceding with slender virgate branches. *Petals* almost uniformly 4, dilated ovate, or broad oval, very obtuse, mostly oblique, slightly emarginate, pure white; segments of the calix subsemiovate, acute, and villous; style shorter than the stamina, simple, stigma clavate, undivided, 4-grooved.

A North American genus, with the exception of *P. coronarius*.

330. CHRYSOBALANUS. L. (Cocoa Plum.)

Calix 5-cleft, inferior. *Petals* 5. *Style* lateral. *Drupe* pruniform; nut 5-grooved, 5-valved, 1-seeded.

Arborescent or suffruticose; leaves entire, stipulate; flowers paniculately racemose, axillary and terminal; drupe esculent.

SPECIES. 1. *C. oblongifolius*. **Obs.** A low suffruticose plant, rarely more than a foot high, but running horizontally to a considerable extent; stipules very minute, leaves sessile, cuneate-oblong, 3 or 4 inches in length, seldom more than 1 in breadth, coriaceous, prominently and reticulately veined, shining on both surfaces, partly sempervirent, margin obsoletely crenulate, the under surface, sometimes, though rarely, white and tomentose. The panicle, which is terminal, is also very far from being large; the peduncles of the panicle are almost uniformly 3-flowered; drupe, or rather berry, cylindrical-oblong, oliveformed, the shell merely coriaceous. *v. v.* In the sandy pine forrests of Georgia, not far from Augusta.

Of this genus there is another species indigenous to the West India islands.

331. PRUNUS. L. (Plum and Cherry.)

Calix inferior, 5-cleft, deciduous. *Petals* 5. *Style* terminal. *Drupe* even, nut with a somewhat prominent suture.

Trees with alternate stipulate leaves, generally serrated on the margin and in some species glandular towards the base, in a few the leaves are sempervirent; flowers earlier than the leaves in the plums, later than the leaves in the cherries, aggregated, corymbose, or racemose.

SPECIES. 1. *P. virginiana*. 2. *serotina*. 3. *canadensis*. 4. *caroliniana*. (Evergreen Carolina Cherry-tree.) 5. *sempervirens*. 6. *borealis*. 7. *pennsylvanica*. 8. *nigra*. 9. *hiemalis*. 10. *pygmæa*. 11. *pubescens*. 12. *pumila*. 13. *depressa*. PH. *P. Susquehanna?* Willd. enum. 519. On the summits of the highest hills in upper Louisiana to the Rocky Mountains, where it sometimes produces fruit at the height of 3 or 4 inches from the ground; on the shores of Lake Huron the same species attains the height of 2 or 3 feet. 14. *Chicasa*. In the United States, hitherto discovered only in the vicinity of ancient Indian stations; it appears to have been cultivated by the aborigines, but its original site is unknown. 15. *maritima*. The fruit rather small, and scarcely eatable. 16. *cerasifera*. 17. *spinosa*. The Sloe. These 2 last are unquestionably introduced and scarcely naturalized.

Principally a North American genus; there are at the same time 7 species in Japan, 1 in China, 7 in Europe, 2 in the West India islands, 1 indigenous to the mountains of Crete and Lebanon, the poisonous but ornamental Laurel from the Levant. *P. Cerasus*, the common cherry, and *P. domestica*, the plum, although variously claimed in Europe, have been probably introduced from Persia or the East.

332. TIGAREA. Aublet.

Calix inferior, 5-cleft. *Petals* 5. *Capsule* 1-seeded, oblong, acuminate, pubescent, opening internally and longitudinally.

A tropical genus as far as described by Aublet and almost exclusively American, comprehending shrubs which are said to be sarmentose, having entire leaves which are usually scabrous and stipulate, producing flowers in axillary racemes; a habit so diverse from the plant described by Mr. Pursh, as to render the identity of genus extremely doubtful; in this plant, which appears to be a low, erect, and much branched gemmiferous shrub, with small crowded pubescent leaves, obtuse and trifid at the summit, the

flowers are solitary and terminal, resembling those of some species of *Cretagus* but yellow?

SPECIES. 1. *T. tridentata*. Collected in the recesses of the Northern Andes or Rocky Mountains, by the late Governor Lewis.

333. LYTHRUM. *L.* (Loosestrife.)

Calix 6 to 12-toothed, tubular. *Petals* 6, equal, inserted upon the calix. *Capsule* superior, 2 to 4-celled, many-seeded. (*Stamina* 2, 6, 8, 10, and in some species 12.)

Herbaceous; leaves alternate, opposite and verticillate; flowers verticillately spiked and terminal, or verticillate and axillary subsolitary, purple.

SPECIES. 1. *L. Salicaria*. 2. *verticillatum*. OBS. Sub-aquatic, pulverulently pubescent; stem hexangular recurved, and often taking root at the extremities, sometimes suffruticose, leaves lanceolate, opposite and ternately verticillate, attenuated at both ends. *Calix* 6, 8, 10 or 12-toothed. Flowers axillary, verticillate, biterminately aggregated. *Petals* 5 or 6. *Stamina* 8, 10, and 12, much exserted, petals undulated. *Capsule* roundish, always 3 or 4-celled, dissepiments marginal; seeds angular. 3. *virgatum*. 4. *alatum*? PH. Smooth and virgately branched; leaves opposite, cordate-ovate, acute, subpetiolate, with a somewhat scabrous margin; angles of the stem marginated; flowers axillary, solitary, much longer than the leaves, minutely petiolate, hexandrous. OBS. A very elegant and ornamental species; branches brown, at first erect, at length recurved, and then sending out numerous axillary branchlets; flowers often double the length of the leaves, deep and bright purple; leaves not much larger than those of Thyme, which they somewhat resemble, and *L. Serpyllifolia* would certainly have been a much better name than the obscure one of *alatum*, a character which in this species is scarcely if at all, more remarkable than in *L. Hyssopifolia*.—*Stigma* conspicuously capitate; capsule subcylindric, 2-celled, flowers minutely bibracteate after the manner of the genus. 5. *lineare*. Smooth and virgate; leaves mostly opposite, narrow, linear and acute; flowers axillary, solitary, nearly equal with the leaves, hexandrous. OBS. The leaves appear somewhat succulent and opaque, length 6 or 7 lines, breadth about 1 line; flowers small and nearly white, bibracteate.

6. *Hyssopifolia*. Leaves alternate and opposite longer than the flowers, linear lanceolate, subelliptic; flowers solitary axillary, hexandrous. OBS. Stem nearly simple or sparingly branched from the base, quadrangular and some-

what margined, flowers pale purple. **HAB.** In the state of New York.

Principally an American genus extending within the tropics; there are also 5 species in Europe, among which *L. Hyssopifolia* and *Salicaria* are also common to America.

334. CUPHEA. *Brown.*

Calix ventricose, tubular, 6 to 12-toothed, unequal. *Petals* 6, generally unequal, inserted upon the calix. *Capsule* with the calix bursting longitudinally, 1-celled. *Seeds* few, lenticular, imbricated.

Herbaceous rarely suffruticose; leaves opposite; flowers terminal, partly solitary, or racemose; petals in 2 species nearly equal; 2 others are remarkably viscosc.

SPECIES. 1. *C. viscosissima*. Stamina 12. **HAB.** From Pennsylvania to Louisiana and on the banks of the Mississippi. (Abundant around Lancaster, and now beginning to occur in the vicinity of Philadelphia in a few localities.)

An American genus, entirely tropical, except the *viscosissima* which extends also to Brasil.

ORDER II.—DIGYNIA.

335. FOTHERGILLA. *L.*

Calix inferior, truncate, obsolete crenate. *Corolla* none. *Filaments* very long and clavate. *Germ* bifid. *Capsule* 2-lobed, 2-celled, cells 2-valved, 1-seeded. *Seed* indurated.

A shrub resembling a species of *Alnus*; flowers in a terminal thyrse or short dense spike, vernal and appearing before the leaves. Fruit similar to *Hamamelis*.

SPECIES. 1. *F. alnifolia*. The only species of the genus.

336. AGRIMONIA. *L.* (*Agrimony.*)

Calix inferior, 5-toothed, caliculate, externally setigerous about the middle; setæ uncinatæ. *Petals* 5, inserted upon the calix. *Seeds* 2, inclosed in the base of the calix.

Herbaceous; leave alternate, pseudopinnate, segments unequal; flowers in terminal spikes each tribracteate.

SPECIES. 1. *A. Eupatoria*. 2. *parviflora*. 3. *striata*.

A small genus, chiefly indigenous to Europe.

337. CRATÆGUS. L. (Hawthorn.)

Culix 5-cleft. *Petals* 5. *Styles* 1 to 5. Fruit a farinaceous berry, or small apple producing 2 to 5 bony seeds, or nuts.

Small spiny trees or shrubs; leaves alternate simple, undivided or lobed; peduncles many-flowered, mostly terminal and corymbose, rarely solitary lateral or terminal; flowers white sometimes rosaceous; fruit scarlet or yellow.

SPECIES. 1. *C. apifolia*. Flowers and berries small, the latter scarlet. Preferable to every other species in North America for hedges, remaining green very late in the autumn, being also perfectly hardy and spreading low so as to produce a close fence, similar to that afforded *C. Oxyacantha* in the north of Europe, a species which in the United States thrives badly and grows up erect so as to be unfit for close hedges as in its native soil. 2. *spatulata*. 3. *coccinea*. This fine species frequently becomes a small tree and produces abundance of fruit. 4. *populifolia*. 5. *pyrifolia*. 6. *elliptica*. 7. *glandulosa*. 8. *flava*. Fruit large, not very abundant, but of an exquisite flavor, similar to that of the finest apple. 9. *parvifolia*. 10. *punctata*. 11. *Crus galli*.

Principally a North American genus, at the same time there are 3 species in Japan, 6 in Europe, 1 in the Levant, 1 in India, and 2 in the northern parts of Africa, there are also 2 species said to be indigenous to Peru.

338. SORBUS. L. (Mountain Ash.)

Culix 5-cleft. *Petals* 5. *Styles* 2 or 3. Berry farinaceous, inferior, 2 or 3-seeded. Seeds cartilaginous.

Trees with alternate leaves, which are pseudopinnate, pinnatifid, deeply toothed or lobed; flowers corymbose terminal.

SPECIES. 1. *S. americana*. Apples fulvous insipid and farinaceous, about half the size of those of *Pyrus coronaria*, seldom containing more than 1 or 2 perfect seeds. 2. *microcarpa*.

An European genus *S. aucuparia*, and *S. hybrida*, extending within the arctic circle.

ORDER III.—TRIGYNIA.

339. SESUVIUM. *L.*

Calix 5-parted, coloured. *Petals* none. *Cap-
sule* superior, ovate, 3-celled, opening trans-
versely all round, many-seeded. *Seeds* minute.

Succulent herbaceous plants with opposite semiam-
plexicaule entire leaves, and axillary, solitary flowers.

SPECIES. 1. *S. sessile*. Leaves spathulate, flat; flowers
sessile, rosaceous. *HAB.* On the sea-coast, from New
Jersey to Florida. Leaves sometimes nearly linear; seg-
ments of the calix pointed below the summit.

ORDER IV.—PENTAGYNIA.

340. ARONIA. *Persoon.* MESPILUS. *L.*

Calix 5-toothed. *Petals* 5. *Berry* inferior 5
to 10-celled; cells 1 or 2-seeded. *Seeds* cartila-
ginous.

Shrubs without spines, having alternate undivided
leaves, and flowers which are corymbose or racemose,
generally white; fruit a small black purple or scarlet po-
moid berry, containing seeds similar to those of apples.

SPECIES. 1. *A. arbutifolia*. Berries scarlet in co-
rymbs, astringent and scarcely eatable at any period; but
without any acidity, and sweetish. 2. *melanocarpa*.
Fruit also astringent and black or nearly so, but prefera-
ble to the preceding. 3. *Botryopium*. Berries purple,
pruinose, very saccharine and agreeably flavoured. 4.
ovalis. 5. *sanguinea*. *PH.* 6. **Alnifolia*. Smooth:
leaves roundish, the upper part toothed, pinnately
nerved, under side somewhat glaucous; raceme simple,
elongated; fruit black and sweet. *HAB.* In ravines and
on the elevated margins of small streams from Fort Man-
dan to the Northern Andes. *Obs.* A shrub 4 or 5 feet
high; leaves roundish and retuse, somewhat attenuated
at the base, toothed towards the summit; fruit dark
purple, somewhat pruinose, very agreeable and saccha-
rine; ripening about July and August.

A North American genus, with the exception of 2 Eu-
ropean species, and 1 said to be indigenous to mount Ida
in Crete.

341. PYRUS. *L.* (The Apple and Pear.)

Calix 5-cleft. *Petals* 5. *Apple* large and
carnose, inferior, 5-celled, many-seeded.

Middle sized trees with alternate undivided leaves; flowers mostly corymbose and terminal, rarely solitary and lateral, white or red in the apples; fruit turbinate, only umbilicate at the summit, saccharine and partly deliquescent in the Pear; fruit in the Apple globose umbilicate at each extremity, subacid, and at length more farinaceous.

SPECIES 1. *P. coronaria*. Ripe fruit yellowish and subdiaphanous, always mildly acid. 2. *angustifolia*.

A genus nearly divided betwixt Siberia and Europe, there is also one species in Persia, and a very splendid and hardy species in China with crimson flowers.

342. SPIRÆA. L.

Calix spreading 5-cleft, inferior. *Petals* 5, equal, roundish. *Stamina* numerous exerted. *Capsules* 3 to 12, internally bivalve, each 1 to 3-seeded.

Shrubby or herbaceous; leaves alternate, simple, or pinnately divided, stipules adnate to the petiole, sometimes minute or none; flowers mostly corymbose or paniculate.

SPECIES. 1. *S. salicifolia*. 2. *tomentosa*. 3. *hypericifolia*. 4. *chamædrifolia*. 5. *betulifolia*. 6. *opulifolia*. 7. *capitata*. PH. 8. *discolor*. PH. 9. *sorbifolia*. 10. *Aruncus*. 11. *lobata*.

A genus almost equally divided betwixt Siberia and North America. .

343. GILLENIA. Moench. SPIRÆA. L. (Indian Physic.)

Calix subcampanulate, border 5-toothed. *Corolla* partly unequal. *Petals* 5, lanceolate, attenuated, coarctate at the claws. *Stamina* fewer, included. *Styles* 5, contiguous; stigmas capitate. *Capsule* 5-celled; cells 2-seeded.

Herbaceous plants with alternate ternately divided or pseudopinnate leaves furnished with stipules; flowers few, terminal, dispersed, subpaniculate; petals elongated partly irregular; (roots cathartic and emetic.)

SPECIES. 1. *G. trifoliata*. 2. *stipulacea*. Radical leaves pinnatifid. A species confined to the west side of the Alleghany mountains, extending as far north as the state of New York, according to the observations of Dr. I. Cleaver. For a figure, see Dr. W. Barton's Medical Botany, p. 71. tab. 6.

Hitherto a North American genus.

ORDER V.—POLYGYNIA.

344. ROSA. L. (Rose.)

Calix urceolate, carnosae, contracted at the orifice, border 5-cleft. *Petals* 5. *Seeds* many, hispid, attached to the inside of the calix.

Shrubs for the most part aculeate, prickles scattered; leaves alternate, pseudopinnate, in one species simple; lower part of the petiole alated by the decurrent stipules; flowers solitary or subcorymbose and terminal, mostly large, in the gardens often double.

SPECIES. 1. *R. blanda*. 2. *parviflora*. 3. *nitida*. 4. *lucida*. 5. *gemella*. 6. *Lyonii*. 7. *setigera*. 8. *carolina*. 9. *rubifolia*. A very fine flowering species, but nearly scentless; abundant round Detroit, and through all the western states to Louisiana. 10. *lexigata*. 11. *rubiginosa*. *R. suaveolens*. Pa. Merely naturalized; certainly not native.

A genus of near 50 species chiefly indigenous to Europe, there are also a few species in Japan and India.

345. RUBUS. L. (Bramble.)

Calix 5-cleft inferior. *Petals* 5. *Berry* compound; acini 1-seeded.

Shrubby suffruticose or herbaceous plants; stems mostly aculeate, often annual, more or less recurved or sarmentosely procumbent, the herbaceous species destitute of armature; leaves simple, ternate, digitate, or pinnately divided: flowers terminal, racemosely paniculate or solitary, rarely subcorymbose; fruit edible, red or black, sometimes yellowish.

SPECIES. 1. *R. Ilheus*. Indigenous throughout Upper Canada and on the borders of the lakes of the St. Lawrence. 2. *occidentalis*. 3. *villosus*. Leaves in 5s. digitate, elliptic acuminate, sharply serrate, partly villous on both sides. 4. *strigosus*. 5. *canadensis*. 6. *cuneifolius*. Pa. Very prickly, but producing often an abundant and well flavoured fruit. This species grows always in sandy woods, way-sides and fields, profiting by the destruction and removal of the trees which formerly restrained it. Mr. P. must not have seen this plant in perfection, otherwise he would not have remarked that "the berries were hard and dry." 7. *hispidus*. 8. *trivialis*. Dewberry. 9. *flagellaris*. 10. *inermis*. 11. *spectabilis*. 12. *odoratus*. (On the banks of Wishahikon creek near Philadelphia); abundant throughout the mountains, always amidst rocks. 13. **parviflorus*. Shrubby and unarmed; leaves simple, palmately lobed; peduncles 2 or 3-flowered: flowers small; segments of the calix villous, ovate, abruptly acu-

minate; petals oblong-ovate, white. **HAB.** On the island of Michilimackinac, lake Huron. 14. *saxatilis*. 15. *obovalis*. 16. *arcticus*. 17. *pistillatus*. 18. *pedatus*. 19. *Chamemorus*.

A widely dispersed genus of about 50 species, extending from the arctic circle, throughout Europe to the West Indies, and passing the equator, species are also found in Peru, Chili, Japan, China, the islands of the Pacific, and on the continent of India.

346. **DALIBARDA. L.**

Calix inferior 5-cleft, spreading. *Petals* 5. *Styles* 5 to 8, long and deciduous. *Seeds* dry.

Small herbaceous plants with creeping perennial roots; scapes 1 or few flowered, flowers white or yellow; leaves entire or ternately divided.

SPECIES. 1. *D. repens*. 2. *Fragarioides*. Flowers yellow. This species is also found in Siberia.—Of this genus there is but another species indigenous to the Straits of Magellan.

347. **DRYAS. L. (Mountain Avens.)**

Calix inferior, simple, 8-cleft. *Petals* 8. *Seeds* many, caudate, plumose. *Receptacle* depressed.

Low and suffruticose alpine plants, partly cespitose; leaves alternate undivided, margin entire or serrated, under-side white and tomentose; stipules adnate to the petiole; peduncles solitary, 1-flowered; flowers white.

SPECIES. 1. *D. octopetala*. 2. *integrifolia*. (*D. tenella*, Ph.) On the White Hills of New Hampshire.

A genus of 2 species, common to the northern parts of Europe and America.

348. **GEUM. L. (Avens.)**

Calix 10-cleft, inferior, segments alternately smaller. *Petals* 5. *Seeds* awned, awn naked or bearded, mostly geniculate.

Herbaceous plants mostly producing pinnately divided alternate leaves, with the terminal segment usually larger, stipules adnate to the petiole; peduncles terminal or axillary few-flowered.

SPECIES. 1. *G. strictum*. 2. *agrimonoides*. PH. 3. *album*. 4. *virginianum*. 5. *geniculatum*. 6. *vivale*. 7. *ciliatum*. PH. 8. *radiatum*. 9. *Peckii*. PH. Radical leaves reniform. Is this plant indeed a *Geum*? 10. *Anemonoides*. Also indigenous to Kamtschatka as well as No. 8. 11. *tri-*

florum. PH. OBS. Stem mostly 3-flowered, producing about 2 pair of small leaves, which are connate at the base, having large divaricate and adnate stipules; peduncles elongated, bracteolate; calix subcampanulate, smaller segments longest, petals white, subovate; awns of the seed straight, conspicuously villous, twice as long as the calix. HAB. Around Fort Mandan on the Missouri. A remarkable species, allied to *G. Anemonoides*, but having pilose leaves and a villous stem and calix.

A North American genus, of which there are also 6 species in Europe, 1 in Japan, 1 in Barbary, 2 at the Straits of Magellan, and 2 equally indigenous to Kamtschatka and North America.

349. POTENTILLA. L. (Cinquefoil.)

Calix 10-cleft, inferior, spreading, 5 of the segments alternately smaller. *Petals* 5. *Seeds* mostly rugose, roundish, naked, attached to a small juiceless receptacle.

A numerous genus of herbaceous plants (only 2 species shrubby,) with pinnate, digitate or ternately divided leaves; petioles alated towards the base by the adnate stipules; flowers often corymbosely fasciculated and terminal, yellow, rarely white.

SPECIES. 1. *P. tridentata*. 2. *emarginata*. PH. 3. *ni-vea*. 4. *villosa*. Pallas. 5. *hirsuta*. 6. *norwegica*.

7. *recta*? Leaves all in sevens, digitate, villous beneath; leaflets cuneate-oblong, semipinnatifid, obtuse; stipules subovate; stem erect, many-flowered, panicle divaricate; flowers subfastigate; petals roundish, yellow. HAB. In depressed situations, on the plains of the Missouri near Fort Mandan. Flowering in May or June. 8. *pumila*. 9. *canadensis*. 10. *simplex*. 11. *opaca*. 12. *dissecta*. 13. *argentea*. From Canada to the state of New-York.

14. * *humifusa*. Leaves digitate, quinate, leaflets cuneate-oblong, obtuse, incisely dentate, beneath white and tomentose; flower-stems short and filiform, procumbent, not creeping. HAB. On high gravelly hills near Fort Mandan, Missouri. Flowering about April or May. OBS. Root subcespitose not creeping; leaves all radical, deep green and pubescent above, white and tomentose beneath; flowering stems 4 or 5 inches long, filiform, flagellate, without leaves, producing a few yellow? flowers but no roots.

15. *fruticosa*. 16. *anserina*. 17. *pennsylvanica*. In Canada, and on the plains of the Missouri. 18. *supina*.

A genus of near 60 species, almost exclusively indigenous to the northern regions of Europe, America, and

Asia (Siberia.) Are there no species in the southern hemisphere?

350. **COMARUM. L.** (Marsh Cinquefoil.)

Calix inferior, 10-cleft, 5 of the segments alternately smaller. *Petals* 5, smaller than the calix. *Seeds* even, attached to an ovate spongy persistent receptacle, not becoming a berry.

A marsh plant; with pseudopinnated leaves, stipules growing to the petioles, and sheathing the stem; peduncles few-flowered axillary and terminal. Flowers brownish, leaves glaucous beneath.

SPECIES. 1. *C. palustre*. In nearly all the western states and territories as far as Louisiana.—A genus of but a single species, common to the whole northern hemisphere.

351. **FRAGARIA. L.** (Strawberry.)

Calix inferior, 10-cleft, 5 of the segments alternately smaller. *Petals* 5. *Receptacle* of the seed ovate and deciduous becoming a berry. *Seeds* even.

Creeping herbaceous plants, often sending out filiform radican stems in all directions which diminish the quantity of flowers and fruit; leaves ternate, very rarely digitate, by cultivation sometimes simple; stipules adnate to the petiole; flowers often terminally corymbose, sometimes dioicous; receptacle esculent.

SPECIES. 1. *F. vesca*. v. v. In the state of Ohio near Lake Erie. 2. *virginiana*. 3. *canadensis*.

A small but very widely dispersed genus, of which there are 3 species in Europe, 1 in Surinam, 1 in Chili, and 1 at Buenos Ayres, in South America, a yellow flowered species has also been recently introduced from India.

352. **CALYCANTHUS. L.** (Carolina All-spice.)

Calix urceolate, the lower part entire, upper part multifid, squarrose, leaflets colored, petaloid. *Corolla* none. *Styles* many. *Seeds* many, naked, smooth and cartilaginous, included in the enlarged ventricose and succulent calix.

Odoriferous and spicy shrubs with opposite and very entire leaves destitute of stipules, having the upper sur-

face scabrous with minute aculei, the under smooth, glaucous or villous; younger branches more or less quadrangular, flowers terminal, solitary, petaloid segments disposed nearly in 2 series, brownish, the interior ones often stamiferous, and the innermost filaments sometimes without anthers.

SPECIES. 1. *C. foetidus*. **Obs.** Leaves variable, broad oval, or oval-oblong, acute; villous on the under side: the wood and particularly the root strongly camphorated, so as to be calculated probably to produce that drug as abundantly as *Laurus camphora*. Flowers at first dark brown, becoming paler, in drying parting entirely with this color and becoming olive green, agreeably scented, almost like ripe apples, similar to all the other North American species. Anthers and filaments minutely pubescent, the former glanduliferous at the summit, interior filaments without anthers. Seed brown, nearly as large as horsebeans, naked, smooth and shining, about 16 in each utriculus, of a roundish oblong form, marked with a longitudinal suture and a central hilum; shell hard and cartilaginous; perisperm none, or a small central portion gelatinizing when moistened, radicle descendant; cotyledones convolute, white and large, of an oleaginous bitter taste. Capsule turbinate, as large as a small pea, marked with the vestiges of the calycine lacinae, at length becoming perfectly dry with the seeds loose, but never opening.

Z. Collins Esq. informs me that by cutting off the terminal leaf-buds, after the usual season, a succession of flowers may be obtained throughout the summer, every leaf-bud so extracted being constantly succeeded by 2 flowers. For 4 years Z. Collins has been a witness to the success of this experiment, showing in this genus the very intimate union which subsists betwixt the leaves and singularly confluent flowers. From the rarity of fruit in the Calycanthi, even in their native mountains, we may almost assert, that this genus, not withstanding the constancy of its flowers, is in fact polygamous.

2. *glaucus*. On the declivities of bushy hills and the margins of small streams near Lincolnton, (N Carol.) &c. β . * *oblong-folius*, leaves oblong-lanceolate, acuminate, under side smooth and glaucous. **HAB.** In the mountains of North Carolina, a permanent variety, having elongated leaves. 2. *variegatus*. Leaves scabrous above, green and smooth beneath.

A North American genus with the exception of *C. procerus* of Japan

THE
G E N E R A
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.

VOLUME II.

PHILADELPHIA:

PRINTED FOR THE AUTHOR BY D. HEARTT,

1818.

District of Pennsylvania, to wit:

***** BE IT REMEMBERED, That on the third day of
SEAL. April, in the forty-second year of the Independence
***** of the United States of America, A. D. 1818, Tho-
mas 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 Nut-
tall, F. L. S. fellow of the American Philosophical So-
ciety, and of the Academy of Natural Sciences of Phi-
ladelphia, &c.”

In conformity to the act of the congress of the United States,
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ing the copies of maps, charts and books, to the authors and
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and proprietors of such copies during the times therein men-
tioned,” and extending the benefits thereof to the arts of de-
signing, engraving, and etching historical and other prints.”

D. CALDWELL,

Clerk of the District of Pennsylvania.

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 dilated bracte or floral process unconnected towards its summit; flowers white.

SPECIES. 1. *T. glabra*. **OPS.** 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 CISTII.

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, cylindrical, covered with a pale granulated integument: embryo immersed in a corneous perisperm.)

SPECIES. 1. *H. ericoides*. Equally pubescent; stem erect; leaves filiform, and subulate, subimbricate; peduncles laterally aggregated; calix cylindrical, 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 laciniaæ 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, subimbriate; 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 exerted 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 petraeum 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. *Siliqua* 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. *Siliqua* 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 2 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;

† 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; 12 to 18 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 embryo.—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?

562. 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.

563. 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.

564. 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 creeping, 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* semi-orbicular. *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 †.

† 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 *Asclepius 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.

568. 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* carinose, 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

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 carnosé, 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. *advena*. 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* carnosé, 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. tricornes*. 2. *azureum*. 3. *exaltatum*. 4. *consolida*. Naturalized. 5. *virescens*. Perennial, pubescent; *lepanthium* 4-leaved, shorter than the 5 calicine petals, interior laminae 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. 2. *Napellus*.

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

573. **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.

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

Calix 4 or 5-leaved. *Petals* 4 to 8 deformed, thickish, sometimes wanting. *Capsules* 1 to 3, 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. *fætida*. 3. *americana*. 4. *palmata*. Does this exceptional plant belong indeed to *Cimicifuga*?—A North American genus.

575. **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 fili-

form, terete; larger leaves of the calix roundish. The peduncles of all the following species are bibracteate above the middle. 3. *Cruz Andreae*. 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. *amœnum*. 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. *perforatum*. Too abundantly naturalized in dry pastures, and considered very injurious to horses. 15. *corymbosum*. 16. *parviflorum*. 17. *triplicerve*. 18. *dolubriforme*. 19. *angulosum*. 20. *sphaerocarpon*? OÆS. 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* sublan-
ceolate, 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. *pygmaea*. 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 cirrrose, or once or twice ternate; flowers in the shrubs ramuline, in the herbs at the summit of an involucrate scape as in *Anemone*.

SPECIES. 1. *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, I 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 involucre 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; involucre 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 involucrem 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. Involucrem 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. *lanceifolia*. PH. Is this plant sufficiently distinct from the preceding? 4. *cuneifolia*. 5. *tenella*. PH. OBS. Root bulbous; scape 1-flowered, involucrem, 4 to 6 inches high. Leaves smooth, ternate, leaflets trifid, toothed. Involucrem 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. *pennsylvanica*. 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* caudate, 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. II. p. 361. No. 23. in the year 1808. *C. ficarioides*. **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, cucullate. *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 mult fid; flowers axillary but mostly terminal, yellow, rarely white.

SPECIES. 1. *R. Flammula*. 2. *Lingua*. 3. *pusillus*. 4. *fufiformis*. 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. *auricomus*. 10. *pygmaeus*. 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. *fluvialtilis*. 24. *variegatus*. 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 cylindrical, covered with an inconspicuous flocculent pubescence immersed in a gellatinous substance, which at first envelops 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 inoscuate 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 exerted.

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.** *Michx.*

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. *scrophulariaefolius.* 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 petio late, 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 exerted.

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 50 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

retroresely 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, funneliformly 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 bracts, 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 *Lanium*, 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 *Lanium*, *Calcepsis*, and *Calceobolon*.

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 funnelliform and attenuated downwards, at the orifice more than double the breadth of the calix; upper lip entire, arched 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, bracts 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. Oemler.

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 involucre 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, fastigate, 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 acuminate; 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 fastigate; leaves crowded, linear, sessile, very entire, longitudinally nerved, and acute; capituli terminal, hemispherical, compact, mostly simple; bractes imbricated, exterior ovate, and awned, margin ciliate-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 involu-
crum.—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.

12. 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 bi-bracteolate; 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 petiole, 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 subfastigiata. 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.

† 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 verticilli 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 carolinianus*. 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; embryo flat; radicle superior! cotyledones emarginate.)

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

421. VERBENA. L. (Vervain.)

Calix 5-cleft. *Corolla* funnelliform, 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 acuminate; 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 sessile, oblong-ovate, obtuse and serrate; spikes subcylindric, rigid. НАВ. 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 Casam 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* obsolete 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*. Ozs. 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 acuminate, 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.** *Mi-chaux.*

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.

† 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 exerted; 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 exerted, 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. *Siliqua* 2-celled. *Seeds* membranaceously alated.

Trees or climbing shrubs; leaves opposite, simple, conjugate, ternate, digitate, pinnate or decomposed, 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, carnosae, 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 carnosae 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 funnellform; style exerted; 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 absolutely 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 exerted 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 funnellform, longer than the primary peduncle. HAB. From North Carolina to Florida, where it was first detected by Dr. Baldwin. 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, carnosæ, subfasciculate, and alternate; flowering peduncles longer than the leaves, alternate, calix acutely toothed; corolla large, ventricose-campanulate. HAB In West Florida. Dr. Baldwin. 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*? Mehl 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 semiquinifid.)

11. *flava*. 12. *quercifolia*. PH. 13. *Pedicularia*. Leaves nearly smooth, oblong, and pinnatifid, segments uncinatæ, serratæ.—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 margined 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 exerted. **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 bipartite. 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 exerted; capsule pubescent. **HAB.** From North Carolina to Florida. Common. 3. *tenuifolia*. **PH.** Leaves smooth and pseudopinnate; segments filiform, divided; corolla nearly rotate; stamina exerted; 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 throughout 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. *granlandica*. 10. *verticillata*. 11. *flumnea*.

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. *alutus*. Nearly allied to the preceding. 3. *luteus*. 4. *Lewisii*. PII.

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. *Lyonii*. 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. levigatum*. 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. **crisatam*. **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 Tecton 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, bipartite. *Seeds* numerous, and small, surrounded with a membranaceous inflated vesicle.

† *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 trifold, 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 trifold; calix bifid, nearly equal with the corolla, segments retuse and emarginate. (*Bartsia coccinea*, L.) 2. * *grandiflora*. Perennial; leaves and uncoloured bractes mostly trifold, 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. Z. 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, exerted. 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 trifold 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 bluish, 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,

† 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 *lambda* of the Greek alphabet (λ). Style filiform, stigma simple, minute. Capsule elliptic ovate, obtuse, straight and pubescent, included within the calix, 2-celled, 2-valved, many-seeded, margins of the valves partly inflected; dissepiment transverse, or originating 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, embryo 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. **ORS.** 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 corolla 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 placentular 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 carnosé 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*. (Orobanché virginiana. L.) Equally indigenous to every part of North America.

Obs. Root tuberous and carnosé, 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 subpunculated calix. Flowers distant and alternate, destitute of proper bracts, 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 submarginate; the lower 3-toothed, flat, and acute, without any intermediate plants or palate, colour white, with dark but bright purple stripes. Stamina 4,

† 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. feruginea*.)

free, partly exerted; 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 embryo 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. Lawrence. 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. *remoralis*. **OBS.** Stem sparingly branched; radical leaves spatulate-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, acuminate 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 subrenately toothed, and so. * what 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 spatulate, 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 *Alysum*, without we consider with Persoon *Draba magellanica* as such.

453. CORONOPUS. Gartner. (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 Cæsalpinus, 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.—SILIKUOSA.

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.)

Siliqua 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. *pratensis*. 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.

"Siliques 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 lyrate 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.)

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

Leaves mostly pinnatifid, pseudopinnate, or compound; flowers axillary and solitary, but more commonly in simple or paniculated racemes. Siliques 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 S r 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 rounded, about 3-toothed, dentures unequal. Raceme terminal, petals very small, obovate, pale yellow and about the length of the calix. Silique linear-oblong, smooth, scarcely 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 aculeately 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. fulcata*. Mich. 7. *pendula*? Leaves sagittate oblong, amplexicaule, entire and smooth; silique apical, linear, pendulous. **HAB.** Near Fort Mandan on the banks of the Missouri. Stem nearly simple, spike very long. Calix and corolla erect. 8. *rhomboides*, *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. levigata*. 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 laminae 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*. Glaucescent and smooth; leaves thickish and undulated, interruptedly pinnatifid, lobes sub lanceolate, 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

† 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 lyrate-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, exerted 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 Buffalo creek, also along the margins of the Mississippi 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, monadèiphous, 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 succeeding 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 deletereous. 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! involucre (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 bracteolate, solitary and axillary, or terminal and racemose, raceme bracteate; flowers bilabiate, 5-cleft, upper lip cloven, segments linear, lower trifid, laciniae 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, carinose and lucid, margin obsolete 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 sub-aquatic, 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. *amæna*. 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 spatulate 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 exerted 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 involucre, the segments of which are entire or rarely dissected, the same involucre 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, semiquinquefid and densely tomentose. *Corolla* none. *Lepanthium* cylindric, 5-toothed, staminiferous. *Stigma* simple. capitate, pubescent. *Utriculus* 1-seeded, inclosed in the indurated muricate calix.

† 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. Utricle 1-seeded, ovate-lanceolate, compressed. Seed brown. **HAB.** On the banks of the Altamaha, Florida.—Baldwyn. This plant appears almost intermediately 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 spatulate 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. *Arilli* 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. *rhombofolia*. 4. *crispa*. 5. *Abutilon*. 6. *Napæa*. Peduncles distinctly articulated. 7. *dioica*. 8. *alcaoides*.

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? 3. *rotundifolia* Introduced. 4. *triloba*. In Carolina. 5. * *coccinea*. T. N. in Fras. Catal. 1813. A very beautiful species with scarlet flowers disposed in dense racemes;

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. HÆ. 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 exerted; theca trifid, nut marked with 3 converging lines. Embryon flat, inclosed in a car-nose 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 spontaneous 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 dye 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 triantheriferous 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*. Glaucescens. 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 Carolina. 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 racemously 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*. Pfl. 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 spatulate, 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 spatulate, 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 cylindrical 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 spatulate-obovate, cauline subequal, linear; calicine wings connivent,

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, spatulate-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. Baldwin called it *P. præalta*, 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. * *Baldwini*. Perennial? Stem tall, sparingly and virgately branched; flowers squarrosely capitulate, capituli corymbose, whitish; wings of the calix connivent, lanceolate, setaceously acuminate; radical leaves spatulate, obtuse, cauline sublanceolate, acute. **HAB.** Near St. Mary's in Florida.—Dr. Baldwin, 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. Baldwini*, 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. AMORPHIA. 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 acuminate. 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 5-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. *coralloidendron*. 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 rounded 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*. C. 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 *Orobis 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 *Orobis*.

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, exerted, 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 pseudopinnate; 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*. Michx. 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 source.

ces? v. v. Collected also in China by Sir G. Staunton. v. s. in Herb. Lambert. Ovs. 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. * *caespitosa*. 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 caudex, 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, exerted 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 inflexed. *Oxytropis argentata*. PIT. 2. p. 473. but neither the same plant, (which I have examined in Pallas's herbarium) nor the same genus.

7. *hypogittis*. On the low and level plains of the Missouri, commencing about the confluence of the river Sauke, and continuing upwards probably to the Mountains; flowering in May. It does not sensibly differ in any particular from the European plant. 8. *Luzmanni*. 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; legumina 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, carnosae, 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. *galeoides*. 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. 1815. 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, subsicund; calix villous; legume about 2 lines long, many-seeded, acuminate 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?* РН. 2. p. 474. *D. Jännæi*. Mich. flor. Am. 2. p. 57. t. 38. *Petalostemon alopecuroides*. РН. 2. p. 461. HAB. Common on the banks of the Mississippi 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. РН. 2. p. 140. Perennial; stem erect; spikes dense and cylindrical, 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*. РН. 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 Mississippi near the Prairie du Chien. Ozs. 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, subrotate 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 villos 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-sub-lanceolate, 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 pedunculata, 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, mucronate, 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. Baldwin. 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. *involutratum*.

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 uncinatæ. **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 subulæ. *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 sessile, 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 sessile, 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. * *Stilvei*. Erect and simple, softly and sericeously villos; leaflets elliptic-oval; spikes pedunculate, scarcely longer than the leaves; loment 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. Mühl. 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 loment 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. **levigatum*. 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. *strucum*. PH. Erect and smooth, stem simple, leaves ternate, sublinear, coraceous, and reticulately veined, stipules subulate; racemes axillary and terminally paniculate; loment 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. *glutiniosum*. *H. acuminatum*. Mich. 13. *nudiflorum*.

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. **borcale*. 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 150 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. levigatum*.

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, bracts 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. *Loment* exerted, 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 cylindrical.

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 Willdenow 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. *monica.* 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 supersede 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 received 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.

517. *WISTERIA. † GLYCINE. Willd.

Calix campanulate, bilabiate, obtuse at the

† 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 philanthropist 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. 63.

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 pedunculate spike or umbell.

SPECIES. 1 *T. americana*. Legume long and pedunculate, 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, sessile.

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, purple, 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 numerous 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. Baldwin. 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*. PR. 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, fastigiata 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 Salad 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. macrophyllum*. 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. *fusculatum*. 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
1. 2

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. *B. caroliniana*. *Leontodon carolinianum*. Walter. p. 192. *Scorzonera pinnatifida*. Mich. 2. p. 89. *Chondrilla levigata*. 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 *Aparigia 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. Baldwin. 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 spatulate-linear, nearly entire, smooth, or subciliate; scapes numerous, 1-flowered, very long. *Hyoseris?* *ramosissima*. W. P. C. Barton. Flor. Philad. Prodrromus. 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. *Hyoseris angustifolia*, Mich. 2. p. 87.

6. *amplexicaulis*. *Hyoseris amplexicaulis*. Mich. *H. Prenanthoides*, Willd. Glaucous; leaves oblong-ovate, radical ones subdentate, spatulate; scape subbifoliate, simple or bifid, branches 2 or 3 flowered; flowers long pedunculate, fastigate; 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 subundulate, 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 penciliate. 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. * *glaber*. Leaves sessile, pinnatifid, every where smooth, segments spiny, acute, lower ones subdecurrent; calix ovate, glabrous, scales spineless, shortly and setaceous 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. Suve, 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 involucre, 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 sewing 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. 503. 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. *spheroudea*. 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.

§ 11. *Flowers subtorymbose or fastigate; roots fibrous.*

14. *pauciflora*. 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 amplexicaute; 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. *helioidifolia*. Low and nearly smooth; stems aggregated; radical leaves spathulate-lanceolate, obtuse, 3-nerved, cauline sublinear; stem paniculately branched, branches subfastigate, 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 "*Pi-nette 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, 1)-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. *præalta*.

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. præalta*, 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. *fasciculata*. 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 acuminate. HAB. From South Carolina 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 *Liatriis*, 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 numerous 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. caelestinum*.)—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. paniculatum*. 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 *Astemisia*, but the calix and seeds of this genus, from which they appear inseparable. 3. *hissoifolium*, 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. *caelestinum*. 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 exerted. *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 fastigate 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, exerted. 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, subfastigate; calix 5-flowered, naked, 5-leaved, leaflets carinate. HAB. On shady hills near Natchez, on the banks of the Mississippi, 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. Baldwin. 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 territory. 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 setaceous 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

† (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 involucre 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, exerted. Style bifid, scarcely exerted; 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 Altamaha.—Dr. Baldwin.

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, exerted; 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 acuminate. 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; pedicels 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 cylindrical-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, cylindrical-ovate, and nearly smooth. **HAB.** Near the Prairie du Chien, on the banks of the Mississippi, 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 bitterness, 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 Mississippi, 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 lacinate, segments entire, oblong-lanceolate and acute.

6. * *cernua*. Stem herbaceous and much branched; radical leaves trifid, lower ones lacinated, 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 Mississippi 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.

§ II. *Leaves compound; stem paniculate.*

8. *Santonica*? PH. 9. *sericea*. Willd. Gmel. Sib. p. 151. t. 64. f. 1. *A. frigida*. PH. 2. p. 521. OBS. Stems low, many from the same root, diffuse, when flowering ascending, 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. Lawrence, 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, 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 fastigate, 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*. Pfl. 3. *bifrons*.

4. *pucnostachya*. "Black Root" of Georgia. Root tri-

berous, as large as a Potatoe. Leaves lanceolate, subdenticulate, decurrent on the stem, beneath tomentose; flowers in a sessile, cylindric, dense spike; florets all fertile, feminine few; seed pubescent; tube of anthers exerted. 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, scarious, 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. *plantaginicum*. 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.

§ I. *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 nudent; calix very hirsute. HAB. On the plains of the Missouri. Flowering in May. *E. hirsutum*. P. H. 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 subfastigiata. 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 axillary and terminal; calix hemispherical. HAB. In Georgia. May this be *E. carolinianum*? 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*. PII. 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

† From *κοινός*, 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 Mississippi; 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 fastigate, 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 spatulate-lanceolate, cauline cuneate-oblong, obtuse, with a point, lanuginous, in common with the whole plant, except the corolla; peduncles fastigate, 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; fastigate 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-

† 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; fastigiata peduncles and calix viscidly pubescent. β . *falcata*. *I. falcata*? 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; fastigiata 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, erect 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 fastigiata. 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. Baldwin. 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.

§ II. *Flowers not yellow.*

11. *linariifolia*. *Aster linariifolius*. Pappus double, seeds villous; flowers also corymbosely fastigiata, but blueish or violaceous! 12. *linifolia*. *Aster linifolius*. Stem corymbosely branched, scabrous; leaves linear; flowers white; exterior pappus obsolete? Nearly allied to *Aster pauciflorus*.

13. * *alba*. Leaves oblong-lanceolate, entire and scabrous, attenuated below; stem simple, ramuli nearly naked, 1-flowered, corymbosely fastigiata; 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 noveboracensis*, 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, fastigate, 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 carinose, 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, subfastigate, 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 fastigi-ated; 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 spatulate; branches few-flowered, flowers subfastigi-ate; calix imbricate, scales linear-lanceolate, setaceously mucronulate; radial florets about 20. **HAB.** On denuded 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, numerous 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, subfastigi-ate; 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 Mississippi 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 fastigiatae, 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. *aestivus*. 23. *novae angliae*, γ . *sperinus*, Persoon, is the natural aspect. Leaves lanceolate, amplexicaule, entire, auriculate at the base; stem pilose and paniculate; branchlets mostly 1-flowered, subfastigiatae; 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. *carolinianus*. 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, subfastigiatae; 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. carolinianus*, 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. 115. 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. *sarculosus*. 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 or 18 inches high. Root stoloniferous and creeping. Radical leaves spatulate, 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. *punicus*. 47. *floribundus*. 48. *novi belgii*. Scarcely distinct from the preceding. 49. *acuminatus*. 50. *dracunculoides*.

—Flowers paniculated.

51. *amplexicaulis*. 52. *adulterinus*. 53. *levigatus*. 54. *versicolor*. 55. *mutabilis*. 56. *lavis*. 57. *concinus*. 58. *bellidiflorus*. 59. *tardiflorus*. 60. *blandus*. 61. *Tradescanti*. 62. *recurvatus*. An extremely polymorphous and uncertain species; panicle erect or curved, divaricate. 63. *eminentis*. 64. *laxus*. Scarcely distinct from the preceding. 65. *simplex*. 66. *polyphyllus*. 67. *juncus*. 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 incompatible 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. *nemorialis*. 14. *patula*. 15. *ulmi-folia*. 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. *levigata*. OBS. Stem erect and smooth, about 6 feet high, summit virgate; leaves lanceolate, carnosae, every where smooth; racemes leafy, secund; peduncles filiform and squamose, smooth or pubescent, 1 to 3-flowered; calix multibracteate, scales carnosae, 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. *pauciflosculosa*. 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. Baldwin. —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 *Spiraea 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, spatulate-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 fastigiata, corymbose. *Calix* resinously 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 exerted. 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 exerted. 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.

† In allusion to the crowding of the flowers.

561. * BRACHYRIS. †

Calix cylindrical-ovate, closely imbricate, scales agglutinated. *Radial* florets about 5; discal florets also 5. *Receptacle* naked. *Pappus* short and paleaceous, leaflets 5 to 8, persistent.

Vegetation almost exactly similar to that of *Euthamia tenuifolia*.

B. *Euthamie*. *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, resinously 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, resinously punctate; flowers terminal, fastigiately. 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 fastigiately, few-flowered, ramuli 1-flowered. Radical leaves spatulate-obovate, obtuse, stem leaves oblong, acute, serrate, amplexicaule, smooth and reticulately veined, glandularly punctate.

† From βραχυσ, short, and ακυρεον, 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, Mississippi, 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*. 5. *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. SENECEO. 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. *Balsamita*. 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. 523. 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 carnosose, 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 thyrsoïdly spiked, mostly appearing before the leaves.

SPECIES. 1. *T. frigida*. 2. *sagittata*. Herb. Banks, mss. 3. *palmaia*. 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 involu-cell 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 Mississippi 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.

† 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.** *Gartner, 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, fastigate. *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. Gartner.**

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 laciniated, 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 mostly 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 Mississippi near New Orleans. **Obs.** Stem repent, somewhat pubescent. Leaves ovate, crenate, obsolete 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 acuminate 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*. Mayweed. 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. *Parnassica*. 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. levis.* **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 *Bupthalmum*?

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.—Diskal florets 4 and 5-toothed, externally viscid and glandular; anthers bise-tose, 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 styliiferous, 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. Diskal

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

† 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 *Galaridia*, 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.* ПН. 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, spatulate-linear, entire and smooth, radical ones ovate; pappus

† Dedicated as a just tribute of respect for the talents and industry of William Baldwin, 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 acuminate; 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 *Cortopsis*.

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. *leptiflorus*. 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-

† 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. *nullis*. 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 styliiferous. Scales of the receptacle acuminate; 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. *levigata*? PH. OBS. Leaves subcoriaceous, very smooth and lucid; radical spatulate-ovate, obtuse, those of the stem not acuminate; 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, spatulate-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 spatulate-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. *bipinna* a. Called Spanish Needles; the seeds being very troublesomely tenacious.

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 fastigate, 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*? \times . *C. aurea*, Aiton. 8. *auriculata*. 9. *tripteris*. 10. *senifolia*, 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. *temifolia*. 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. Baldwin. 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.

— † From *ακτις*, a ray, and *μερίς*, a part; the flower being imperfectly radiated.

594. **CENTAUREA. L.** (Knapweed, &c.)

Calix various. *Rays* funnellform, 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 cylindrical 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, aubcrenate, acute, sessile and scabrous; calix subciliate. 7. *pumilum*, β . *tomentosum*. *S. tomentosum*, P.H. Leaves alternate, cordate-ovate, crenate, obtuse, under side canescently villous; stem subtomentose; calix spreading; seeds naked. 8. *integrifolium* 9. *levigatum*. P.H. 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. virginianum. 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. GYMNSTYLES. 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.

† 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 caraceous, opposite and alternate; flowers spiked or paniculated, axillar and terminal.

SPECIES. 1. *I. ciliata*. 2. * *Xanthifolia*. Annual; leaves opposite, petiolate, cordate-ovate, acuminate, 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 involucre, 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 involucre, long pedunculate, terminal and subcorymbose or spiked.

SPECIES. 1. *E. carolinianus*. 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 involucre 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 trifold, 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 leafy, 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. Baldwin, 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 sessile. 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 acuminate; 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 calyx 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. I. 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. macrocerus*. 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 radican; 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* spatulate, 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 fastigiatae.

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, unguiculate 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 hienule* of Willdenow, (*Arethusa spicata* of Walter), but in this plant the anther is deciduous.

514. **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; bracts 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 hibernical vestiges; in these there is but a single ensiform radical leaf about 12 inches long, numerous 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*. *Cymbidium 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.

Oss. *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 auxiliary valves, closing internally upon the 4 masses of pollen, masses solid and parallel, neither granular nor pulverulent.

A plant somewhat allied to *Corallorhiza*, and to *Orchis abortiva*.

† 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. analth. p. 162. t. 434. f. 9. Andrews Rep. t. 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. analth. 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 congenetic 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.

† From the flower not being calcarate or produced at the base; *κ*, 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, cylindrical.

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. Magnoliae*, Muhl. Cat. 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 caespitose, simple, 2-leaved, $\frac{1}{2}$ 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. Sipo*. ("Dutchman's Pipe.") 2. *to-nentosa*. **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 Mississippi, 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 dichotomous 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.

626. 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 vert ciliate, numerous 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.

532. 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 exerted, pendulous.

SPECIES. 1. *Z. Mays*. Cultivated by the aborigines from time immemorial, probably indigenous to tropical America? 2. * *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.

533. 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, monopectalous, 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.

§ I. *Stigmas* mostly 2.

† *Spikes* dioicous.

SPECIES. 1. *C. scirpodea*. 2. *sterilis*.

†† *Spikes* androgynous.

— *Spike* 1, the summit masculine.

3. *cephalophora*. 4. *squarrosa*. β? *typhina*. Mich. 5. *Willdenovii*. 6. *polytrichoides*. *C. microstachya*. Mich. 7. *Fraseriana*. Bot. Mag. 1891. 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. *sparanioides*. 17. *divulsa*. 18. *rosea*. 19. *paniculata*.

— *Spikes* several, with the summits feminine.

20. *leporina*. 21. *scirpoides*. 22. *lugopodioides*. 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. *hirta*. 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. *reticulata*. 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. *conoides*. 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. Gærtner. (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.

35. **COMPTONIA.** *Gartner.* (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. *Cap-
sule* tricocous, 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. wens.* 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, cuneiform 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. *serotina*—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. uncta*. 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. BOEHMERIA. 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. *ditica*. These 2 last are merely naturalized. 4. *procera*. 5. *chamadricoides*, 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 involucre; stem erect. **HAB.** Near St. Mary's, West Florida.—Dr. Baldwin. 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; involucre 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.

Deciduous 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, cohering 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. *var.* 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 carnosæ, 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. Baldwin.

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. *Germes* 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.

† "Feather leaf," from *πτίλον*, a feather, and *φύλλον*, 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 germes.

SPECIES. 5. * *ambiguum*. Stem floating, dichotomous, leaves petiolate, pseudopinnate, the lowest capillary, emerging ones pectinate, uppermost nearly entire, subserate; anthers partly oblong. **HAB.** In the spring ponds of New Jersey, floating in extensive masses. *γ. 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 exerted; filaments minute; anthers somewhat oblong. Styles none. Stigmas 4, roundish and villous or pencilate. Fruit 4 coated, cylindric-oblong seeds, furnished with internal sutures, and attached to a minute setaceous axis.

β. * *linosum*. Stem rooting, erect; leaves rigid, partly entire, or divided above, mostly trid, 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. 351? Stem erect, 2 to 4 inches high, decumbent and radican, 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. *Germ*s many. *Capsules*? aggregated, 1-seeded, not opening.

Aquatic plants mostly producing sagittate leaves, occur

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. v. In Herb. Muhl. The whole plant is pubescent; but still apparently nothing more than a variety of *sagittifolia*. 5. *heterophylla*. 6. *lanceifolia*. *S. falcata*, PH. and β . *falcata*, Persoon, 2. p. 563. 7. *rigida*, PH. 8. *graminea*, Michx. *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 Linnaeus, whose synonym 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.

51. 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 puncture

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. *hemisphaerica*, 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. *Catechui*. 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. *pulustris*. (Swamp Spanish Oak.)—Lower branches de-

deflected and divaricate. 21. *ilicifolia*. Q. *Banisteri*, Mich. (Barren Oak, Scrubby Oak.)

§ II. 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*. (Overcup White Oak.) ν ν . On the drier alluvial lands of the Mississippi;—at Harper's Ferry in Virginia. Branches somewhat suberous, and rimose. 24. *oliveiformis*. (Mossy-cup Oak.) ν ν . With the above. 25. *lyrata*. (Overcup 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, obsolete 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 obsolete 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.

52. CORYLUS. L. (Hasel Nut-Tree.)

MASC. *Ament* imbricated. *Calix* the scales of ament. *Stamina* 8. FEM. *Calix* 2-parted, lacinate. *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. *Germes* 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.* (Chestnut.)

Polygamous.—MASC. *Ament* naked, linear. *Corolla* 5 or 6-parted. *Stamina* 10 to 20. FEM. *Calix* 5 or 6-leaved, muricate. *Germs* 3. *Stigma* penciliformed. *Nuts* 3, included in the echinated calix.

Large or small trees; leaves oblong-lanceolate, mucronately serrate; aments very long and axillary; nuts ferri-naceous.

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 exerted.—Female aments 2 to 3 together, many-flowered, thicker and shorter, fertile involucrium solitary, the 2 or 3 upper ones abortive; flowers conglomerated, ternate, involucrium of 3 bractes. Calix (or involucrium) 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 accidental 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.** *Calix* scales 3-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 involucre. *Calix* and *corolla* none. *Filaments* numerous. **FEM.** *Ament* globose, also surrounded with a 4-leaved involucre. *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 carnosé 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 calcarine, 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.

† *Karya*, the Walnut Tree. (The name which the Greeks applied to *Juglans regia*.)

Calix 4-cleft, superior. *Corolla* none. *Stylis* 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. oliviformis*. (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 acuminate. Stamina 4 to 6; anthers didymous, sessile, pilose and chartaceous, sometimes subtended by an inner calicine scale from the racemis. 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. 3. ** 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, exerted 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 involucre; 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. *peruana*. (Pig Nut). 8. *aquatica*. 9. *myrsiticæformis*.

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. Baldwin. 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; embryo cylindric, inverted, situated in the axis of a farinaceous perisperm. β . *atrorubens*. 4. *virginicum*.—Berry many-seeded.

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.

Anthems 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.

‡ Primary leaves solitary and sessile, destitute of sheaths, 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. *Corolla* none. *Anthers* 4, sessile. FEM. *Ament* strobilaceous. *Calix* peltate scales. *Corolla* none. *Germ*s 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 Mississippi, 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 large, 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, croted. *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.

S. ligustrina. **Obs.** Dioicous? spikes partly lateral and terminal; male flowers without involucrum; bractes 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; fla-

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) carnosé, 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. *Ipecacuanha*. 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 involucrem always variegated with white. v. v. On the banks of the Missouri near the Arikaree station. 13. *Lathyris*. 14. *corollata*. Dioicous! 15. *portulaccides*. 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 frequent in 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 Mississippi 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, ligulate, 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. arcuaria*? 12. *planifolia*. 13. *pedicellaris*. 14. *rosmuriniifolia*. 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 Mississippi, 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 Mississippi. 22. *lucida*. 23. *rigida*. (*S. cordata*, Mich.) 24. *cordata*. 25. *grisea*. 26. *petiolaris*. 27. *alba*. 28. *vittellina*. 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.

81. 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 axils 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. *Germ*s numerous, coalescing into a compound globose berry of many cells; cells 1-seeded. *Seed* obovate, compressed.

A small lactescent tree, producing wood similar to *Fus-tic*; 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, acuminate, 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 calcine 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. McMahon 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 Linsced, 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. (Mistletoe.)

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, sessile or spiked; berry often internally glutinous.

SPECIES. 1. *V. rubrum*. 2. *purpureum*. 3. *verticillatum*. *V. flavescens*, PH. *V. album*? Mull. 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 Cranberries. 4. *tomentosa*. Called Wild Olive. 5. *denticulata*.

A North American genus.

789. ZANTHOXYLUM. L. (Prickly Ash, Toothache 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. *tricapitum*. 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. cannubina*. 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 Mississippi and Missouri.



ORDER VI.—HEXANDRIA.

793. 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 sub lanceolate, 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 *aba?* PH. 7. *pubera*. Berries red; not white! 8. *Pseudo-China*. 9. *rotundifolia*. 10. *caduca*. 11. *laurifolia*. HAB. From Delaware to Florida. 12. *tumoides*. *S. panduratus*, PH. 13. *peduncularis*.—Female flower producing 6 inferile 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*

subturbinata, 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* turbinata, 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*. Michx. fil. *P. betulifolia*. PH 6. *grandidentata*. β **pendula*. Branches pendulous, as in the Weeping Ash ν ν . On the Alleghany ridge, Pennsylvania; rare. 7. *laevigata*. 8. *angusta*. ("Cotton-Tree") **HAB.** Principally on the alluvial banks of the the larger rivers of western America; on the banks of the Mississippi 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 *Eleagnus*; 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.

nose 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, bilid. 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 ranae*) 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 leaves 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!" O&S. 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*. PH. 1. p. 33. H&B. 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 Muséum*, 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.

11. 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-Bear 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. *Germ*s and styles 5 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*. PR.

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 *Cebutha* of Forskall are said to be esculent.

305. 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. *Germ*s 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.

806. 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 Mississippi 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.

807. 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 part 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.

308. EUISETUM. 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.

309. LYCOPIDIUM. 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. *sabinaefolium.* 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 decomposed, (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. (γ. v. Near Hyde's Town, New Jersey; near A'sion, Z. Collins, Esqr.)

The other species of this genus are indigenous to the West Indies.

314. 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 Edly 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.

315. OSMUNDA. *L.* (Flowering Fern.)

Capsules subglobose, pedicellate, striate, semi-bivalvular 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.

316. 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. uvreum*. HAB. In Florida.

317. 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. *asplenoides*. 15. *Filix femina*. 16. *angustum*. 17. *punctilobum*. 18. *atomarium*. 19. *tenuis*. 20. *rufidulum*.

320. ONOCLERA. *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. *ebencum*. 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.* PH.

828. **ADIANTUM.** *L.*

Sori oblong or roundish. *Indusia* membranaceous, arising from the margin of the frond 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. *I. 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-axillary; utriculi, globose-ovate, axillary; 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 Mississippi 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 Flinders's voyage, appears to have ascertained, that the supposed capsule [of this genus is in fact a true sorus.

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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 obsolete 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 exerted;" read, *Style* exerted.
- p. 114. No. 171. *Batschia longiflora* is *Lithospermum angustifolium* of Herb. Muil.
- 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, disseminents marginal.
- p. 289. for "513. 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 base; attachment of the petiole; clusters proximate; calix 3-parted, not succulent or fleshy; seed lenticular, vertical, brown and rounded by a single minute style.

p. 9. **LINDERNIA**. add 3. * *monticola*. Stem scabrous; dichotomous; radical leaves spatulate, cauline linear, distant 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 sublanate, acute at each extremity, entire; pedicells setaceous 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* subcylindrical, striated.

C. minima. Journal Acad. Philad. 1. p. 117. t. 6. f. 1. *Pepils americana*, PH. 1. p. 238, and Herb. Muhl.

p. 37. **ERIOPHORUM**, * *tenellum*. Culm slender and triangular, leafy; spikes pedunculate, nutant, scarcely longer than the involucre; 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. **URALEPSIS** *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 profusca* in Muhlenberg's Grasses, p. 86. but perfectly distinct from that of Walter and Elliott. **OBS.**

ADDITIONS.

Culm erect and mostly simple, numerouslly 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. **TILLEA**, * *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. **MYOSORIS**, * *verna*. Small and hirsute; stem simple; radical leaves spatulate-oblong, cauline linear-oblong, obtuse; spikes simple; flowers subsessile; seeds smooth and shining. **HAB.** In sandy woods and way-sides, New Jer-

ADDITIONS.

sey, &c. Flowering in May. Flowers small and white.
Lycopsis virginica? Ph.

- p. 164. *Cynanchum angustifolium* is the *Jyonia maritima* of Mr. Elliott; but is it sufficiently distinct from this genus?
- p. 167. *Asclepias longifolia* and perhaps also *A. viridiflora*, Ph. 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. *Ænanthe*;—the American species accord precisely with *Phelandrium* and ought with that species to form a distinct section in the genus. *Æ. filiformis* of Walter now described by Mr. Elliott, p. 354, producing both a general and partial involucre, can scarcely appertain to *Ænanthe*.
- 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*.

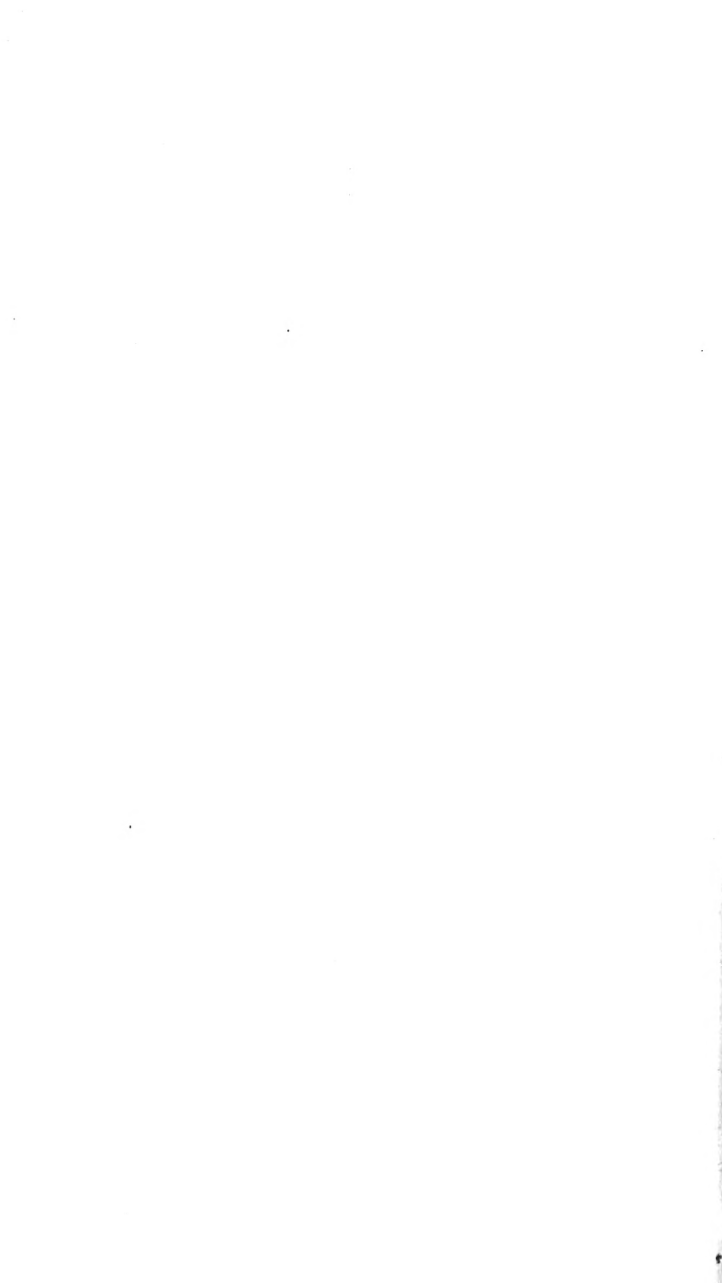
- p. 270. after No. 386, add SCHWEINITZIA. *Elliott*.—*Calix* 5-leaved, leaflets concave, equal with the corolla. *Corolla* monopetalous, campanulate, border 5-cleft. A 5-cleft *nectarium* at the base of the corolla. *Anthers* adnate to the filaments, 1-celled, opening from the inverted base by 2 naked 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* **leucophaea*, appears to be *B. bracteolata*, of Elliott, p. 469. published since the printing of this article.

VOL. II.—p. 43. LINDERNIA *tennifolia*, cultivated by Dr. Ives, germinates with 2 filiformly linear cotyledones. *v. s.* with Z. Collins, csqr.



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